Time: 3 hrs.   Max Marks:50
                                                                                               No. of pages:1

Note: Attempt FIVE questions in all;Q.1 is compulsory. Attempt any TWO questions from Part A and TWO questions from Part B. Each question carries equal marks.

Q.1   Provide a suitable word:
  a) The process by which the receiver confirms the message and comprehends the intent of the sender in called _____?
  b) Clarity of purpose and specificity of message lead to concreteness in communication. (TRUE/FALSE)
  c) The best form of listening is a combination of _____ and _____ listening.
  d) Too many voice inflections can _____ the audience.
  e) _____ and _____ are the stepping stones of projection of assertiveness.
  f) Volleying back and forth of ideas without listening to the ideas of other members of the team can make the discussion _____.
  g) _____ is normally a preliminary process of selection of candidates checking their leadership qualities, analytical skills, conviction flexibility.
  h) An assertive person knows how to shoulder both blame and praise.(TRUE/FALSE)
  i) Flash drivesand pen drives are examples of _____.
  j) Full form of www is _____.   1×10

PART-A

Q.2   a) How can you check your information for completeness?   5
      b) "Without feedback communication is incomplete". Discuss.   5

Q.3   a) What is the importance of listening in the communication process? Explain.   5
      b) What are the six great helpers to make a great and mind-tickling presentation?   5

Q.4   What strategies will you adopt to project an assertive stand? Discuss by giving examples at each level.   10

PART-B

Q.5   Why are group discussions conducted? What are the different qualities that are looked for in GDs?   10

Q.6   a) Write a report on "Spreading Awareness of the role of Army in India".   5
      b) Write a letter to principle appreciating the teaching staff, style and infrastructure. Also, add your valuable suggestions to make the college best in India.   5

Q.7   a) What do you mean by visual communication? What are its advantages?   5
      b) How is internet acting as a boon and a bane for the young generations?   5

                                                                                          P.T.O.

End Semester Examination, Dec. 2016

B.Sc. (Information Technology)—First Semester
FUNDAMENTALS OF COMPUTER PROGRAMMING(7.103)

Time: 3 hrs.   Max Marks: 75

No. of pages: 1

Note: Attempt FIVE questions in all; Q.1 is compulsory. Attempt ANYTWO questions from PART-A and TWO questions from PART-B. Each question carries equal marks.

Q.1 a) Incorrect spelling is a _____ type of error.
   b) For loop is close with _____ statement.
   c) Zero index of an array is known as _____ address.
   d) Try.... Catch block is used to handle _____.
   e) SDLC stands for _____.
   f) Properties of a control can be changed by _____ window.
   g) Static binding is also known as _____.
   h) To run a program in C# _____ key is used.
   i) Start and stop is mandatory in _____.
   j) Pseucode is written in _____ like language.   1½×10

PART-A

Q.2 What do you mean by a flow chart? Explain different types of symbols used in a flow chart.   15

Q.3 Explain history of computer languages in detail.   15

Q.4 Give any seven in-built string functions with an example of each.   15

PART-B

Q.5 What do you mean by error handling? Explain the mechanism used in C# to handle error in detail.   15

Q.6 Differentiate between following:
   a) If statement and select case statement.
   b) Loop and for... each loop.   7½×2

Q.7 Write a program to calculate the electricity bill as per the following criteria:

Units	Per unit bill	Surcharge
Less than 50	1/-	50/-
51-100	1.50/-	100/-
101-200	2.50/-	150/-
201-400	3.00/-	200/-
Above 400	3.50/-	250/-

Bill should be calculated by adding the surcharge.   15

End Semester Examination, Dec. 2016
B. Sc. (Information Technology)—Second Semester
DATABASE ENGINEERING - I(7.104)

Time: 3 hrs.

Max Marks: 50

No. of pages: 1

Note: Attempt FIVE questions in all; Q.1 is compulsory. Attempt ANYTWO questions from PART-A and TWO questions from PART-B. Each question carries equal marks.

Q.1   Write short notes on any two of the following:
  a) Database system vs File system.
  b) Three layer architecture of DBMS.
  c) Data independence.
  d) Data definition language (DDL).
  e) ER Diagram.   2×5

PART-A

Q.2   Explain the advantages and disadvantages of a network model over hierarchical model. 10

Q.3   Explain Boyce CoddNormal Form (BCNF) in detail with the help of an example.   10

Q.4   List all the Codd's rules.   10

PART-B

Q.5   What do you mean by join in SQL? Explain the types of joins available in Oracle.   10

Q.6   List five inbuilt functions available in Oracle with proper syntax and examples.   10

Q.7   Explain the two applications of business intelligent tools in today's IT industry.   10

End Semester Examination, Dec. 2016
B. Sc. (Information Technology)- Second Semester
COMPUTER NETWORKS-I (7.105)

Time: 3 hrs

Max Marks: 50

No. of pages: 1

Note: AttemptFIVEquestions in all; Q.1 is compulsory. Attempt anyTWOquestions from Part A and TWO questions from Part B. All questions carry equal marks.

Q.1 a) How gateway is different from routers?
    b) What are the different functions of data link layer?
    c) How throughput is different from bandwidth of a network?
    d) What is encryption and decryption?
    e) What is virtual path and virtual circuit?   2x5

PART-A

Q.2 a) Why there is a need of network standardization? Explain it with the help of an example.   5
    b) What are different internet technologies in current scenario?   5

Q.3 How does switched network works? Explain different networks switching types with the help of examples.   10

Q.4 What is ATM? Explain its layered architecture and frame format in detail.   10

PART-B

Q.5 Why there is a need of network security? How can security be implemented in computer networks? Also discuss advance network security in detail.   10

Q.6 a) What are the performance issues involved in transferring data from one computer to another?   5
    b) Explain different application layer protocols in brief.   5

Q.7 Write short notes on:
    a) Firewall.
    b) IPV4 v/s IPV6.   5x2

End Semester Examination, Dec. 2016
B.Sc. (Information Technology)– First Semester
BUSINESS ENVIRONMENT (7.106)

Time: 3 hrs.   Max Marks:50

No. of pages:1

Note: Attempt FIVE questions in all;Q.1 is compulsory. Attempt any TWO questions from Part A and TWO questions from Part B. Each question carries equal marks.

Q.1   Answer the following(any two):
   a) What is an NGO? Discuss its role in a society.
   b) What is CSR?
   c) What are the benefits of competition for consumers? Give two examples where prices have been reduced because of competition.   5×2

PART-A

Q.2   Justify the role of business in society. Discuss the case study of "Reliance-Jio" offer keeping in mind the below given factors:
   a) Impact on competitors.
   b) How it will help in digital India campaign?   5×2

Q.3   Explain the role of supply chain management in success of any organization. Give relevant examples.   10

Q.4   What do you mean by Mega Environment? Explain the different components of Mega Environment in detail.   10

PART-B

Q.5   List five indicators of economy of any country.Define them by giving examples.   10

Q.6   "There are any ways to enter a foreign business market". Explain joint ventures and franchising in this context.   10

Q.7   What are the different sources of revenue for the government? Explain the direct tax and indirect taxes in detail.   10

End Semester Examination, Dec. 2016
B.Sc. (Information Technology)– FirstSemester
MATHEMATICS FOR COMPUTING(7.107)

Time: 3 hrs.   Max Marks:50
                                                                             No. of pages:2

Note: Attempt FIVE questions in all;Q.1 is compulsory. Attempt any TWO questions from Part A and TWO questions from Part B. Each question carries equal marks.

Q.1 a) What are equivalent sets?
     b) What is a lower triangular matrix?
     c) Define an undirected graph.
     d) Define a binary tree.
     e) What do you mean by difference to two sets? 2×5

PART-A

Q.2 Let (Q) be the set of all rational numbers. Show that the function $f:Q\rightarrow Q; f(n)=3x+5$ for all $x\in Q$ is one-one onto. Also, find A^{-1}.   10

Q.3 If $\cup = \{5, 6, 7, 8, 9, 10, 11, 12, 13, 14\}$

$A = \{6, 7, 8, 9\}$, $B = \{11, 12, 13\}$

$C = \{8, 9, 10, 11, 12\}$, $D = \{10, 11, 12\}$

Find the following:

a) $(B-C)$

b) $(A-D)\cap(B\cap D)$

c) $(B-A)\cup(B\cap A)\cup D'$

d) $(A'\cup D')\cup(C')$

e) $(A\cup B)\cup(B\cup C)$ 2×5

Q.4 Find the adjoint of the following matrix:

$$A = \begin{bmatrix} 1 & 1 & 3 \\ 1 & 3 & -3 \\ -2 & -4 & -4 \end{bmatrix}$$ 10

PART-B

Q.5 Find mean, mode and standard deviationfor the following data:

Class Interval	Frequency
21 – 25	5
26 – 30	15
31 – 35	28
36 – 40	42
41 – 45	15
46 – 50	12
51 – 55	3

   10

Q.6 A candidate is selected for interview Tof management trainees for 3 companies. For the first company there are 12 candidates. For the second there are 15 candidates and for the third there are (10) candidates. What are the chances of his getting job at least at one of the company?   10

Q.7　Define the following terms:
　　a)　i)　Incidence Matrix.
　　　　ii)　Undirected Graph.
　　　　iii)　Complete Tree.　　　　　　　　　　　　　　　　　　2×3
　　b)　Draw all possible spanning trees of the graph given below:
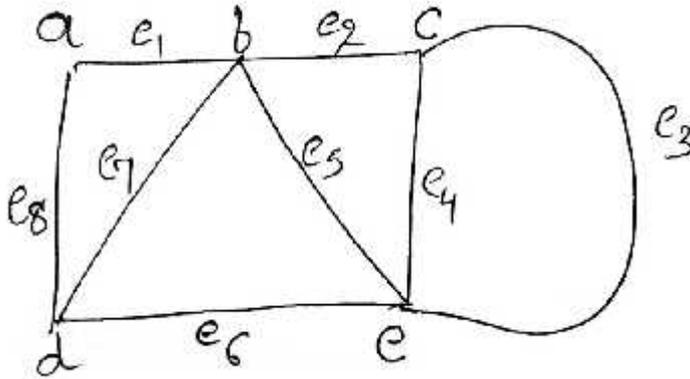
2×2

End Semester Examination, Dec. 2016
B. Sc. (Information Technology) – ThirdSemester
SYSTEM ANALYSIS AND DESIGN (7.201)

Time: 3 hrs   Max Marks:40

No. of pages:1

Note: Attempt FIVE questions in all;Q.1 is compulsory. Attempt any TWO questions from Part A and TWO questions from Part B. Each question carries equal marks.

Q.1   Write short notes on the following (any two):
       a) User interface.
       b) System and its characteristics.
       c) Structural modeling.   4×2

PART-A

Q.2   What is a system development life cycle? How does it relate to a system analysis? Explain all phases of SDLC in detail.   8

Q.3.   What do you mean by 'DFD'? What are the basic rules relevant to construct a DFD? Explain with the help of an example.   8

Q.4   Differentiate between:
       a) SAD and SSAD.   4
       b) Analysis modeling and behavioural modeling.   4

PART-B

Q.5   What are the different tools for system flow chart? Explain decision table in detail.   8

Q.6.   What do you mean by an 'application design'? Discuss all phases for designing an application.   8

Q.7   Compare the following:
       a) Decision table and decision tree.
       b) Dynamic modeling and structural modeling.   4×2

End Semester Examination, Dec. 2016
B. Sc. (Information Technology)- Second Semester
SYSTEMS TESTING (7.202)

Time: 3 hrs   Max Marks: 40

No. of pages: 1

Note: AttemptFIVEquestions in all; Q.1 is compulsory. Attempt anyTWOquestions from Part-A and TWO questions from Part-B. All questions carry equal marks.

Q.1   Write short notes on(any two):
   a) What is regression testing?
   b) What is STEP methodology?
   c) Why we cannot perform 100% software testing?   4x2

PART-A

Q.2   Give any eight examples of software failures where it has resulted into heavy loss ofmoney or human life.   8

Q.3   Define the structures of software test organization with diagram. Also explain theirroles.
   8

Q.4   Name any two types of black-box testing and explain them in brief.   8

PART-B

Q.5   a) List any four benefits of automated software testing.   4
   b) List any four disadvantages of manual software testing.   4

Q.6   Explain all the five stages of CMM model.   8

Q.7   Name four most widely used software testing automated tools and also give their uses in brief.   8

End Semester Examination, Dec. 2016
B.Sc. (Information Technology)– ThirdSemester
COMPUTER ALGORITHMS AND DISCRETE MATHEMATICS(7.203)

Time: 3 hrs.   Max Marks:60

                                                                 No. of pages:1

Note: Attempt FIVE questions in all;Q.1 is compulsory. Attempt any TWO questions from Part A and TWO questions from Part B. Each question carries equal marks.

Q.1 a) Differentiate between following:
         i)   Data vsinformation.
         ii) Sorting vssearching.
         iii) Algorithm vsflowchart. 2×3
     b) What do you mean by a function?   2
     c) What do you mean by a graph?   2
     d) What is recursion?   2

PART-A

Q.2 What do you mean by a data structure? What are various types of data structures? Explain them in detail.   12

Q.3 What do you mean by an algorithm? How can one measure the efficiency of an algorithm? How flowcharts are better than algorithms?   12

Q.4 a) What do you mean by a set? What are various operations one can perform on set?   6
     b) What are various types of functions?   6

PART-B

Q.5 Convert the following:
     a) $(1010101)_2 = (?)_{10}$
     b) $(758)_{10} = (?)_8$
     c) $(AB2)_{16} = (?)_{10}$
     d) $(65)_8 = (?)_2$
     e) $(678)_{10} = (?)_{16}$
     f) $(1234)_8 = (?)_{10}$ 2×6

Q.6 a) What do you mean by probability? Explain with the help of an example.   7
     b) In a single throw of two distinct dice, what is the probability of obtaining?
         i)   A total of 7.
         ii) A total of 13. $2\frac{1}{2} \times 2$

Q.7 a) Construct the tree using following data:

         In-order   E   A   C   K   F   H   D   B   G
         Pre-order   F   A   E   K   C   D   H   G   B

                                                                          8

     b) Create the Binary Search tree with following node:
             16   10   8   17   19   25   27   45   4

End Semester Examination, Dec. 2016
B.Sc. (IT)– ThirdSemester
OBJECT ORIENTED PROGRAMMING(7.205)

Time: 3 hrs.   Max Marks:50

No. of pages:1

Note: Attempt FIVE questions in all;Q.1 is compulsory. Attempt any TWO questions from Part A and TWO questions from Part B. Each question carries equal marks.

Q.1   Write short notes on (any two):
    a)   Objects.
    b)   Polymorphism.
    c)   Inheritance.   5×2

PART-A

Q.2   a)   Differentiate between 'procedural paradigm' and 'object oriented paradigm'.   5
    b)   Explain how to declare a class with a method and instantiating an object of a class.   5

Q.3   What are constructors and destructors? Explain how they are different from normal functions.   10

Q.4   a)   What are static methods? Give an example.   5
    b)   What is method overloading? Explain with the help of a program.   5

PART-B

Q.5   What is visibility mode? What are different visibility modes supported by C++?   10

Q.6   What is base class and derived class? Write a program to exhibit single inheritance in C++.   10

Q.7   Explain exception handling and give an example to show divide by zero without exception handling.What is finally block?   10

End Semester Examination, Dec. 2016
B.Sc. (Information Technology)—Fourth Semester
DESKTOP APPLICATIONS DEVELOPMENT(7.206)

Time: 3 hrs.   Max Marks: 50

No. of pages: 1

Note: Attempt FIVE questions in all; Q.1 is compulsory. Attempt ANYTWO questions from PART-A and TWO questions from PART-B. Each question carries equal marks.

Q.1   Write short notes on the following (any two):
   a) Properties windows.
   b) Procedures in VB.net.
   c) Call-by-value and call-by-reference.
   d) Data Time Picker.   5×2

PART-A

Q.2   What are the different data types in VB .Net? Explain the usage of each data type in context to VB .Net programming.   10

Q.3   Differentiate between the following:
   a) If-else and switch case.
   b) For-loop and do-while-loop.   5×2

Q.4   What is ADO .Net? What are the different features and components of ADO .Net in context to database connectivity in VB .Net?   10

PART-B

Q.5   Explain the difference between data abstraction and encapsulation in object oriented programing system. How are these features implemented in VB .Net program?   10

Q.6   How is data access layer implemented in windows application? What are the different steps for implementing it?   10

Q.7   What is a windows form? What are the different types of forms in VB .Net? Explain the use of each form in detail.   10

End Semester Examination, Dec. 2016
B.Sc. (Information Technology)—Fourth Semester
INFORMATION SYSTEM SECURITY(7.209)

Time: 3 hrs.　　　　　　　　　　　　　　　　　　　Max Marks:　40
　　　　　　　　　　　　　　　　　　　　　　　　No. of pages:　1

Note: Attempt FIVE questions in all; Q.1 is compulsory. Attempt ANYTWO questions from PART-A and TWO questions from PART-B. Each question carries equal marks.

Q.1　a) Write full form of ISSP and VIRUS.
　　　b) Distinguish between DOS and DDOS.
　　　c) What is residual risk?
　　　d) What is deterrence?　　　　　　　　　　　　　　　　　2×4

PART-A

Q.2　Identify the six components of an information system. Which are most directly affected by the study of computer security? Illustrate with an example.　　　8

Q.3　Why is top down approach to information security is superior to the bottom up approach?　　　8

Q.4　Explain the relevant laws in information security in detail.　　　8

PART-B

Q.5　Describe the structure of firewall architecture.　　　8

Q.6　What do you understand by remote connection? What are various methods for protecting remote connections? Explain them.　　　8

Q.7　Describe the bull's-eye model. What does it say about policy in the information security program?　　　8

End Semester Examination, Dec. 2016
B.Sc. (Information Technology)—Third Semester
DATABASE ENGINEERING-II(7.214)

Time: 3 hrs.

Max Marks: 60

No. of pages: 1

Note: Attempt FIVE questions in all; Q.1 is compulsory. Attempt ANYTWO questions from PART-A and TWO questions from PART-B. Each question carries equal marks.

Q.1 Answer the following(ANY TWO):
- a) Differentiate between 'SQL' and 'PL / SQL'.
- b) Define DDL, DML and DCL with suitable examples.
- c) Differentiate between 'primary key' and 'unique key'.
- d) What do you mean by deadlock prevention? Discuss. 3×4

PART-A

Q.2 Explain the following terms:
- a) Types of attributes.
- b) Data types in SQL.
- c) Data independence.   12

Q.3 What do you understand by joins in RDBMS?What is its use? Explain with an example.   12

Q.4 Explain the following SQL commands with their syntax and suitable examples:
- a) Create.
- b) Update.
- c) Alter.
- d) Order by.
- e) Select
- f) Drop.   10

PART-B

Q.5 a) What do you mean by PL / SQL? Explain its architecture in detail.   7
   b) Explain the advantages of PL / SQL over SQL in brief.   5

Q.6 What do you mean by concurrency? What types of problems occur during concurrency?Explain and also discuss shared and exclusive locks with examples.   12

Q.7 a) What do you mean by cursor? Discuss its importance and its types in detail.   7
   b) Write a PL / SQL code to check whether the number is even or odd.   5

End Semester Examination, Dec. 2016
B. Sc. (Information Technology)- Second Semester
REQUIREMENT MODELLING (7.217)

Time: 3 hrs

Max Marks: 40

No. of pages: 1

Note: AttemptFIVEquestions in all; Q.1 is compulsory. Attempt anyTWOquestions from Part A and TWO questions from Part B. All questions carry equal marks.

Q.1 Discuss(any two):
   a) Business problem.
   b) Iterative development.
   c) Requirement process. 4x2

PART-A

Q.2 Under what circumstances prototype model is used? Discuss its merits and demerits in detail. 8

Q.3 How will you evaluate the feasibility of a system? Discuss in detail. 8

Q.4 What do you understand by requirement classification? How will you perform it? 8

PART-B

Q.5 Draw a use case diagram of student examination system. 8

Q.6 What do you understand by a business strategy? What are the scenarios for understanding a real problem? 8

Q.7 Discuss in detail the business requirement for iterative development. 8

End Semester Examination, Dec. 2016
B.Sc. (Information Technology)—Fourth Semester
OPERATING SYSTEM(7.221)

Time: 3 hrs.   Max Marks: 40
                                                        No. of pages: 2

Note: Attempt FIVE questions in all; Q.1 is compulsory. Attempt ANYTWO questions from PART-A and TWO questions from PART-B. Each question carries equal marks.

Q.1   a) A page fault _____.
           i)   is an error for specific page.
           ii)   is an access to a page not currently in memory.
           iii) is a reference to a page belonging to another program.
           iv)   None of the above.
       b) Give two examples of application software.
       c) To avoid the race condition, the number of processes that may be simultaneously inside the critical section is:
           i)   8   ii) 1   iii) 16   iv) 0
       d) Why low priority process suffered from starvation in priority scheduling algorithm?
       e) Bankers algorithm for resource allocation deals with _____.
       f) FAT stands for _____.
       g) In which of the storage, placement strategies a program is placed in the smallest available hole in memory:
           i)   Best fit.   ii) First fit.   iii) Worst fit.   iv) buddy.
       h) All the time a computer is switched on; its operating system software has to stay in:
           i)   Main storage.
           ii)   Primary storage.
           iii) Floppy disk.
           iv)   Disk drive.   1×8

PART-A

Q.2   a) Consider the following set of processes, with the length of the CPU burst time given in millisecond.

Process	Burst time	Priority
P_1	10	3
P_2	1	1
P_3	2	3
P_4	1	4
P_5	5	2

The processes are assumed to have arrived in the order P_1, P_2, P_3, P_4, P_5 at a time 0. Draw four Gantt chart illustrating the execution of these process using FCFS, SJF, Priority and RR (quantum = 1) scheduling and also calculate average waiting time for each scheduling.   4
       b) What are the steps that can be performed to recover from deadlock?   4

Q.3   a) What is process? Draw and explain process state diagram.   4
       b) Write short notes on:
           i)   Timesharing system.
           ii)   Multiprogramming.   2×2

Q.4   a) What is critical section? What are the three necessary requirements that the solution of critical section problem must satisfy?   4

        b) What is thread? Explain all multithreading models that can be supported by different operating system.   4

PART-B

Q.5   a) Consider the following page reference string:
          1, 2, 3, 4, 2, 1, 5, 6, 2, 1, 2, 3, 7, 6, 3, 2, 1, 2, 3, 6
          How many page faults would occur for the following replacement algorithms?
          LRU replacement
          FIFO replacement.
          Optimal replacement.
          Assume frame size is four.   3

        b) What is demand paging? Write down the steps to handle a page fault.   5

Q.6   Explain the following:
        a) Segmentation.
        b) Paging with TLB. 4×2

Q.7   a) What is disk scheduling? Explain the different type of disk scheduling with suitable example.   5

        b) Explain contiguous allocation method in file system.   3

End Semester Examination, Dec. 2016
B.Sc. (Information Technology)– FourthSemester
WEB APPLICATIONS DEVELOPMENT (7.303)

Time: 3 hrs.   Max Marks:50

No. of pages:1

Note: Attempt FIVE questions in all;Q.1 is compulsory. Attempt any TWO questions from Part A and TWO questions from Part B. Each question carries equal marks.

Q.1   Write short note on:
    a)   Asp.Net programming.
    b)   Cascading style sheets. 5×2

PART-A

Q.2   Explain compare and custom validator in Asp.Net using suitable examples.   10

Q.3   Explain create, insert, delete, alter,drop and update commands using suitable examples in MySQL.   10

Q.4   a)   What are links in HTML? Differentiate between internal and external links.   5
    b)   How can images be created in HTML? Explain by using the attributes.   5

PART-B

Q.5   Explain how calendar is inserted in Asp.Net using different attributes.   10

Q.6   Describe the three-tier architecture of Asp.Net.   10

Q.7   Explain the following:
    a)   Check box in Asp.Net   4
    b)   List box in Asp.Net.   4
    c)   Grid view control in Asp.Net.   2

End Semester Examination, Dec. 2016
B. Sc. (Information Technology)—First Semester
THE INFORMATION TECHNOLOGY SYSTEM(7.101)

Note: Attempt FIVE questions in all; Q.1 is compulsory. Attempt anyTWO questions from PART-A and TWO questions from PART-B. Each question carries equal marks.

Q.1   Answer the following:
   a) Which web browser is developed by Google?
      i)   I.E.   ii)   Firefox.
      iii) Safari.   iv)   Chrome.
   b) Total no. of pins in a traditional parallel port:
      i)   5   ii)   14
      iii) 25   iv)   27
   c) The GUI means:
      i)   General user interaction.   ii)   Graphical user interface.
      iii) Guided user interface.   iv)   General user interface.
   d) Which one of is the default extension of 2007 office word document?
      i)   .doc   ii)   .docx
      iii) .xls   iv)   .pdf
   e) Which one is not a part of a computer system?
      i)   Motherboard.   ii)   CPU.
      iii) Keyboard.   iv)   Scanner.
   f) Who is known as father of Internet?
      i)   Alan Perlis.   ii)   Jean E-sammet.
      iii) Vint Cerf.   iv)   Jim Berness lee.
   g) Which one is the current fastest supercomputer in India?
      i)   PARAM PADMA.   ii)   SAGA-220.
      iii) PARAM YUVA-II.   iv)   EKA.
   h) Which one is volatile memory in a computer system?
      i)   Hard disk.   ii)   RAM.
      iii) ROM.   iv)   Optical drive.
   i) First computer virus is known as:
      i)   Rabbit.   ii)   Creeper virus.
      iii) Elk cloner.   iv)   SCA virus.
   j) Firewall in computer is used for:
      i)   Security.   ii)   Data transmission.
      iii) Authentication.   iv)   Monitoring. $1\frac{1}{2} \times 10$

PART-A

Q.2   The hardware alone can't perform any particular calculation or manipulation without being instructed exactly. What are these instructions known as? Define and give their classifications too.   15

Q.3 a) What are the basic trouble shooting techniques you use when system doesn't work/start up? 6

b) In what ways internet can help public service agencies to improve their services to the public? Justify your answer. 9

Q.4 a) Write short notes on:
i) Virus and worms.
ii) Peer-to-peer networking. 5×2

b) Emerging technologies in mobile computing. 5

PART-B

Q.5 a) How header and footer can be inserted into a document? Explain its steps. 7

b) What is mail merge? Explain step-by-step process to perfume mail merge with a suitable example. 8

Q.6 a) What is relative and absolute cell addressing? 5

b) How do charts and graphs help in analyzing data? 5

c) What are formulas and functions in MS-Excel? Give examples. 5

Q.7 a) Discuss various methods of applying slide animation and custom animation in a power point presentation. 10

b) How to place a query on a table in MS-Access? 5

End Semester Examination, Dec. 2016
B. Sc. (Information Technology)- Sixth Semester
MOBILE COMMUNICATION (369.606)

Time: 3 hrs

Max Marks: 50

No. of pages: 1

Note: AttemptFIVEquestions in all; Q.1 is compulsory. Attempt anyTWOquestions from Part A and TWO questions from Part B. All questions carry equal marks.

Q.1   Write a short note on:
    a) Cellular networks.
    b) Mobile IP.

5x2

PART-A

Q.2   Differentiate GSM and GPRS. Explain the architecture of GPRS in detail.   10

Q.3   What are different medium access methods compare them using suitable examples.
    10

Q.4   Explain the process of mobile IP in detail.   10

PART-B

Q.5   Differentiate adhoc and infrastructural networks using suitable examples.   10

Q.6   What is kernel? Explain its features. Explain the process of memory management in detail.   10

Q.7   Write a short note on:
    a) Palm OS.
    b) Wireless markup language.   10

End Semester Examination, Dec. 2016
B. Sc. (Information Technology)- Sixth Semester
PROGRAMMING WITH JAVA (369.607)

Time: 3 hrs

Max Marks: 50

No. of pages: 1

Note: AttemptFIVEquestions in all; Q.1 is compulsory. Attempt anyTWOquestions from Part A and TWO questions from Part B. All questions carry equal marks.

Q.1 Answer the following any two:
   a) Use of super keyword.
   b) Contribution of java to the world wide web.
   c) java is free-form language comment.
   d) structure of java program.
   e) significance of this keyboard.   5x2

PART-A

Q.2 a) Explain all features of java in detail.   6
   b) What is array? How do we declare array in java without specifying size? 4

Q.3 a) What is constructor? Explain the purpose of default constructor   5
   b) Write a program in java to find the duplicate element in an array.   5

Q.4 Explain the concept and importance of interfaces in details.   10

PART-B

Q.5 What is the applet life cycle? Also explain the various methods available in applet class.   10

Q.6 What is finally block? Can finally block be used without catch. Explain with program.
                                                                            10

Q.7 What is the difference between final, finally and finalize() in java. Explain with example.   10

End Semester Examination, Dec. 2016
B. Sc. (Information Technology)- Sixth Semester
PERSONALITY DEVELOPMENT-VI (369.609)

Time: 3 hrs

Max Marks: 50

No. of pages: 1

Note: AttemptFIVEquestions in all; Q.1 is compulsory. Attempt anyTWOquestions from Part A and TWO questions from Part B. All questions carry equal marks.

Q.1   Write short notes on: (any two)
   a) Qualities of a good leader.
   b) Time management matrix.
   c) Non verbal communication for effective communication.   5x2

PART-A

Q.2   Communication is a two way process. Elaborate. What are the various barriers to the process of communication?   10

Q.3   What is a group discussion? How can you participate effectively in a group discussion?   10

Q.4   What is time management? Why is it important for your career? How can you manage your time well?   10

PART-B

Q.5   What is career planning? How does self-assessment help you in effective career planning?   10

Q.6   What are the Do's and don'ts of writing an e-mail?   10

Q.7   Let's say that you're been asked to appear for an interview. How would you answer the following questions?
   a) Please introduce yourself.
   b) What are the important lessons that you're learnt from your family?   5x2

End Semester Examination, Dec. 2016
BCA–ThirdSemester
PRINCIPLES OF MANAGEMENT(BCA-001(CB))

Time: 3 hrs.   Max Marks: 100
                                                                         No. of pages: 2

Note: Attempt FIVE questions in all; Q.1is compulsory. Attempt ANYTWO questions from PART-A and TWO questions from PART-B. Each question carries equal marks.

Q.1   Multiple choice questions:
   a) Who gave his name to a bar chart widely used to plan event sequences?
      i)   Max Weber.   ii)   Henry Gantt.
      iii) Henri Taylor.   iv)   Henri Sasco.
   b) Someone who works with and through other people by coordinating their work activities in order to accomplish organization goals is:
      i)   An operational supervisor.   ii)   A very intelligent individual.
      iii) A manager.   iv)   A supervisor of production work.
   c) The process of monitoring comparing and correcting is called:
      i)   Controlling.   ii)   Coordinating.
      iii) Leading.   iv)   Organizing.
   d) Centralization and decentralization help in achieving:
      i)   Vertical coordination.   ii)   Horizontal coordination.
   e) An interview which is planned and based on predetermined list of questions is:
      i)   Structured interview.   ii)   Unstructured interview.
   f) Responsibility of staffing lies with _____.
   State whether the following statements are TRUE / FALSE:
   g) Staffing is a part of human resources management.
   h) Authority can be delegated but responsibility can't be delegated.
   i) Departmentation provides foundation to the organization structure.
   j) Motivation is the same as morale.   2×10

PART-A

Q.2   a) "Decision-making is problem-solving in different situations". Discuss.   10
       b) Explain performance-appraisal with its objectives and importance in detail.   10

Q.3   ABC Pvt. Ltd. wants to operate in the national and international markets. It appoints Mr. X and Mr. Y to guide on how best it can design its organization structure. It puts forth the following proposition to Mr. X and Mr. Y.
   a) Competition is getting intense both in national and international market and we want to maintain our competitiveness in the concerned markets.
   b) We want to increase the level of efficiency at tactical and operating levels.
   c) We want to diversify into as many geographical locations as possible.
   d) We want to maintain quality control on our products.
   e) We want our workers to specialize in their respective areas of operations.
   Questions:
      i)   What kind of organization structure do you think Mr. X and Mr. Y will design for the company? State its relative merits and limitations.
      ii) Do you suggest any change in the organization structure if the company wants to operate only at the national level where competitive is note intense?   10×2

Q.4   Write short notes on (ANY FOUR):
       a) Max Weber's Bureaucracy theory.
       b) Levels of managements.
       c) Types of plans.
       d) MBO.
       e) Delegation of authority.   5×4

PART-B

Q.5   Compare and contrast Maslow's theory and Herzberg's two factor theory of
       motivation. What are the limitations of Maslow's theory?   20

Q.6   "Before an entrepreneur can build a successful strategy they must establish a clear
       mission, goals and objectives in order to have appropriate targets at which to aim
       their strategy". Explain.   20

Q.7   Write short notes on (ANY FOUR):
       a) Management Information System.
       b) PERT.
       c) HRM.
       d) Gantt chart.
       e) Team building.   4×5

End Semester Examination, Dec. 2016
BCA–FirstSemester
INTRODUCTION TO INFORMATION TECHNOLOGY AND PROGRAMMING TECHNIQUES(BCA-101(CB))

Time: 3 hrs.   Max Marks: 100
                                                               No. of pages: 1

Note: Attempt FIVE questions in all; Q.1is compulsory. Attempt anyTWO questions from PART-A and TWO questions from PART-B. Each question carries equal marks.

Q.1   Fill in the blanks:
a) _____ captures everything on the screen as an image.
b) 1 nanosecond = _____ seconds.
c) Raw fact or figures are called _____.
d) Flash memory is also a type of _____.
e) _____ transforms the source code into binary language.
f) The software that can be freely downloaded from the internet is _____.
g) _____ symbol is always the first and last symbol in a flowchart.
State whether TRUE or FALSE:
h) The movement of the cordless mouse is detected using laser technology.
i) Primary memory is faster than secondary memory.
j) Algorithms are implemented using a programming language. 2×10

PART-A

Q.2   a) Explain the areas in which computers are being applied to carryout highly specialized tasks.   6
       b) Broadly classify computers according to their size, capabilities and price.   14

Q.3   a) Briefly discuss the importance of cache memory.   8
       b) Explain the working of a magnetic disk. What do you mean by optical storage device?   12

Q.4   Write short notes on:
       a) Softcopy and Hardcopy.
       b) Printers.
       c) Applications of touch screen.
       d) Types of mouse. 5×4

PART-B

Q.5   a) What is an application software? Give examples. Why are compilers and interpreters used?   12
       b) Explain the types of errors.   8

Q.6   a) Define an algorithm. How is it useful in the context of software development?   6
       b) Write an algorithm to determine the largest of three numbers, also draw a flowchart.   14

Q.7   a) What is structural programming? Explain the top-down and bottom-up approach to solve a problem.   8
       b) What do you mean by the term pseudocode? Define programming language. Write an algorithm to calculate factorial of a number.   12

End Semester Examination, Dec. 2016

BCA— First Semester

COMPUTER FUNDAMENTALS AND PROGRAM IN C(BCA-101)

Time: 3 hrs.   Max Marks: **75**

No. of pages: 2

Note: *Attempt **FIVE** questions in all; **taking at leastONE** question from each **Unit.Q.1 is compulsory.** Marks are indicated against each question.*

Q.1 a) Differentiate between OMR and OCR.
  b) Define the term:'Resolution'.
  c) What is a number system?
  d) Why is binary number system called so? What is its importance in computers?
  e) What is a programming language? Name various categories of computer language?
  f) List salient features of C language.
  g) What statements in C allows decisions to be taken depending upon a test being true or false?
  h) Define the term:'array' with the help of an example.
  i) Write structure definition containing the following:
    Member name, Membership number, Date of joining, Amount of fee.
  j) Write various elements of a function.   **1½×10**

UNIT-I

Q.2 a) Express the following decimal numbers into their equivalent binary numbers:
    i) 359.   ii) 236.   **3×2**
  b) Find 2's complement of binary number 1010.   **3**
  c) What do you understand by port, specify which port you would like to use to attach following devices to your system?
    i) A webcam.   ii) A printer.   **6**

Q.3 Write short notes on:
  a) Hard disk.
  b) Floppy disk.
  c) CD-ROM.   **5×3**

UNIT-II

Q.4 a) What is meant by programming style? Explain various guidelines for a good programming style.   **7**
  b) Write an explanatory note on documentation.   **8**

Q.5 Draw a flowchart that determines the smallest and largest elements of a list of numbers.   **15**

UNIT-III

Q.6 Give example of each using C language:
  a) Conditional operator.
  b) Relational operator.
  c) Size operator.   **5×3**

Q.7 Write a program to accept a single positive integer and print a multiplication table for that integer. **15**

UNIT-IV

Q.8 a) Write suitable array declarations:
    i) 100 items of integer type.
    ii) A string of 25 characters.

iii) A matrix of order 5×4.   **2×3**

b) Differentiate between an array and a structure. What are enumerated data types?   **9**

Q.9   Discuss:
    a) Pointers.
    b) Functions.
    c) Storages classes.   **5×3**

End Semester Examination, Dec. 2016
BCA—FirstSemester
ELEMENTS OF MATHEMATICS(BCA-102(CB))

Time: 3 hrs.
Max Marks: 100
No. of pages: 2

Note: Attempt FIVE questions in all; Q.1is compulsory. Attempt anyTWO questions from PART-A and TWO questions from PART-B. Each question carries equal marks.

Q.1 a) If $B = \begin{bmatrix} -1 & -3 \\ 2 & 4 \end{bmatrix}$, find $4B$.

b) What is a zero matrix?

c) Solve: $\sqrt[3]{8}$.

d) What is I_4 stands for?

e) Evaluate: $\dfrac{10!}{5!}$

f) Solve: $(3)^4 \times (3)^3 = ?$

g) Solve: $13P_7$.

h) What is the value of $\sin 60^\circ$?

i) If $= \begin{bmatrix} 4 & -7 \\ -3 & 5 \end{bmatrix}$, find $|A|$.

j) What do you mean by transpose of a matrix? 2×10

PART-A

Q.2 a) If $A = \begin{bmatrix} 1 & 9 \\ 3 & 4 \end{bmatrix}$ and $B = \begin{bmatrix} 5 & 1 \\ 12 & 7 \end{bmatrix}$, find the matrix (X) such that $4A + 5B + 3X = 0$.

b) Solve the following equation using Crammer's rule:

$x + y - z = -2$

$3x + 2y + 3z = 13$

$2x + 7y + 4z = 31$

10×2

Q.3 a) Simplify: $\dfrac{3^5 \times 27^3 \times 9^4}{3 \times (81)^4}$

b) Simplify: $2\sqrt{180} - 7\sqrt{20} + 10\sqrt{45}$. 10×2

Q.4 a) Expand: $(3a + 2b)^4$.   10

b) In how many ways can 10 people line up at a ticket window of a cinema hall?   5

c) From a class of 50 students 6 are to be chosen for a competition. In how many ways can they be chosen?   5

PART-B

Q.5 a) Prove that $\dfrac{\sin A + 1 - \cos A}{\sin A - 1 + \cos A} = \dfrac{1 + \sin A}{\cos A}$.

   b) Prove that $\sin 105° + \cos 105° = \cos 45°$. 10×2

Q.6 a) If $f(x) = \begin{cases} \dfrac{x^2 - 1}{x - 1} & , \quad when \ x + 1 \\ 2 & , \quad when \ x = 1 \end{cases}$, show that $f(x)$ is continuous at $x = 1$.

   b) Differentiate: $\left(\sqrt{x} + \dfrac{1}{\sqrt{x}} \right)^2$. 10×2

Q.7 a) If $f(x) = x^3 + 8x^2 + 15x - 24$, Calculate the value of $f\left(\dfrac{11}{10}\right)$ by the application of Taylor's series.

   b) Expand $(\cos x)$ in powers of (x) by Maclaurin'stheorem. 10×2

End Semester Examination, Dec. 2016
BCA– FirstSemester
ELEMENTS OF MATHEMATICS(BCA-102)

Time: 3 hrs.

Max Marks:75

No. of pages:2

Note: Attempt FIVE questions in all;taking at least ONE question from each UNIT. Q.1 is compulsory. All questions carry equal marks.

Q.1 a) $A = \{1, 3, 5, 7\}$ $B = \{2, 4, 3, 9\}$
Find $(A - B)$

b) Define equivalence relation.

c) Find 12th term of a sequence 3, 6, 9, 12 _____.

d) Solve: $\dfrac{d}{dx}\left(\log x^3\right) =$ _____.

e) What is the addition rule of probability?

f) Define 'field'.

g) Define subset with an example.

h) Solve: $\lim\limits_{x\to 2}\dfrac{x^2 - 3x + 2}{2x^2 + x - 3} =$ _____.

i) Solve: $\int \sin(ax + b)\,dx$

j) Define 'group'. $1\frac{1}{2} \times 10$

UNIT-I

Q.2 a) Out of 880 boys in a school, 224 played Cricket, 240 played Hockey and 336 played Basketball. Of the total 64 played both Basketball and Hockey, 80 played Cricket and Basketball and 40 played Cricket and Hockey and 24 played all the three games. Find the number of boys who did not play any game.   10

b) If $A = \{3, 4, 5, 6, 8\}$ $B = \{1, 2, 3, 7, 9\}$
$C = \{2, 3, 5, 4\}$ Find $(A \cup B) \cap C$ 5

Q.3 a) Find domain and range of function:
$y = |x + 3|$ 8

b) Find the sum of 40 terms of a A.P. whose first term is 2 and common difference is 4.   7

UNIT-II

Q.4 a) Prove that: $\dfrac{\sin A + 1 - \cos A}{\sin A - 1 + \cos A} = \dfrac{1 + \sin A}{\cos A}$ 9

b) Evaluate: $\sin 75° + \cos 75°$ 6

Q.5 a) Show that: $\dfrac{1}{\log_{xy}(xyz)} + \dfrac{1}{\log_{yz}(xyz)} + \dfrac{1}{\log_{zx}(xyz)} = 2$ 8

b) Five men in a company of 20 are graduates. If 3 men are picked out of the 20at random, what is the probability that they are all graduates, what is the probability of at least one graduate?   7

UNIT-III

Q.6   a)   Evaluate: $\lim\limits_{x\to 0}\dfrac{\sqrt{1+x}-1}{x}$ 8

       b)   Differentiate *w.r.* to x

           $y = a\,(\cos x + \log \tan x/2)$ 7

Q.7   a)   If $f(x)=\begin{cases} -1 & : & x < -1 \\ -x & : & -1 \le x \le 1 \\ 1 & : & x > 1 \end{cases}$

           Check continuity at $x=-1$ and $x=1$ 8

       b)   Find $\dfrac{dy}{dx}$ If $y = \sqrt{\dfrac{1+\cos 2x}{1-\cos 2x}}$ 7

UNIT-IV

Q.8   a)   Define and explain group and rings with properties.   8

       b)   Solve differential eq^n $\dfrac{dy}{dx}=\dfrac{y-x}{y+x}$ 7

Q.9   a)   Evaluate:

           $\displaystyle\int \dfrac{\sin x + \cos x}{\sqrt{1+\sin 2x}}dx$ 8

       b)   Solve differential eq^n

           $2y\sin x\dfrac{dy}{dx} = 2\sin x\cos x$ 7

End Semester Examination, Dec. 2016
BCA– FirstSemester
HARDWARE INTERFACES (BCA-103 (CB))

Time: 3 hrs.   Max Marks:100

No. of pages:1

Note: Attempt FIVE questions in all;Q.1 is compulsory. Attempt any TWO questions from Part A and TWO questions from Part B. Each question carries equal marks.

Q.1   Fill in the blanks:
    a) MS DOS 1.0 operating system was launched in _____.
    b) L1,L2,L3 are form of _____ memory.
    c) USB stands for _____.
    d) DMP stands for _____.
    e) SMPS stands for _____.
    f) BRD stands for _____.
    g) The per bit storage cost of RAM is _____ than per bit storage cost of HDD.
    h) SCSI stands for _____.
    i) UPS stands for _____.
    j) A keyboard is also known as _____ computer. 2×10

PART-A

Q.2   a) What is the role of mother-board in computer? Why it is called mother-board?   10
    b) Explain the different internal components of today's laser printer.   10

Q.3   a) Write a short note on 'Laser printer' and 'Desk-Jet printer'.   10
    b) List five errors of printers.   5
    c) What is the role of keyboard controller?   5

Q.4   a) Explain the features of core-i7 processor in detail.   10
    b) Write short note on 'processor over-cloaking'.   5
    c) Write a short note on 'super controller'.   5

PART-B

Q.5   a) Explain the concept of SCSI.   10
    b) Explain the working of Peripheral Components Interconnect (PCI).   10

Q.6   a) What is POST? List the set of activities which are performed during POST.   10
    b) Define Industry Standard Architecture (ISA) and its importance.   10

Q.7   Write short notes on:
    a) Worm.
    b) Trojan Horse.
    c) RS-232 Standard.
    d) AGP. 5×4

Time: 3 hrs.   Max Marks: 100

No. of pages: 1

Note: Attempt FIVE questions in all; Q.1is compulsory. Attempt anyTWO questions from PART-A and TWO questions from PART-B. Each question carries equal marks.

Q.1 a) A character variable can at a time store:
     i) 1 character.   ii) 8 character.   iii) None of these.
   b) Exit ( ) is same as return. (TRUE / FALSE)
   c) Which is valid keyword in C?
     i) integer.   ii) int.
     iii) null.   iv) None of these.
   d) The two operators && are ¦¦ are:
     i) Logical.   ii) Relational.   iii) Conditional.
   e) To access the members of structure which symbol is used?
     i) *   ii) .
     iii) ,   iv) None of these.
   f) C was primarily developed as _____ language.
     i) General purpose.   ii) System programming.
     iii) None of these.
   g) Which is required to write and run C program?
     i) Compiler.   ii) Operating system.
     iii) Text editor.   iv) All of above.
   h) What type of errorsare checked during compilation?
   i) Every executable C program must contain a _____.
   j) A string is an array of _____. 2×10

PART-A

Q.2 a) Discuss and explain C program structure in detail.   10
   b) What are operators? Discuss various types of operators available in C. Give an example of each.   10

Q.3 a) Discuss the syntax, purpose and example of the following:
     i) Entry controlled loop.
     ii) Exit controlled loop.
     iii) Else if ladder. 5×3
   b) Write a program in C to generate the Fibonacci series upto n terms.   5

Q.4 a) Define 'an array'. How two dimensional arrays are initialized in C? Explain with suitable examples.   15
   b) Write any two string handling functions in C.   5

PART-B

Q.5 a) Define 'pointers'. How they are declared in C? What are the advantages of pointers?   10
   b) Write short notes on: calloc( ) and malloc( ) functions.   10

Q.6 a) Differentiate between call-by-value and call-by-reference.   5
   b) Write a program in C to find factorial of n number using recursion.   10
   c) What is the difference between structure and union?   5

Q.7   a) What is file? Discuss various input/output operations on files. Give examples of each.

         b) Write a note on:'storage classes'. 10×2

End Semester Examination, Dec. 2016
BCA – FirstSemester
PC SOFTWARE (BCA-104)

Time: 3 hrs.   Max Marks:75

           No. of pages:2

Note: Attempt FIVE questions in all;taking at least ONE question from each UNIT. Q.1 is compulsory. All questions carry equal marks.

Q.1   State TRUE or FALSE:
- a) Only Englishlanguage can be used in MS-OFFICE.
- b) We can insert a new slide with ctrl+m.
- c) We can insert complete word files in PowerPoint.
- d) MS-OFFICE files can only be opened in MS-OFFICE.
- e) Round( ) function in to create a circle in excel.
- f) Once a word document is saved we cannot change the formatting of that document.
- g) A1....A6 defines a range from cell A1 to A6 in excel.
- h) Multiple conditions can be combined in if statement.
- i) Any PowerPoint presentation can have atmost no slides.
- j) Multiple worksheets can be added in a single excel sheet. $1\frac{1}{2} \times 10$

UNIT-I

Q.2   Give MS-DOS command for the following:
- a) Create directory.
- b) Delete a directory.
- c) Create a file.
- d) Display contents of a file.
- e) Show all directories and files in a directory. 3×5

Q.3   Explain the concept of memory management and process management in operating system.   15

UNIT-II

Q.4   Write short notes on the following:
- a) Recycle Bin.
- b) Desktop.
- c) Spooling. 5×3

Q.5
- a) What are macros? How are they created? Give one example of macro.   10
- b) Explain the landscape and portrait views in MS-OFFICE.   5

UNIT-III

Q.6
- a) Explain the importance of functions in MS-Excel. Give an example to justify your point.   9
- b) Write the short notes on the following:
    - i) Copy.
    - ii) Making text bold.
    - iii) Copying a formula in the whole column. 2×3

Q.7   Write short notes on the following:
- a) Graphs in excel.
- b) Mathematical function a in excel.
- c) String handling functions in excel. 5×3

UNIT-IV

Q.8   What are design templates in PowerPoint, how do we apply design template, explain steps to create a design template.   15

Q.9   Write short notes on the following:
a) Transition.
b) Animation.
c) Creating slide show.   5×3

End Semester Examination, Dec. 2016
BCA– FirstSemester
LOGICAL ORGANIZATION OF COMPUTER (BCA-105 (CB))

Time: 3 hrs.

Max Marks:100

No. of pages:1

Note: Attempt FIVE questions in all;Q.1 is compulsory. Attempt any TWO questions from Part A and TWO questions from Part B. Each question carries equal marks.

Q.1 a) Which of the following base systems is 123 not a valid number?
   i) Base 10　　　　　　　　　　　　ii) Base 16
   iii) Base 8　　　　　　　　　　　　iv) Base 3

 b) What is the octal equivalent of the binary number 10111101?
   i) 675　　　　　　　　　　　　　　ii) 275
   iii) 572　　　　　　　　　　　　　iv) 573

 c) A NAND gate is called a universal logic element because:
   i) It is used by everybody.
   ii) Any logic function can be realized by NAND gates alone.
   iii) Many digital computer use NAND gates.
   iv) None of the above.

 d) Positive logic in a logic circuit is one in which?
   i) Logic 0 and 1 are represented by 0 and positive voltage respectively.
   ii) Logic 0 and –1 are represented by negative and positive voltages respectively.
   iii) Logic 0 and voltage is lower than logic 1 voltage level.
   iv) None of the above.

 e) Draw the logic diagram of X O R.

 Fill in the blanks:
 f) $1010 + 1101 = $ _____.
 g) $(327)_8 + (123)_8 = $ _____.
 h) $(243)_{10} - (127)_{10} = $ _____.
 i) $(11011010)_2 = ($ _____ $)_8$.
 j) Cache memory follows _____ property.　　　　　　　　　　2×10

PART-A

Q.2 Convert the following:
 a) $(793.6)_{10} = ($ _____ $)_2 = ($ _____ $)_8 = ($ _____ $)_{16}$
 b) $($ _____ $)_{10} = (101101101.101)_2 = ($ _____ $)_8 = ($ _____ $)_{16}$.　　　10×2

Q.3 What are gates? Explain its different types with truth table and logic diagram. Why NAND and NOR gates are known as universal gates? Explain.　　　　20

Q.4 a) Find the other canonical form of the expression.
    $F (A, B, C) = \pi (2, 3, 4, 7)$　　　　　　　　　　　　　　　　10
 b) Solve the following using K-map and draw the circuit diagram.
    i) $F (A, B, C, D) = \Sigma (0, 3, 4, 6, 9, 11, 13, 15)$
    ii) $F (X, Y, Z) = \Sigma (0, 1, 2, 3, 5)$　　　　　　　　　　　10

PART-B

Q.5 a) Explain how three bits can be added using a circuit diagram.　　　10
 b) Design a 16 × 1 MUX using five (4 × 1) MUX.　　　　　　　　10

Q.6 a) What are the sequential circuits? Compare sequential and combinational circuits.　5

b) What are flip-flops? Explain any two types of flip-flops in detail.   15

Q.7   Write short notes on:
       a) Virtual Memory.   b) Associative Memory.
           10×2

End Semester Examination, Dec. 2016
BCA – SecondSemester
DATA STRUCTURES (BCA-201)

Time: 3 hrs   Max Marks:75

No. of pages:2

Note: Attempt FIVE questions in all;taking at least ONE question from each UNIT. Q.1 is compulsory. All questions carry equal marks.

Q.1   State whether the following statements are TRUE/FALSE:
   a) The memory address of first element of an array is known as base address.
   b) Tower of Hanoi is an application of queue.
   c) A node is a parent if it has its successor node.
   d) In preorder traversal we traverse as root, left subtree, right subtree.
   e) Link list can be implemented only with the help of dynamic memory allocation.
   Multiple choice questions:
   f) Which of the following data structures are indexed structures?
      i) Linear structures.   ii) Linked list.
      iii) Queue.   iv) Slade.
   g) Operation on a data structure may be:
      i) Creation.   ii) Deletion.
      iii) Selection.   iv) All of the above.
   h) A technique for direct search is:
      i) Binary search.   ii) Linear search.
      iii) Tree search.   iv) Hashing.
   i) The number of interchange required to sort 5, 1, 6, 2, 4 in ascending order using bubble sort is:
      i) 6   ii) 5
      iii) 7   iv) 8
   j) A data structure in which insertion is done from one and deletion is done from other end is known as:
      i) Queue   ii) Stack
      iii) Tree   iv) None of the above $1\frac{1}{2}\times10$

UNIT-I

Q.2   What is queue? Explain different type of queues in detail.   15

Q.3   Write algorithm for following:
   a) Inserting an element in array.
   b) Push operation of stack.
   c) Insert operation in circular queue. 5×3

UNIT-II

Q.4   Differentiate between the following:
   a) Dynamic memory allocation and static memory allocation.
   b) Binary tree and Binary search tree.
   c) In-order and Post-order traversal of tree. 5×3

Q.5   Write an algorithm to perform following operation on link list.
   a) Deleting a node.
   b) Merging two link list. $7\frac{1}{2}\times2$

UNIT-III

Q.6   Write down the step to sort following number   (12, 19, 11, 16, 18, 7, 5, 27) using
       selection sort.
              15

Q.7   Write an algorithm to implement quick sort.   15

UNIT-IV

Q.8   Write short notes on following:
       a) Hashing.
       b) File operations.   7½×2

Q.9   a) Explain collision resolving methods in detail.   10
       b) Explain different type of records in detail.   5

End Semester Examination, Dec. 2016
BCA – SecondSemester
MATHEMATICAL FOUNDATION OF COMPUTER SCIENCE (BCA-202)

Time: 3 hrs   Max Marks:75

No. of pages:3

Note: Attempt FIVE questions in all;taking at least ONE question from each UNIT.
Q.1 is compulsory. All questions carry equal marks.

Q.1   a)   Consider the relation R from x to y
           $x = \{1, 2, 3\}$; $y = \{8, a\}$ and $R \{(1, 8), (2, 8), (1, 9), (3, 9)\}$
           Find the complement of relation R.
      b)   Let R be relation on set $A = \{x, y, z\}$ define by:
           $R = \{(x, x), (y, y), (z, z), (x, z), (x, y), (y, z)\}$. Write the relation as a table and also find
           its arrow diagram.
      c)   Let $x = \{x, y, z, k\}$ and $y = \{1, 2, 3, 4\}$. Determine whether the following is function
           or not? Give reason if it is not. Also find the range if it is a function.
           $g = \{(x, 1), (y, 1), (k, 4)\}$
      d)   Draw the regular graph of degree 3.
      e)   Convert the general tree into Binary tree:
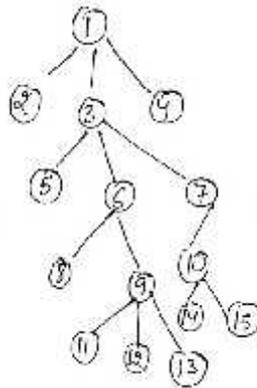
      f)   Find the degree of equation:
           $y_{k+3} + 2y_{k+2} + 4y_{k+1} + 2y_k = k(x)$
      g)   Draw the directed graph of relation determined by the Hesse diagram on the set
           $A = \{1, 4, 6, 8\}$
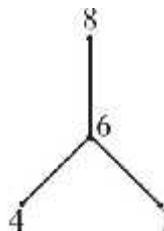
      h)   Minimize the following Boolean expression using k-map:
           $AB + \bar{A}B + B\bar{A}$
      i)   Let $A = \{1, 2, 3\}$ &$R = \{(1, 2), (2, 1), (3, 2), (2, 3)\}$. Is the relation symmetric or
           asymmetric.
      j)   Write the following sets in tabular form:
           $A = \{x : x$ is +veinteger and a perfect square$\}$ 1½×10

UNIT-I

Q.2   a)   Prove $1 + 3 + 5 \ldots\ldots + (2n - 1) = n^2$ by mathematical induction $(n \geq 1)$.   8
      b)   Consider a Relation R from a set A to B whose matrix is shown below. Determine
           its inverse R^{-1} and complement $\bar{R}$.

$$M_R = \begin{bmatrix} 1 & 0 & 0 & 1 \\ 1 & 1 & 1 & 1 \\ 0 & 0 & 1 & 1 \\ 1 & 1 & 0 & 0 \end{bmatrix}$$

7

Q.3 a) Show that if 9 colours are used to paint 100 houses, at least 12 houses will be of the same colour. 5

b) Consider the set $A = \{4, 5, 6, 7\}$ and the relation R on A is given by:
$R = \{(4, 5), (5, 6), (5, 7), (6, 6), (6, 7), (7, 6)(7, 7)\}$. Determine a) R^3 and b) R^∞ 5

c) If S and T have n elements in common. Show that SXT and TXS have n^2 elements in common. 5

UNIT-II

Q.4 a) Draw the diagram of a lattice which is the direct product of the following lattice shown below:
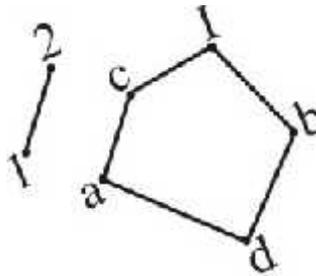
7

b) Determine the disjunctive normal form of the following Boolean expression:
$x \wedge (y \vee z)$ 8

Q.5 a) Give the Boolean expression:
$f = ABC + B\bar{C}A + \bar{A}BC$
 i)   Make a truth table.
 ii) Simplify using k-map.
 iii) Make the switching circuit of the expression. 9

b) Consider the set $D_{50} = \{1, 2, 5, 10, 25, 50\}$ and the relation divides (/) be a partial ordering relation on D_{50}.
 i)   Draw the Hasse diagram of D_{50} with relation divides.
 ii) Determine all upper bounds of 5 and 10.
 iii) Determine all lower bounds of 5 and 10.
 iv) Determine g.l.b of 5 and 10.
 v)   Determine l.u.b of 5,10. 6

UNIT-III

Q.6 a) Solve the difference equation $a_r - 4a_{r-1} + 4a_{r-2} = 0$ and find the particular solution given that $a_0 = 1$ and $a_1 = 6$. 8

b) What is the value of yS_O that the line through $(3, y)$ and $(2, 7)$ is perpendicular to the line through $(2, 3)$ and $(-1, -2)$. 7

Q.7 a) Define the following:
 i)   Recurrence relation.
 ii) Order of recurrence relation.
 iii) Degree of recurrence relation.
 iv) Linear homogeneous recurrence relation with constant coefficient. 8

b) Find y if the slope of the line joining $(-8, 11)$ and $(2, y)$ is $\dfrac{-4}{3}$. 7

UNIT-IV

Q.8 a) Convert the forest shown below into binary tree:
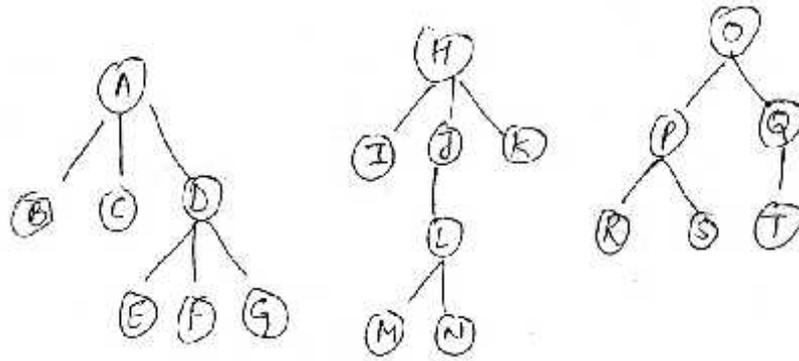
7

b) What is minimum spanning tree? Explain Kruskal's and Prim's algorithm to find the minimum spanning tree. 8

Q.9 a) Determine the minimum spanning tree of the weighted graph shown below: 6
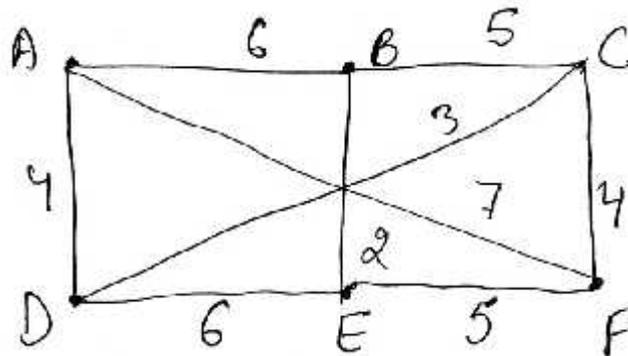
b) Define the following:
   i) Pendent vertices.
   ii) Pendent edges.
   iii) Odd vertex.
   iv) Even vertex.
   v) Incident edge.
   vi) Adjacent vertices. 6
c) Give an example of a graph that has neither an Euler circuit nor a Hamiltonian circuit. 3

End Semester Examination, Dec. 2016
BCA- Second Semester
DATA STRUCTURES USING 'C'(BCA-203-CB)

Time: 3 hrs   Max Marks:100

No. of pages: 2

Note: Attempt FIVE questions in all;Q.1 is compulsory. Attempt any TWO questions from Part A and TWO questions from Part B. Each question carries equal marks.

Q.1   Multiple choice questions:

a) The balance factor for an AVL Tree is either _____.
   i) 0, 1, or -1   ii) -2, -1 or 0   iii) 0, 1 or 2   iv) None of these.

b) Graphs are represented using _____.
   i) Adjacency tree.
   ii) Adjacency linked list.
   iii) Adjacency graph.
   iv) None of these.

c) The extra key inserted at the end of the array is called _____.
   i) End key.   ii) Stop key.   iii) Sentinel key. iv) None of these.

d) The spanning tree of connected graph with 10 vertices contains:
   i) 9 edges.
   ii) 11 edges.
   iii) 10 edges.
   iv) None of these.

e) One can determine whether an infix expression has balanced parenthesis or not by using:
   i) Array.   ii) Queue.   iii) Stack.   iv) Tree.

f) Overflow condition in linked list may occur when attempting to:
   i) Create a node when free space pool is empty.
   ii) Create a node when linked list is empty.
   iii) Both i) and ii).
   iv) None of the above.

g) Hashing Collision Resolution techniques are:
   i) Huffman coding, linear hashing.
   ii) Chaining, bucket addressing.
   iii) None of these.

h) Deletion from one end and insertion from other end is:
   i) Stack.   ii) Branch.   iii) Tree.   iv) Queue.

State whether the following statements are TRUE or FALSE:
i) Queue is used in BFS of graph.
j) Two dimensional arrays are also called linear arrays.   2x10

PART-A

Q.2 a) Define 'algorithm and data structure'. What are the objectives of data structure? Give the difference between linear and non-linear data structure with suitable examples. Also state the application areas where these types will be used. 10

b) Consider the linear array, A (5:50) whose base address per memory cell is 4. Find the address of A[15] and A[46]. 10

Q.3 a) Write an algorithm for matching different parenthesis such as:
{, [, (in an algebric expression. 10

b) What do you understand by queue? Discuss the various operations of queue with examples. Also discuss deque. 10

Q.4 What is linked list? How linked lists are represented in memory? Give examples. Write an algorithm to insert a particular node in the beginning of a linked list. Compare linked list with arrays. 20

PART-B

Q.5 a) Define 'tree'. How a tree can be stored in memory? Explain with an example. 5

b) Define 'binary tree, complete binary tree, similar binary trees, threaded tree, AVL tree'. 10

c) How binary trees are represented in memory? 5

Q.6 a) Find the minimum spanning tree using Kruskal's algorithm and show each step:

10
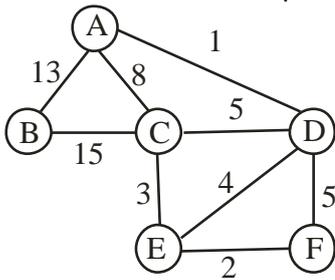
b) Find the adjacency matrix of graph:

5
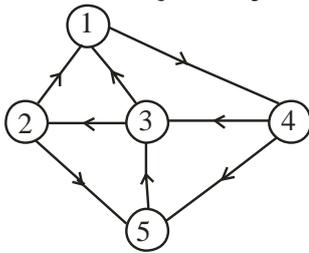
c) Define: weighted graph and path. 5

Q.7 a) Write a short note on 'linear probing and chaining'. 10

b) Describe the steps of heap sort for the following data:
44, 30, 50, 22, 60, 55, 77, 55. 10

End Semester Examination, Dec. 2016
BCA— Second Semester
PROGRAMMING IN VISUAL BASIC (BCA-203)

Time: 3 hrs.   Max Marks: **75**

No. of pages: 1

Note: *Attempt* **FIVE** *questions in all;* **taking at leastONE** *question from each* **Unit**. **Q.1 is compulsory.***Each question carries equal marks.*

Q.1   Fill in the blanks:
a)   GUI stands for _____.
b)   _____ is one of the advantages of visual basic language.
c)   _____ and _____ are controls available in VB.
d)   _____ and _____ are container controls available in VB.
e)   Global variable are always declared _____.
f)   _____ options can be selected from a group of option buttons.
g)   _____ is an example of string function available in VB.
h)   _____ and _____ are mathematical functions in VB.
i)   _____ is the most important property of listbox.
j)   _____ is an example of user defined data type available in VB.   **1½×10**

UNIT-I

Q.2   Explain the similarities and dissimilarities between procedures oriented programming and event drive programming.   **15**

Q.3   Explain the following terms:
a)   Toolbox.
b)   Form layout window.
c)   Code window.   **5×3**

UNIT-II

Q.4   What do you mean by scope of a variable? Explain the difference between global and local variable with the help of an example.   **15**

Q.5   Explain five date functions available in VB with the help of examples.   **15**

UNIT-III

Q.6   Explain the following controls available in VB:
a)   Textbox.
b)   Checkbox.
c)   Combo box.   **5×3**

Q.7   Explain the advantages and disadvantages of using control array with the help of suitable examples.   **15**

UNIT-IV

Q.8   Explain the following terms:
a)   DB – combo box.
b)   Data control.
c)   Menu.   **5×3**

Q.9   Explain the features of data report in detail.   **15**

End Semester Examination, Dec. 2016
BCA – SecondSemester
DATABASE MANAGEMENT SYSTEM(BCA-204(CB))

Time: 3 hrs

Max Marks:100

No. of pages:2

Note: Attempt FIVE questions in all;Q.1 is compulsory. Attempt any TWO questions from Part-A and TWO questions from Part-B. Each question carries equal marks.

Q.1 a) _____ allows us to identify uniquely a tuple in the relation.
   i) Superkey   ii) Domain   iii) Attribute   iv) Schema
   b) A domain is atomic if elements of the domain are considered to be _____ units.
   i) Different   ii) Indivisible   iii) Constant   iv) Divisible
   c) Which of the following is not a function of DBA?
   i) Network maintenance.
   ii) Routine maintenance.
   iii) Schema definition.
   iv) Authorization for data.
   d) _____ command can be used to modify a column in a table:
   i) Alter   ii) Update   iii) Set   iv) Create
   e) A locked file can be _____.
   i) Accessed by only one user.
   ii) Modified by users with correct password.
   iii) Is used to hide sensitive information.
   iv) Both ii) and iii)
   v) None of the above.
   f) An unnormalized relation contains values:
   i) Atomic.   ii) Non-atomic.   iii) Classified.iv) None of the above.
   g) Project join normal form is also referred to as:
   i) II NF   ii) III NF   iii) IV NF   iv) V NF
   h) Which of the following is considered as DBMS?
   i) Foxpro   ii) Access
   iii) All of the above   iv) Oracle
   i) The deadlock state can be changed back to stable state by using _____ statement.
   i) Commit
   ii) Rollback.
   iii) Savepoint.
   j) Define database.   2×10

PART-A

Q.2 a) Define: Data, DBMS, Record, File, Field in brief.   10
   b) Comment: i) Various components of DBMS.
              ii) Schema and instances.
       10

Q.3 a) Construct an E-R diagram for a hospital with a set of patients and a set of medical doctors. Associate with each patient, a log of various tests and examinations conducted. Construct the appropriate tables for this E-R diagram and list the tables with their attributes.   10

b) Differentiate between hierarchical, network and relational database models with their relative merits and demerits in detail.   10

Q.4 a) Explain the following operations of relational algebra with suitable examples:
    i)   Natural join.
    ii) Select and project.
    iii) Cartesian product.
    iv) Division.
        15
    b) Write any two DML commands in SQL with format and example.   5

PART-B

Q.5 a) What is meant by normalization? Explain and define 1 NF, 2 NF and 3 NF by giving suitable examples for each.   10
    b) Write Armstrong rule and show that other rules are derived from Armstrong rules.10

Q.6 What is concurrency? Discuss the various problems associated with in DBMS. Also, discuss the various concurrency control techniques with examples.   20

Q.7 a) Compare DBMS and distributed DBMS.   10
    b) What are the general strategies for query processing? Explain query optimization technique through a suitable example.   10

End Semester Examination, Dec. 2016
BCA— Second Semester
DIGITAL DESIGN AND COMPUTER ORGANIZATION (BCA-204)

Time: 3 hrs. Max Marks: **75**

No. of pages: 1

Note: *Attempt **FIVE** questions in all; **taking at leastONE** question from each **Unit.Q.1 is compulsory.**Each question carries equal marks.*

Q.1 Fill in the blanks:
  a) EBCDIC is _____.
  b) CISC is _____.
  c) _____ points to the next instruction to be executed.
  d) Instruction can be categorized as _____, _____ and _____.
  e) Error correction and detection can be done by _____.
  f) Memory correction to I/O bus can be _____ and _____.
  g) If A is low or B is low or both are low then X is low. If A is high and B is high then X is high. These rules specify the operation of a _____.
  h) The Boolean expression C+CD is equal to _____.
  i) Most computer stored data in strings of _____ bits called a _____.
  j) Hexadecimal 16 is _____ in decimal. **1½×10**

UNIT-I

Q.2 How errors can be detected and corrected? Demonstrate with suitable examples. **15**

Q.3 Write short notes on:
  a) Gray codes.
  b) ASCII code.
  c) Number system. **3×5**

UNIT-II

Q.4 Why NANA and NOR gates are known as universal gates? Explain. **15**

Q.5 Solve the following expression using K-map:
$$F(A,B,C) = \lambda(0,1,4,5,7)$$
$$F(X,Y,Z) = \sum(1,2,4,6,7)$$ **7½×2**

UNIT-III

Q.6 What are addressing modes? Explain its different types with an example. **15**

Q.7 Write short notes on**:**
  a) RISC and CISC**.**
  b) Instruction format. **7½×2**

UNIT-IV

Q.8 What is the basic advantage of using interrupt initiated data transfer over programmed input output? Explain DMA controller in detail. **15**

Q.9 Explain source initiated and destination initiated handshaking based data transfer in detail. **15**

Time: 3 hrs   Max Marks:100
                                                                    No. of pages:2

Note: Attempt FIVE questions in all;Q.1 is compulsory. Attempt any TWO questions from Part A and TWO questions from Part B. Each question carries equal marks.

Q.1   a) A web browser is:
          i)   a program that can display a web page.
          ii) a program used to view html document.
          iii) a program that is used for searching topic.
          iv) All of the above.
      b) In which mode FTP, the client initiates both the control and data connection:
          i)   Active mode.
          ii) Passive mode.
          iii) Both i) and ii).
          iv) None of the above.
      c) The DHCP server can provide the _____ of the IP addresses:
          i)   Dynamic allocation.
          ii) Automatic allocation.
          iii) Static allocation.
          iv) All of the above.
      d) The size of the DNS server is:
          i)   16 bytes.
          ii) 12 bytes.
          iii) 10 bytes.
          iv) 18 bytes.
      e) Search engine can be categorized as:
          i)   Crawler based.
          ii) Human powered.
          iii) Hybrid.
          iv) All of the above.
      f) A computer program that is used to retrieve information as per user requirement is known as:
          i)   Search engine.
          ii) Protocol.
          iii) Topologies.
          iv) None of the above.
      g) Internet and Intranet are one and the same thing.
          i)   True
          ii) False.
      h) Protocol is a term that define rules and regulation over the internet.
          i)   True
          ii) False.   1½x8
      i) Write short notes on following:
          i)   Internet ethics.
          ii) DNS header.
          iii) FTP server.
          iv) Digital signatures.   2×4

PART-A

Q.2   a) Differentiate between the following:
- i) LAN, MAN and WAN.
- ii) Internet, intranet and extranet.

         5x2

       b) Explain the working of internet in detail.
           10

Q.3   a) Is email system making our life easy? Explain through some examples.   10

       b) Explain following:
- i) Crawler base search engine.
- ii) Email structure. 5×2

Q.4   a) What is the role of DNS in internet browsing? Explain types of records available in DNS.   10

       b) Explain following:
- i) DHCP
- ii) FTP   5x2

PART-B

Q.5   a) Can communication be unlawful? Justify your answer through some examples.   10

       b) Explain following:
- i) Agreement   ii) Signature.   iii) Plagiarism   iv) Copyright law   2½x4

Q.6   a) How cross site scripting can be fixed? Explain in detail.   10

       b) Explain the various purposes of hacking in detail.   10

Q.7   a) What do you understand by a theft? How will you identify a theft?   10

       b) What are the different methods to protect ourself from cybercrime? Explain in detail.   10

End Semester Examination, Dec. 2016
BCA— Second Semester
WORKSHOP IN EVS (BCA-206)

Time: 3 hrs.   Max Marks: **50**

No. of pages: 2

Note: *Attempt* **FIVE** *questions in all;* **taking at leastONE** *question from each* **Unit.Q.1 is compulsory.** *Marks are indicated against each question.*

Q.1   Choose the correct option:
   a) The layer of atmosphere in which the ozone layer lies is:
      i)   Exosphere.   ii) Mesosphere.   iii) Troposphere.   iv) Stratosphere.
   b) The greenhouse gases which is present in very high quantity is:
      i)   Propane.   ii) Ethane.   iii) CO_2.   iv) Methane.
   c) The exchange of outgoing and incoming radiations that keep the earth warm is known as:
      i)   Greenhouse effect.
      ii) Radiation effect.
      iii) Infrared effect.
      iv) Ozone layer depletion.
   d) Which of the following on inhalation dissolved in the blood hemoglobin more rapidly than oxygen?
      i) SO_2.   ii) CO.   iii) Ozone.   iv) Nitrous oxide.
   e) Smog is:
      i)   A natural phenomenon.
      ii) A combination of smoke and fog.
      iii) Is colourless.
      iv) All of the above.
   f) Air pollution from automobiles can be controlled by fitting:
      i)   Cyclone separate.
      ii) Electrostatic precipitation.
      iii) Catalytic converter.
      iv) Wet scrubber.
   g) A large proportion of children in a population is a result of:
      i)   High birth rate.
      ii) High death rate.
      iii) High life expectancies.
      iv) More married couples.
   h) In how many years is the official enumeration of population carried out for census?
      i)   1 year.   ii) 5 Years.   iii) 10 years.   iv) 2 years.
   i) Which of the following activities comes under primary activity?
      i)   Fishing.   ii) Banking.   iii) Construction.   iv) Transportation.
   j) Human population growth curve is a:
      i)   S shaped curve.
      ii) Parabola curve.
      iii) J shaped curve.
      iv) Zigzag curve.   **1×10**

UNIT-I

Q.2   a) Discuss the scope and importance of environmental studies in student's curriculum.   **5**
      b) Mention some renewable and non-renewable sources of energy. How can they be effectively utilized?   **5**

Q.3   What do you mean by equitable use of resources for sustainable lifestyle?   **10**

UNIT-II

Q.4   a) Explain the meaning of energy flow in an ecosystem with suitable examples.   **5**
       b) Show a food web and a food chain by an example.   **5**

Q.5   Define 'biodiversity'. What are its components? How can biodiversity be conserved?   **10**

UNIT-III

Q.6   Write short notes on *(anytwo):*
       a) Effects of acid rain.
       b) Ozone layer depletion.
       c) Pollution.
       d) Climate change.   **5×2**

Q.7   Mention various steps required to control the present level of pollution in air, water and soil. **10**

UNIT-IV

Q.8   a) Why there is variation in population growth patterns in different nations.   **5**
       b) How can the population growth be controlled? Why is it required?   **5**

Q.9   Write short notes on *(anytwo):*
       a) HIV / AIDS.
       b) Role of IT in environment and human health.
       c) Value education.
       d) Human rights.   **5×2**

End Semester Examination, Dec. 2016

BCA— Second Semester

ENGLISH LANGUAGE PROFICIENCY-II (BCA-207 / BCA-2005)

Time: 3 hrs.   Max Marks: **75**

No. of pages: 4

Note: ***All questions are Compulsory.***

Q.1   a) To complete our Egyptian mummy costumes, Lou Ellen and _____ bought a 12 pack of toilet paper.
        i) I.   ii) Me.   iii) Myself.

     b) It was _____ who ate your leftover slices of pepperoni pizza.
        i) I.   ii) Me.   iii) Myself.

     c) When Richard started eating my French fries, I pulled the plate closer and told him they were all _____.
        i) Mine.   ii) Mines.

     d) On our afternoon walk at the lake, _____ met Jake, a bloodhound with droolsicles dripping from his jowls.
        i) Me and Oreo.   ii) Oreo and I.   iii) Oreo and Myself.

     e) We all told the boss that we wanted to have – salaries paid in advance but he just ignored.
        i) Ours / It.   ii) His / We.   iii) Their / Our
        iv) We / His   v) Our / Us.

     f) Although in the room seemed to follow said by the speaker, he never intended to simplify his language.
        i) No one / Anything.   ii) Anybody / Anything.   iii) Nobody / Nothing.
        iv) Anyone / Nothing.   v) Someone / Something.

     g) We decided to do all the cookinginstead of hiring a catering company for the party.
        i) Of our own.   ii) Oneself.   iii) By ourselves.
        iv) Ours.   v) Each other.

     h) The kids watched each gesture of as if their mother were a stranger.
        i) Them.   ii) Hers.   iii) Him.
        iv) Her.   v) Himself.

     i) Did you ask David or _____?
        i) I.   ii) Me.

     j) Mother gave _____ more mangoes than she gave to Antony and Rosy.
        i) I.   ii) Us.   **1×10**

Q.2   Fill in the correct articles:
     a) Albany is the capital of _____ New York State.
     b) My husband's family speaks _____ Polish.
     c) One of the students said, "_____ professor is late today."
     d) Eli likes to play _____ volleyball.
     e) I bought _____ umbrella to go out in the rain.
     f) I lived on _____ Main Street when I first came to town.
     g) _____ ink in my pen is red.
     h) I borrowed _____ pencil from your pile of pencils and pens.
     i) _____ apple a day keeps the doctor away.
     j) _____ church on the corner is progressive.   **1×10**

Q.3 Each sentence is followed by two commonly confused homonyms. Choose the correct word to fill in the blank with the letter that precedes it.
a) I will not be able to _____ the new job. (accept, except)
b) April is the _____ month. (forth, fourth)
c) I would _____ all parents to have a dog. (advice, advise)
d) Please try not to _____ your new sunglasses. (lose, loose)
e) How does candy _____ your blood sugar? (affect, effect)
f) This pattern works best with _____, heavy fabric. (course, coarse)
g) As a waitress, I was only allowed one fifteen-minute _____. (break, brake)
h) From my seat in the back of the auditorium, I could barely _____ performance. (hear,here)
i) Aspirin can _____ some types of pain. (lessen, lesson)
j) The park ranger _____ the lost hikers to safety. (lead,led)   **1×10**

Q.4 Read the following passage and answers the following questions:

The Alaska pipeline starts at the frozen edge of the Arctic Ocean.
It stretches southward across the largest and northernmost state in
the United States, ending at a remote ice-free seaport village nearly
Line   800 miles from where it begins. It is massive in size and extremely
(5)   complicated to operate.
The steel pipe crosses windswept plains and endless miles of
delicate tundra that tops the frozen ground. It weaves through
crooked canyons, climbs sheer mountains, plunges over rocky
crags, makes its way through thick forests, and passes over or
(10)   under hundreds of rivers and streams. The pipe is 4 feet in diameter,
and up to 2 million barrels (or 84 million gallons) of crude oil can
be pumped through it daily.
Resting on H-shaped steel racks called "bents," long sections of
the pipeline follow a zigzag course high above the frozen earth.
(15)   Other long sections drop out of sight beneath spongy or rocky
ground and return to the surface later on. The pattern of the
pipeline's up-and-down route is determined by the often harsh
demands of the arctic and subarctic climate, the tortuous lay of the
land, and the varied compositions of soil, rock, or permafrost
(20)   (permanently frozen ground). A little more than half of the pipeline
is elevated above the ground. The remainder is buried anywhere
from 3 to 12 feet, depending largely upon the type of terrain and
the properties of the soil.
One of the largest in the world, the pipeline cost approximately
(25) $8 billion and is by far the biggest and most expensive construction
project ever undertaken by private industry. In fact, no single
business could raise that much money, so 8 major oil companies
formed a consortium in order to share the costs. Each company
controlled oil rights to particular shares of land in the oil fields and
(30)   paid into the pipeline-construction fund according to the size of its
holdings. Today, despite enormous problems of climate, supply
shortages, equipment breakdowns, labor disagreements, treacherous
terrain, a certain amount of mismanagement, and even theft, the
Alaska pipeline has been completed and is operating.

a) The passage primarily discusses the pipeline's:
   i)   Operating costs.   ii) Employees.
   iii) Consumers.   iv) Construction.
b) The word "it" in line 4 refers to:
   i)   Pipeline.   ii) Ocean.
   iii) State.   iv) Village.
c) According to the passage, 84 million gallons of oil can travel through the pipeline each:

i)   Day.   ii)   Week.
iii) Month.   iv)   Year.
d) The phrase "Resting on" in line 13 is closest in meaning to:
   i)   Consisting of   ii)   Supported by
   iii) Passing under   iv)   Protected with
e) The author mentions all of the following as important in determining the pipeline's route
   EXCEPT the:
   i)   Climate.   ii)   Lay of the land itself.
   iii) Local vegetation.   iv)   Kind of soil and rock.
f) The word "undertaken" in line 26 is closest in meaning to:
   i)   Removed.   ii)   Selected.
   iii) Transported.   iv)   Attempted.
g) How many companies shared the costs of constructing the pipeline?
   i)   3.   ii)   4.
   iii) 8.   iv)   12.
h) The word "particular" in line 29 is closest in meaning to:
   i)   Peculiar.   ii)   Specific.
   iii) Exceptional.   iv)   Equal.
i) Which of the following determined what percentage of the construction costs each member
   of the consortium would pay?
   i)   How much oil field land each company owned?
   ii) How long each company had owned land in the oil fields?
   iii) How many people worked for each company?
   iv) How many oil wells were located on the company's land?
j) Where in the passage does the author provide a term for an earth covering that always
   remains frozen?
   i)   Line 3.   ii)   Line 13.
   iii) Line 19.   iv)   Line 32.   **2×10**

Q.5   In each question below, a sentence is broken into five or six parts. Join these parts to make a
      meaningful sentence. The correct order of the parts is the answer.
      a) i)   The.   ii)   Dog.   iii) James.
         iv) Talking.   v)   Sat.   vi) Next.
         vii) To.   viii) Himself.   ix) To.
      b) i)   Parts.   ii)   Many.   iii) Coffee.
         iv) Popular.   v)   In.   vi) World.
         vii) The.   viii) Is.   ix) Very.
         x)   Of.
      c) i)   Gift.   ii)   Free.   iii) A.
         iv) Dad.   v)   Offered.   vi) Firm.
         vii) By.   viii) The.   ix) Was.
      d) i)   I.   ii)   Immediately. iii) Salary.
         iv) My.   v)   Want.
      e) i)   The.   ii)   Storm.   iii) Shed.
         iv) Damaged.   v)   The.   vi) Was.
         vii) During.   **2×5**

Q.6   Fill in the correct model:
      a) You _____ eat more vegetables.
      b) _____ i have a coffee please?
      c) The passenger's _____ wear their seatbelts at all times.
      d) I _____ ice skate very well.
      e) The rock band _____ play very well last year.   **1×5**

Q.7   Read each sentence to find out whether there is any grammatical error in it. Rewrite the
      sentence without the mistake.

a) It is raining when I got home last night.
b) My sister is annoying today, but usually she is nice.
c) If we will be late, they will be angry.
d) My father is thinking that I should stop smoking.
e) I have not ate anything today. **2×5**

End Semester Examination, Dec. 2016
BCA-Third Semester
NUMERICAL ANALYSIS AND STATISTICAL TECHNIQUES(BCA-301(CB))

Time: 3 hrs

Max Marks: 100

No. of pages: 2

Note: Attempt FIVE questions in all;Q.1 is compulsory. Attempt any TWO questions from Part A and TWO questions from Part B. Each question carries equal marks.

Q.1 a) Find the relative error if 2/3 is approximated to 0.667.

b) Write the Newton – Raphson formula for solution of an equation.

c) $\frac{1}{\Delta} - \frac{1}{\nabla}$ is equal to

    (i) 1   (ii) -1   (iii) Δ (iv) ∇

d) State Sterling's formula.

e) Write the equations to fit a parabola by least square methods.

f) Form a Newton forward difference table for following data:

x	0	5	10	15	20	25
y	7	11	14	18	24	32

g) Define correlation.

h) What do you mean by random-sampling?

i) Mean value of binomial distribution is _____.

j) What is empirical relation between mean, median and mode?   2x10

PART-A

Q.2 a) What is the sufficient condition for convergence of fixed point iteration method?Solve $e^{-x} = 10x$ correct to 4 decimal places.   10

b) Find the real root of cube root of 18 by 'false position' method.   10

Q.3 a) Given Sin 45° = .7071, Sin 50° = .776, Sin 55° = .8192, Sin 60° = .8660 find Sin 52°.   6

b) Find the equation of a cubic curve that passes through the points (-1,-8), (0,3), (2,1) and (3,2) using Lagrange's Interpolation formula.   10

c) Show that $\Delta \equiv E - 1$ and $\nabla \equiv 1 - E^{-1}$.   4

Q.4 a) Use Euler's method to solve for y at $x = .1$ from the equation $\frac{dy}{dx} = x + y + xy$ and $y(0) = 1$ taking step size $h = \cdot 5$.   10

b) Use Trapezoidal and Simpson's 1/3 rule to complete $\int_{0}^{10} e^{x} dx$.   10

PART-B

Q.5 a) 1500 workers are working in an industrial establishment. Their age is classified as follows:

Age (Yrs)	No. of workers	Age (Yrs)	No. of workers
18-22	120	38-42	184

22-26	125	42-46	162
26-30	280	46-50	86
30-34	260	50-54	75
34-38	155	54-58	53

Calculate the median age and mean.   10

b) The following data relate to the age of 10 employees and the number of days which they reported sick in a month:

Age	20	30	32	35	40	46	52	55	58	62
Sick days	11	12	10	13	14	16	15	17	18	19

Calculate Karl Pearson's coefficient of correlation and interpret its value.   10

Q.6   a) What do you mean by probability and Mutually exclusive events?   5

b) A problem in business statistics is given to five students: A, B, C, D and E.Their chances of solving are 1/2, 1/3, 1/4, 1/5 and 1/6. What is the probability that problem will be solved?   5

c) On the average, one in 400 items is defective. If the items are packed in boxes of 100, what is the probability that any given box of item will contain: 10
i) No defective.
ii) Less than two defectives.

Q.7   Write short notes on following :
a) Type-I and Type-II error.
b) Null and alternative hypothesis.
c) Critical region and acceptance region.
d) Sample and population.
e) Quota sampling.   4x5

End Semester Examination, Dec. 2016
BCA— Third Semester
MATHEMATICS-II (BCA-301)

Time: 3 hrs. Max Marks: **75**

No. of pages: 2

Note: *Attempt* **FIVE** *questions in all; taking at least* **ONE** *question from each Unit.* **Q.1 is compulsory.** *Marks are indicated against each question.*

Q.1 a) Define a diagonal matrix along with an example.

b) If $A = \begin{bmatrix} 1 & 2 & 1 \\ 1 & 0 & 2 \\ 0 & 2 & 3 \end{bmatrix}$, find $|A|$.

c) Construct a 2×2 matrix whose elements $a_{ij} = \dfrac{(i+j)^2}{2}$.

d) Define a non-singular matrix along with an example.

e) Solve 18_{P_4}.

f) Find the value of $\lim\limits_{x \to \infty} \dfrac{4x+3}{2x+2}$.

g) Expand $(3b+2)^3$.

h) Construct a 3x3 matrix whose elements $aij = i - j$.

i) What is "general term" in a binomial theorem?

j) What do you mean Maclaurin's series? **1½×10**

UNIT-I

Q.2 a) Solve for x:

If $\begin{vmatrix} x & 2 & -1 \\ 2 & 5 & x \\ -1 & 2 & x \end{vmatrix} = 0$ **7**

b) If $A = \begin{bmatrix} 3 & 5 \\ -4 & 2 \end{bmatrix}$; find $A^2 + 5A - 14I$, where (I) is a unit matrix. **8**

Q.3 a) Solve the following equations using Cramer's rule:

$5x + 2y = 3$

$3x + 2y = 5$ **8**

b) In how many ways can the letters of the word "DELHI" be arranged so that the letter "E" and "I" occupy only even places? **7**

UNIT-II

Q.4 a) Define a bounded set. **5**

b) Prove that greatest lower bound of a set if it exists is unique. **10**

Q.5 a) Give an example of a bounded set which contain its l.u.b. but it does not contain the g.l.b. **7**

b) Prove that NXN is countable; where N is set of natural numbers. **8**

UNIT-III

Q.6 a) Show that the series $\dfrac{1}{2}+\dfrac{1}{2^2}+\dfrac{1}{2^3}+----$ converges. 7

b) State and prove comparison test of 4th form. 8

Q.7 a) Discuss the convergence of the sequence $<un>$ where:

$$un=\dfrac{n+1}{n}$$ 8

b) State and prove squeeze principle. 7

UNIT-IV

Q.8 a) Evaluate $\lim\limits_{x\to\infty}\dfrac{(\tan^{-1}x)^2}{\log(1+x^2)}$. 7

b) If $f(x)=x^3+2x^2-5x+11$, find the value of $f\left(\dfrac{9}{10}\right)$ with the help of Taylor's series. 8

Q.9 Show that $\dfrac{x}{1+x}<\log(1+x)<x \ for \ x>-1; x\neq0$. 15

End Semester Examination, Dec. 2016
BCA– Third Semester
OBJECT ORIENTED PROGRAMMING USING C++ (BCA-302 (CB))

Time: 3 hrs.   Max Marks:100

No. of pages:1

Note: Attempt FIVE questions in all;Q.1 is compulsory. Attempt any TWO questions from Part A and TWO questions from Part B. Each question carries equal marks.

Q.1 State whether the following statements are TRUE or FALSE. Justify your answer with suitable reasons.
   a) The main emphasis of procedure oriented programming is on algorithms rather than on data.
   b) The output function printf can be used in C++ programs.
   c) A function argument is a value returned by the function to the calling program.
   d) Classes can bring together all aspects of an entity in one place.
   e) Friend functions have access to only public members of a class.
   f) Constructors like other member functions, can be declared anywhere in the class.
   g) When using an overloaded binary operator, the left operator is implicitly passed to the member function.
   h) Inheritance helps in making a general class into a more specific class.
   i) This pointer points to the object that is currently used to invoke a function.
   j) A programmer can define a manipulator that could represent a set of format functions.   2×10

PART-A

Q.2 What is object oriented programming? How is it different from procedure oriented programming? Discuss the basic concepts of Object Oriented Programming.   20

Q.3 What is the difference between call-by-value and call-by-reference? Explain giving programming examples of each.   20

Q.4 a) What is a friend function? What are the merits and demerits of using friend function?   10
   b) What are objects? How are they created?   10

PART-B

Q.5 a) Can we have more than one constructors in a class? If yes, explain the need for such a situation.   10
   b) Explain the different types of constructor in detail.   10

Q.6 a) What is an abstract class?   10
   b) When do we make a virtual function "pure"? What are the implications of making a function a pure virtual function?   10

Q.7 What is the basic difference between manipulators and Ios member functions in implementation? Give examples.   20

End Semester Examination, Dec. 2016
BCA– ThirdSemester
OBJECT ORIENTED DESIGN AND PROGRAMMING(BCA-302)

Time: 3 hrs.   Max Marks:75

No. of pages:2

Note: Attempt FIVE questions in all;taking at least ONE question from each UNIT.
Q.1 is compulsory. All questions carry equal marks.

Q.1 a) In C++ programming strcmp( ) functions is used for:
    i) Convert string to char.   ii) Copy two strings.
    iii) Compare two strings.   iv) None of these.

  b) In C++ programming '\a' is used for:
    i) Form feed.   ii) Line break.
    iii) Selected all.   iv) Alarm.

  c) Which of the following is a correct statement?
    i) Variable name must start with underscore.
    ii) Variable name must have digit.
    iii) Variable name must have white space character.
    iv) Keyword cannot be a variable name.

  d) While coding in C++ programming for "Call by Reference" we pass:
    i) Address of variable.   ii) Value of the variable.
    iii) Either value or address.   iv) Both value and address.

  e) Which of the following is the symbol for AND operator?
    i) || || ii) &
    iii) &&   iv) $$

  f) Which of the following is not the type of variable?
    i) Extern.   ii) Register.
    iii) Global.   iv) None of these.

  g) Which of the following is incorrect statement:
    i) All array variables have same type.
    ii) An array is the collection of variable.
    iii) Array variables can be used individually.
    iv) None of these.

  h) In C++ programming array index always starts with:
    i) 0   ii) 1
    iii) 2   iv) 3

  i) In C++ programming a function can return:
    i) Single value.   ii) Double values.
    iii) Many values.   iv) None of these.

  j) Which of the following is required to write and run C++ program?
    i) Compiler.   ii) Text editor.
    iii) Operating system.   iv) All of these.   1½×10

UNIT-I

Q.2 a) What are the characteristic of a procedural language? What are its limitations?   5
  b) What is the difference between compile time waring and compile time error?   5
  c) What is encapsulation?   5

Q.3 Write all the steps sequentially from creation of a source file (.CPP) till creation of an executable file (.EXE) by giving a suitable example.   15

UNIT-II

Q.4   What do you mean by recursion? Explain the concept of recursion by writing a program in C++ for printing Fibonacci series.   15

Q.5   a) Write a program to access static methods without an object.   10
          b) What is friend function and why it is required?   5

UNIT-III

Q.6   What is operator overloading? Explain binary operator overloading with the help of a C++ program.   15

Q.7   Write short notes on the following:
          a) Abstract class.
          b) Early and late binding.
          c) Virtual functions. 5×3

UNIT-IV

Q.8   What is multiple inheritance? What is the problem associated with multiple inheritance? Give an example to solve the problem associated with multiple inheritance.   15

Q.9   a) What is the difference between overloading and overriding?   5
          b) Explain function overriding with the help of an example.   10

End Semester Examination, Dec. 2016

BCA–ThirdSemester
INTRODUCTION TO OPERATING SYSTEM(BCA-303(CB))

Time: 3 hrs.   Max Marks: 100
                                                       No. of pages: 2

Note: Attempt FIVE questions in all; Q.1is compulsory. Attempt anyTWO questions from PART-A and TWO questions from PART-B. Each question carries equal marks.

Q.1   a) PCB stands for _____.
          i)   Process Control Block.   ii) Program Control Block.
          iii) Process Control Body.   iv) Process Capture Block.
      b) A solution of starvation is _____.
      c) A address generated by the CPU is referred to as a _____.
      d) which is not the state of the process?
          i)   Blocked   ii) Ready
          iii) Running   iv) Privileged
      e) Context switch is _____.
      f) The scheduling in which CPU is allocated to the process with at least CPU burst time is called _____.
      g) A critical section is a program segment:
          i)   Which must be enclosed by a pair of semaphore operation P & V.
          ii) Where shared resources are accessed.
          iii) Which avoids deadlock.
      h) MBR stands for _____.
      i) FCFS stands for _____.
      j) Fork system call is used for _____. 2×10

PART-A

Q.2   a) What are the services provided by the operating system? Explain in detail.   10
      b) Write short notes on:
          i)   Time sharing system.
          ii) Multiprogramming. 5×2

Q.3   a) What is process? Explain the process state diagram.   5
      b) Consider the following scenario:

Process	CPU Burst Time	Priority
P_1	8	1
P_2	6	3
P_3	3	4
P_4	4	2

          Assume arrival time for each process is zero. Calculate the average waiting time and average waiting time and average turnaround time for FCFS, SJF, RR (time quantum = 3 ms) and priority scheduling.   12
      c) Differentiate between preemptive and non-preemptive scheduling.   3

Q.4   a) Explain the dining philosopher problem with their solution.   8
      b) What are the necessary conditions for a deadlock?   4
      c) Consider the following scenario:

Process	Max Need	Allocation
P_1	5	3

P_2	7	2
P_3	3	1

Assume total resources are 8.
  i)   Find whether the system is in safe state or not?
  ii) If P_3 request one more resource whether it is granted or not.   8

PART-B

Q.5 a) Write short notes on:
      i)   Demand paging.
      ii) Segmentation.   5×2
     b) Consider the following reference string:
         2, 3, 4, 5, 6, 2, 7, 1, 3, 4, 5, 2, 1, 3
         Assume there are three memory frames. Solve it using FIFO and LRU page
         replacement policy. Calculate the total no of hit and miss using FIFO and LRU
         (Least Recently Used).   10

Q.6 a) What is file system? Explain the different file access methods in detail.   10
     b) Write short notes on:
      i)   SSTF disk scheduling.
      ii) Transforming I/O required.   5×2

Q.7 a) Explain the system components of Window XP with a suitable block diagram.   10
     b) How process management is done in LINUX Operating System?   10

End Semester Examination, Dec. 2016
BCA- Third Semester
DATABASE SYSTEM(BCA-303)

Time: 3 hrs   Max Marks: 75

No. of pages: 2

Note: AttemptFIVEquestions in all; taking at least ONE question from each Unit.Q.1 is compulsory. All questions carry equal marks.

Q.1   Fill in the blanks:
a) DFD stands for _____.
b) DBMS is a collection of _____ that enables user to create and maintain a database.
c) A _____ is used to define overall design of the database.
d) In snapshot _____ clause tell oracle how long to wait between refreshers.
e) Data about data is normally termed as _____.
f) _____ is an example of record based data model.
State whether the following statements are TRUE or FALSE:
g) Count keyword is used to find the numbers of values in a column.
h) Select operator is not a unary operator.
Answer the following questions:
i) A top to bottom relationship among the items in a database is established by a:
    i)   Hierarchical schema.
    ii) Network schema.
    iii) Relational schema.
    iv) All of the above.
j) Which character function can be used to return a specified portion of a character string?   1½x10

UNIT-I

Q.2   a) Discuss the advantages of an DBMS over a traditional flat-file system.   7
       b) Explain the two-tier and three tier clientserver architecture in detail.   8

Q.3   What is a database model? Explain any two types of data models with an example of each.   15

UNIT-II

Q.4   Write short notes on:
a) Order by clause.
b) Structured query language.
c) Relational operators.   5x3

Q.5   What do you understand by entity relationship model? What are its features? Draw an E-R diagram for a banking system.   15

UNIT-III

Q.6   a) What are the three data anomalies that are likely to occur as a result of data redundancy? Can data redundancy be completely eliminated in database approach? Why or why not?   10
       b) Briefly explain the following:
           i)   Armstrong rule.

      ii) Trivial dependency.   5

Q.7   What do you understand by normalization of data? Define and discuss different normal forms with examples.   15

UNIT-IV

Q.8   Explain about two phase locking techniques for concurrency control in detail. 15

Q.9   Why deadlock occurs? How it can be prevented? Explain all deadlock detection and prevention techniques in detail.   15

End Semester Examination, Dec. 2016

BCA– FirstSemester

WEB APPLICATIONS DEVELOPMENT (BCA-304 (CB))

Time: 3 hrs.

Max Marks:100

No. of pages:2

Note: Attempt FIVE questions in all;Q.1 is compulsory. Attempt any TWO questions from Part A and TWO questions from Part B. Each question carries equal marks.

Q.1   Multiple choice questions:

a) You can redirect the webpage in JavaScript by using _____ method.
   i)   Window reload.
   ii) Window.location.
   iii) page location.
   iv) url.new location.

b) Internet explorer uses _____ property to create transparent images.
   i)   -moz-opacity:x
   ii) filter:alpha (opacity = x)
   iii) None of the above.
   iv) Both of the above.

c) <b> tag makes the enclosed text bold. What is other tag to make text bold?
   i)   <strong>
   ii) <dar>
   iii) <black>
   iv) <emp>

(d) How can you make a numbered list?
   i)   <dl>
   ii) <01>
   iii) <list>
   iv)

e) Which attribute is used to name and element uniquely?
   i)   class
   ii) id
   iii) dot
   iv) All of the above

f) Some tagsencloses the text those tags are known as:
   i)   Couple tags.
   ii) Single tags.
   iii) Double tags.
   iv) pair tags.

g) The way the browser displays the object can be modified by
   i)   Attributes
   ii) Parameters
   iii) Modifiers
   iv) None of the above

h) Which of the following are capabilities of function in JavaScript?
   i)   Return a value.
   ii) Accept parameters and returns a value.
   iii) Accept parameters.
   iv) None of the above.

i) Which of the following is not a valid JavaScript variable name?
   i)   2 Names.
   ii) first-and-Last-Names.
   iii) First-and-Last.
   iv) None of the above.

j) The _____ method of an array object adds and/or removes elements from an array.
   i)   Reverse
   ii) Shift
   iii) Slice
   iv) Splice

2×10

PART-A

Q.2 a) What is an internet? What are the different applications of internet? Explain in detail. 10
     b) Describe email architecture and services in detail. 10

Q.3 Describe hyperlinks. How hyperlink is used to link between the files in HTML? Also, explain the different types of hyperlinks in HTML. 20

Q.4 Write the HTML code to develop the following table with appropriate rows and columns.

Employees Data

Emp No.	Name	Deptt.	Salary
101	Ajay	Sales	30000
102	Bhawna	Accounts	20000
103	Shailesh	Marketing	15000

10

PART-B

Q.5 Write short note on the following:
     a) HTML attributes.
     b) FTP.
     c) Telnet. 20

Q.6 What is HTML frame? What are the different applications of a frame? Explain your answer with the help of nesting frame. 20

Q.7 What are the different dialog boxes in JavaScript? Write a program of your choice to perform the action of all the dialog boxes in JavaScript. 20

End Semester Examination, Dec. 2016
BCA-Third Semester
BUSINESS ORGANISATION AND PRINCIPLES OF MANAGEMENT
(BCA-304)

Time: 3 hrs

Max Marks:75

No. of pages: 1

Note: Attempt FIVE questions in all; taking at least ONE question from each Unit.Q.1 is compulsory. All questions carry equal marks.

Q.1   a) A _____ is an agreement between two or more persons to carry a lawful businessand share its profit.

b) Full form of SWOT _____.

c) Under this technique a small group of persons are stimulated to create thinking _____.

d) One of the internal environment factor that influence management is _____.

e) The term 'communication' is derived from the Latin word _____.

f) Planning, feedback, delegation, and corrective action are the elements of _____.

g) What is non-programmed decision?

h) Define 'planning'.

i) Business refers to production and distribution of goods and services with the object of earning profits by satisfying human wants. (True/False)

j) Motivation is not a psychological phenomenon. (True/False)   1½x10

UNIT-I

Q.2   a) What is business? Discuss the objectives of businessin brief.   8

b) Discuss the advantages and disadvantages of business process outsourcing in detail.   7

Q.3   Discuss the characteristics and different types of entrepreneurs in detail.   15

UNIT-II

Q.4   Explain the various factors which one would keep in mind while-selecting suitable form of business ownership.   15

Q.5   Write short notes on:

a) Channels of distribution.

b) Centralization.   7½x2

UNIT-III

Q.6   a) Explain Theory X and Theory Y of motivation in detail.   7

b) Explain the main steps involved in the selection of employees in detail.   8

Q.7   Explain the process of managerial control. What are the principles of effective control system?   15

UNIT-IV

Q.8   Write a critical note on 'Management by objectives (MBO)'.   15

Q.9   Explain the concept of collective bargaining and also explain its importance in industrial relations.   15

End Semester Examination, Dec. 2016
BCA—ThirdSemester
SHELL PROGRAMMING(BCA-306 (CB))

Time: 3 hrs.   Max Marks: 100

No. of pages: 2

Note: Attempt FIVE questions in all; Q.1is compulsory. Attempt anyTWO questions from PART-A and TWO questions from PART-B. Each question carries equal marks.

Q.1   a) Fill in the blanks:
   i)   _____ command tells the PID of a process.
   ii) _____ commands will set a reminder which reminds you to attend function at 3:30.
   iii) _____ command will display the list of last 20 files present in the current directory.
   iv) Unix OS was developed by _____.
   v)   Default system wide permissions for a file are _____ and that for a directory are _____.   2×5
   b) State whether the following statements are TRUE OR FALSE. Also rectify the false statement:
   i)   Md command is used to make directories.
   ii) Kill command will be used to kill a process.
   iii) Wall command is used for chatting with friends.
   iv) PID and PPID of a process can be same.
   v)   Background processes are used to execute short processes.   2×5

PART-A

Q.2   a) What are the major directories used by UNIX operating system? Explain.   7
   b) Draw and explain detailed architecture of UNIX operating system.   7
   c) Explain the various shells available in UNIX operating system with their features. 6

Q.3   a) Which command is used to change permission associated with file / directories? List and explain methods to change permissions of file / directories.   10
   b) What are the different states in which a process can be? Explain with suitable examples.   10

Q.4   Write the commands for the following:
   a) Display the calendar of the month in which you born.
   b) Change the mode of the file so that all can execute the file.
   c) Convert all capital letters in a file to small case letters.
   d) Combine the contents of the file text and matter into another file txtmat.
   e) Rename the file new text to old text.
   f) Delete interactively all files.
   g) Display the content of the file text on the screen.
   h) Change the permissions for the file new text to 666.
   i) Extract the address field from a file which contains records having fields name: age : address : phone.
   j) List all files beginning with the character "P" on the screen and also store them in a file called file 1.   2×10

PART-B

Q.5 a) What do you mean by pipes and filters? How are these helpful in UNIX environment? Illustrate through suitable examples.   10
     b) Write a shell script which accepts a number from user and print $n$terms of Fibonacci series.   10

Q.6 a) What is process status? Explain PS command with options. Also discuss PS status of various system processes.   10
     b) Explain how numeric and string comparison is done by using test command in a shell script.   10

Q.7 a) Explain the concept of positional parameters in UNIX. Give example of a shell script and describing the use of positional parameters.   10
     b) What are the various conditional constructs available in shell programming? Illustrate with a suitable example.   10

End Semester Examination, Dec. 2016
BCA-Fourth Semester
E-COMMERCE(BCA-401)

Time: 3 hrs

Max Marks:75

No. of pages: 2

Note: AttemptFIVEquestions in all; taking at least ONE question from each Unit. Q.1 is compulsory. All questions carry equal marks.

Q.1
a) Which of the following describes e-commerce?
  i) Doing business electronically.
  ii) Doing business.
  iii) Sales of good.
  iv) All the above

b) Which segment do e-bay, Amazon.com belong?
  i) B2C
  ii) B2B
  iii) C2B
  iv) C2C

c) Which type deals with auction?
  i) B2B
  ii) B2C
  iii) C2B
  iv) C2C

d) Which of the following is not related to security mechanism?
  i) Encryption
  ii) Decryption
  iii) e-cash
  iv) All the above.

e) Which type of adds appear on a web-page?
  i) Pop under ad
  ii) Pop up ad.
  iii) Banner ad.
  iv) Discount ad.

f) What does EDI stands for?

g) Name two threats to network security.

h) Name three models for B2B e-commerce.

i) What is B2C?

j) What does SET stands for?   1½x10

UNIT-I

Q.2   Distinguish between:
a) E-Commerce and e-business.
b) Value chain and supply chain management.
c) Intranet and extranet.   5x3

Q.3   What is e-business? Differentiate it with e-commerce with the help of real life examples. Describe the role of e–commerce in competitive strategies.   15

UNIT-II

Q.4   What are the nuts and bolts of EDI? What are the requirements of EDI standard in e-commerce? What are the business advantages of EDI?   15

Q.5   Explain the following:
a) Internet based auctions.
b) Models of B2B e-commerce.
c) Supplier oriented market place.   5x3

UNIT-III

Q.6   Explain the key features of e-cash. What is the main difference between credit cards and debit cards? Why is one type of card favored over the other?   15

Q.7   Elaborate some e-commerce related legal incidents and also explain the ethical issues
       surrounding the internet.   15

UNIT-IV

Q.8   a) List and briefly explain the key components of a network.   5
       b) Differentiate between:
           i)   LAN and WAN.
           ii) HTTP and FTP.   5x2

Q.9   Write short notes on the following:
       a) Global electronic commerce.
       b) Managerial issues in digital economy.
       c) Electronic commerce in small companies.   5x3

End Semester Examination, Dec. 2016
BCA-Fourth Semester
OPERATING SYSTEMS (BCA-402)

Time: 3 hrs

Max Marks: 75
No. of pages: 2

Note: AttemptFIVEquestions in all; taking at least ONE question from each Unit.Q.1 is compulsory. All questions carry equal marks.

Q.1 Fill in the blanks with appropriate word.
  a) An operating system is an _____ software.
  b) _____ system has more than one CPU.
  c) In _____ mode machine is executing operating system instructions.
  d) The various methods of inter process communication are _____.
  e) A thread is sometimes called as a _____ process.
  f) The mean time from submission to completion of a process is called _____.
  g) The system is in _____ state when each process holds a resource being requested by the other process and no process is a position to release the resource it holds.
  h) _____ scheme allows size of a program to be larger than the amount of physical memory allocated to it.
  i) _____ allocates the largest hole available in the memory.
  j) A _____ is a collection of related information that is stored on secondary storage.   1½x10

UNIT-I

Q.2 Give an abstract view of an operating system. Enumerate important characteristics of a good operating system; also discuss how OS acts as a resource manager?15

Q.3 Differentiate between:
  a) Time sharing and multiprogramming.
  b) Short term schedulers and long term schedulers.   7½x2

UNIT-II

Q.4 What is the difference between a program and a process? Draw and explain a process state diagram.   15

Q.5 Suppose that the following processes arrive for execution at the times indicated. Each process will run for the amount of time listed. In answering the question use non preemptive scheduling of the following table.

Process	Arrival Time	Burst Time
P1	0.0	8
P2	0.4	4
P3	1.0	1

What is the average turn-around time and waiting-time for FCFS, SJF and round robin scheduling algorithm?   15

UNIT-III

Q.6 What do you mean by swapping? Explain the concept of internal and external fragmentation with diagram.   15

Q.7   Explain the page replacement algorithms (LRU, Optimal and FIFO) by taking suitable examples.   15

UNIT-IV

Q.8   Explain the disk scheduling criteria.Illustrate with suitable examples.   15

Q.9   Write short notes on:
       a) File protection and security.
       b) Comparison between windows and UNIX operating system.   7½x2

End Semester Examination, Dec. 2016
BCA-Fourth Semester
WEB DESIGNING AND INTERNET APPLICATIONS (BCA-403)

Time: 3 hrs

Max Marks: 75

No. of pages: 2

Note: AttemptFIVEquestions in all; taking at least ONE question from each Unit.Q.1 is compulsory. All questions carry equal marks.

Q.1 a) Which of the following protocol is not used in the internet?
    i) Telnet   ii) WIRL
    iii) HTTP   iv) Gopher
b) HTML uses:
    i) Pre-specified tags   ii) User-defined tags
    iii) Tags only for linking   iv) Fixed tags defined by language
c) Which language defined the behavior of webpage?
    i) HTML   ii) JavaScript
    iii) CSS   iv) French
d) Which CSS property is used to change the text color of an element?
    i) font-color   ii) bg color
    iii) text-color   iv) color
e) JavaScript is _____ side scripting language.
    i) Server   ii) Browser
    iii) ISP   iv) None of these
f) Which tag is used for arranging tags in paragraph?
    i) <par>   ii) <paragraph>
    iii) <p>   iv) <a>
g) The tag used in HTML to link with other URL is:
    i) <A>   ii) <H>
    iii) <U>   iv) <L>
h) Which of the following HTML code is valid?
    i) <font colour="red">   ii) <font color="red">
    iii) <red><font>   iv) All the above
i) Which element is used to name an element uniquely?
    i) class   ii) id
    iii) dot   iv) All at the above
j) Which tag in HTML is used to include entered style sheets is?
    i) <ext>   ii) <link>
    iii) <include>   iv) <a>   1½x10

UNIT-I

Q.2 a) Define 'internet'. Write five applications of internet in brief.   5
b) Write short notes on:
    i) Search engines.
    ii) Internet addressing.   5x2

Q.3 a) What is WWW? Explain email architecture and its services in detail.   10
b) Discuss the internet security problems in brief.   5

UNIT-II

Q.4   a) What is the purpose of list? Explain different types of list with examples.   10
       b) Explain the image tag with its attributes in brief.   5

Q.5   Explain the following tags and use to make a webpage as an example: BOLD, ITALIC,
       SMALL, SUPERSCRIPT, UNDERLINE COMMENT, DEFINE, BLOCKQUOTE, CENTER.
                                                                              15

UNIT-III

Q.6   a) What is form? How does a form work? Discuss some of the form elements.   10
       b) What is character formatting? Write five tags of it.   5

Q.7   Create the following table using various attribute:

RAILWAY RESERVATION					
Train No.	TIME		PLACE		Passenger
	Reaching	Departure	Source	Destination	
Write at least 5 records					

                                                                              15

UNIT-IV

Q.8   a) What is document object model? Explain with a diagram.   5
       b) Write a program in JavaScript for addition of two numbers.   10

Q.9   a) Differentiate between internal, external and inline style sheets.   10
       b) Write a program in JavaScript to display day using switch statement.   5

End Semester Examination, Dec. 2016
BCA-Fourth Semester
BUSINESS COMMUNICATION-II (BCA-404)

Time: 3 hrs

Max Marks: 75

No. of pages: 2

Note: AttemptFIVEquestions in all; taking at least ONE question from each Unit.Q.1 is compulsory. All questions carry equal marks.

Q.1   Fill in blanks:
   a) Communication is _____ process.
   b) The hallmarks of a presentation are team work and use of _____.
   c) An _____ is basically a meeting for obtaining information by questioning a person.
   d) There are _____ ways of oral presentation.
   State TRUE or FALSE:
   e) Any decision taken without discussion with the concerned group will be regarded as arbitrary. (True/False)
   Multiple choice questions:
   f) Arriving ahead of time for a meeting is an example of:
      i) Feedback   ii) Body language
      iii) Non-verbal communication   iv) Verbal communication
   f) An emotional intelligence trait referring to the extent that people are sensitive to situational cuess and can adapt behavior to match the situation:
      i) Self-monitoring personality   ii) Integrity
      iii) Leadership motivation   iv) Drive
   h) Filters that affect the content of a message are in:
      i) The mind of the listener.
      ii) The mind of both the speaker and the listener.
      iii) The mind of speaker.
      iv) The medium of communication.
   i) A group discussion is highly structured because:
      i) It is coordinated by a moderator.
      ii) It measures group communication skills.
      iii) Members have to listen to the view of others.
      iv) The topic, time and number of participants are all decided in advance.
   j) Feedback is the response of the:
      i) Sender   ii) Receiver   iii) Source   iv) Encoder   1½x10

UNIT-I

Q.2   "An in-depth study of the nuances of communication provides insight into the nature of the human mind". Illustrate with an example from your personal experiences.
                                                                              15

Q.3   Decision making is the process of problem solving through making a conscious choice or selecting one alternative from a group of two or more alternatives to achieve an objective. Justify the statement by proving that good decision making and problem solving result in better and more productive use of resources.   15

UNIT-II

Q.4   How can you develop positive thinking attitude? What are the best positive thinking exercises?   15

Q.5 a) The total of the ages of x, y and z is 80 years. What was the total of their ages three years ago?
b) An institute organized a fete and 1/5 of the girls and 1/8 of the boys participated in the same. What fraction of the total number of students took part in the fete?
c) A number of friends decided to go on a picnic and planned to spend Rs. 96 on eatables.Four of them, however, did not turn up. As a consequence, the remaining ones had to contribute Rs. 4 extra each. Calculate the number of those who attended the picnic.
d) What is the product of all the numbers in the dial of a telephone?
e) A tailor had a number of shirt pieces to cut from a roll of fabric. He cut each roll of equal length into 10 pieces. He cut at the rate of 45 cuts a minute. How many rolls would be cut in 24 minutes?   3x5

UNIT-III

Q.6 What are the steps involved in making a professional and effective presentation?15

Q.7 Write short notes on:
a) Brainstorming.
b) Logical sequence pole in a presentation.
c) Presentation formats.   5x3

UNIT-IV

Q.8 a) Pen down the guidelines for the interviewer in detail.   10
b) What is the best way to sum up an interview?   5

Q.9 "Performance appraisal interview should be handled with full preparation and ground work".Elaborate.   15

End Semester Examination, Dec. 2016
BCA – FifthSemester
INFORMATION AND COMMUNICATION TECHNOLOGY (BCA-501)

Time: 3 hrs. Max Marks:75

No. of pages:1

Note: Attempt FIVE questions in all;taking at least ONE question from each UNIT.
Q.1 is compulsory. All questions carry equal marks.

Q.1 Fill in the blanks:
   a) What is the use of Ctrl+Alt+Del command _____?
   b) Norton is a/an _____.
   c) Firefox is a/an _____.
   d) BIOS stands for _____.
   e) Brain of the computer is _____.   1×5
   Answer the following:
   f) What is Data Protection Act?
   g) What do you mean by cybercrimes?
   h) What is e-filing?
   i) What are types of virus? Write only names.
   j) What is TUCK SHOP records?   2×5

UNIT-I

Q.2 How do exposure to and use of ICT in different application areas? Elaborate the role of ICT and explain Boom or Bane of it.   15

Q.3 Explain the file transfer protocol? Also explain how to mountain the address book on internet with suitable examples?   15

UNIT-II

Q.4 Differentiate between internet and intranet. How a search engine works? What is extranet, blogs and wikis?   15

Q.5 Explain the limitations, disinfections and precautions of an antivirus software. Also, explain the advantages of antivirus in detail.   15

UNIT-III

Q.6 Differentiate between phishing and pharming? Also give the issues related to information security policy.   15

Q.7 Write short notes on:
   a) Cybercrimes.
   b) Copyrighting.
   c) Plagiarism.
   d) Cyber audit.
   e) Software privacy.   3×5

UNIT-IV

Q.8 What are the data handling application of ICT? Explain each of them with the help of examples.   15

Q.9 Write short notes on:
   a) TUCK SHOP.
   b) Control of flights.
   c) Role of ICT in employment.   5×3

End Semester Examination, Dec. 2016
BCA – FifthSemester
SOFTWARE ENGINEERING (BCA-502)

Time: 3 hrs.   Max Marks:75

No. of pages:1

Note: Attempt FIVE questions in all;taking at least ONE question from each UNIT. Q.1 is compulsory. All questions carry equal marks.

Q.1   Define:
   a)   Software.
   b)   Process.
   c)   Testing.
   d)   Iteration.
   e)   Documentation.   3×5

UNIT-I

Q.2   Differentiate between spiral model and prototype model. Which one is better and why?   15

Q.3   a)   Write short note on 'Coupling and Cohesion'.   7
       b)   What are the various phases of SDLC?   8

UNIT-II

Q.4   What is software requirement specification? What is the structure of SRC? Explain with the help of an example.   15

Q.5   What is LOC? Explain the advantages and disadvantages of this matric.   15

UNIT-III

Q.6   Explain COCOMO model in detail. Write the limitations of this model.   15

Q.7   What are various principles of a software design and software development?   15

UNIT-IV

Q.8   Discuss about various types of testings during a software development.   15

Q.9   Explain equivalence class partitioning with the help of an example.   15

End Semester Examination, Dec. 2016
BCA– FifthSemester
COMPUTER GRAPHICS (BCA-503)

Time: 3 hrs.   Max Marks:75
                                                No. of pages:2

Note: Attempt FIVE questions in all;taking at least ONE question from each UNIT.
Q.1 is compulsory. All questions carry equal marks.

Q.1   Multiple choice questions:
   a)   The center of projection for parallel projection is at:
       i)   Zero   ii)   Infinity
       iii) One   iv)   None of these.
   b)   Two consecutive scaling transformation t_1 and t_2 are:
       i)   Additive   ii)   Subtractive
       iii) Multiplicative   iv)   None of these.
   c)   A pixel may be defined as:
       i)   Smallest size object.   ii)   Largest size object.
       iii) Medium size object.   iv)   None of these.
   d)   A position in plane in known as:
       i)   Line   ii)   Point
       iii) Graphics   iv)   None of these.
   e)   Types of keyboard are:
       i)   Standard.   ii)   Gaming and Multeneds.
       i)   Thumb sized.   iv)   All of these.
   f)   _____ ink in used in laser printers.
       i)   Wet   ii)   Dry
       iii) Both i) & ii)   iv)   None of these.
   g)   _____ curve in one of the Sp line approx. methods.
       i)   Bezier   ii)   Ellipsoid
       iii) Shearing   iv)   None of these.
   h)   How many types of parallel projection are there?
       i)   1   ii)   2
       iii) 3   iv)   4
   i)   _____ are three dimensional analogs of quad trees.
       i)   Quadric   ii)   Octrees
       iii) Geometry   iv)   None of these.
   j)   Meta-ball is used to describe.
       i)   Simplest object.   ii)   Complex object.
       iii) Composite object.   iv)   None of these. $1½×10$

UNIT-I

Q.2   a)   What do you mean by Graphics? Explain different types of graphics in detail.   8
       b)   Explain Graphics standard in detail.   7

Q.3   Write short notes on the following:
       a)   Mouse.
       b)   Keyboard.
       c)   Touch pad.
       d)   Space ball.
       e)   Printer. $3×5$

UNIT-II

Q.4 What is coordinate transformation? Explain inverse coordinate transformation in detail.   15

Q.5 Prove that multiplication of transformation matrices for two successive scaling is commutative.   15

UNIT-III

Q.6 a) What do you mean by projection?   7
     b) Differentiate between cavalier and cabinet projection.   8

Q.7 What do you mean by animation?Explain different types of animationswith examples? 15

UNIT-IV

Q.8 a) What do you mean by sound waves?Differentiate between analog signals and digital signals.   9
     b) Explain the concept of video in detail.   6

Q.9 Write short notes on the following:
     a) MIDI.
     b) MPEG.
     c) JPEG. 5×3

End Semester Examination, Dec. 2016
BCA– FifthSemester
NUMERICAL ANALYSIS AND STATISTICS (BCA-504)

Time: 3 hrs.   Max Marks:75

                                                    No. of pages:2

Note: Attempt FIVE questions in all;taking at least ONE question from each UNIT. Q.1 is compulsory. All questions carry equal marks.

Q.1 a) What are mutually exclusive events? Give an example.
     b) Which of the following method is quadratic convergent?
         i)   RegulaFalsi.
         ii) Bisection.
         iii) Newton Raphson.
         iv) None of these.
     c) Iteration method is self-correcting method.(TRUE /FALSE)
     d) Define 'absolute error' and 'relative error'.
     e) What are type-I and type-II error?
     f) What is random sampling?
     g) What is Simpson's rule of integration?
     h) Draw Newton's forward difference table:

X	1	2	3	4	5
Y	1	– 1	1	– 1	1

     i) To fit a straight line by the least square method, the normal equations are_____.

     j) The number of significant digits in the number 305.012340 is _____. $1\frac{1}{2} \times 10$

UNIT-I

Q.2 a) Find the relative error if 2/3 is approximated to .667.   5
     b) Find by Newton-Raphson method, the real root of the equation $3x = \cos x + 1$ correct
         to four decimal places.   10

Q.3 a) Using Euler's method to solve for y at $x = \cdot 1$ from the equation $\frac{dy}{dx} = x + y + xy$ and $y(0) = 1$ taking step size = .025.   8

     b) Apply R-K method of 4th order find $y(.2)$ given that $\frac{dy}{dx} = 3x\frac{+y}{2}$, $y(0) = 1$ taking $h = .1$.   7

UNIT-II

Q.4 a) Using Newton's interpolation formula, find y at $x = 8$.

x	0	5	10	15	20	25
y	7	11	14	18	24	32

                                                                                   7
     b) Find the equation of cubic curve passing through the points (– 1 – 8), (0, 3), (2, 1) and (3, 2) using Language's interpolation formula.   8

Q.5   a) Prove that $\Delta \nabla \equiv \Delta - \nabla \equiv \nabla \Delta$.   5
      b) Using Newton's divided difference interpolation formula find $f(a)$:

X	4	5	7	10	11	12
Y	48	100	294	900	1210	2028

                                                                              10

UNIT-III

Q.6   a) Fit a straight line to the following data by Least Square method:

x	− 4	1	2	3
y	4	6	10	8

                                                                              7

      b) Evaluate by $\int_{0}^{6} \dfrac{dx}{1+x^2}$ using:

         i)   Trapezoidal Rule
         ii) Simpson's 1/3 rule   8

Q.7   a) Fit a second degree parabola to the following data by Least Square method:

X	1	3	5	7	9
Y	2	7	10	11	9

                                                                              8

      b) $\int_{0}^{2} \dfrac{dx}{1+x}$. Evaluate by using Trapezoidal rule.   7

UNIT-IV

Q.8   a) What probability model is appropriate to describe a situation where 100 misprints
          are distributed randomly throughout the 100 pages of book? For this model, what
          is the probability that a page observed at random will contain at least three
          misprints?   9
      b) What should be the size of a sample in sampling? Describe.   6

Q.7   a) Describe various sampling methods in random sampling.   8
      b) In a normal distribution, 31% of the items are under 45 and 8% are over 64. Find
          the mean and standard deviation of the distribution.   7

Time: 3 hrs.   Max Marks:75

No. of pages:3

Note: All questions are compulsory:

Q.1   Read the passage given below and answer the questions that follow:

1)   While there is no denying that the world loves a winner, it is important that you recognize the signs of stress in your behaviour and be healthy enough to enjoy your success. Stress can strike anytime, in a fashion that may leave you unaware of its presence in your life. While a certain amount of pressure is necessary for performance, it is important to be able to recognize your individual limit. For instance, there are some individuals who accept competition in a healthy fashion. There are others who collapse into weeping wrecks before an exam or on comparing marks-sheets and finding that their friend has scored better.

2)   Stress is a body reaction to any demands or changes in its internal and external environment. Whenever there is a change in the external environment such as temperature, pollutants, humidity and working conditions, it leads to stress. In these days of competition when a person makes up his mind to surpass what has been achieved by others, leading to an imbalance between demands and resources, it causes psycho-social stress. Tt is a part and parcel of everyday life.

3)   Stress has a different meaning, depending on the stage of life you are in. The loss of a toy or a reprim and from the parents might create a stress luck in a child. An adolescent who fails an examination may feel as if everything has been lost and life has no further meaning. In an adult, the loss of his or her companion, job or professional failure may appear as if there is nothing more to be achieved.

4)   Such signs appear in the attitude and behaviour of the individual, as muscle tension in various parts of the body, palpitation and high blood pressure, indigestion and hyper-acidity. Ultimately the result is self-destructive behaviour such as eating and drinking too much, smoking excessively, relying on tranquilizers. There are other signs of stress such as trembling, shaking, nervous blinking, dryness of throat and mouth and difficulty in swallowing.

5)   The professional under stress behaves as if he is a perfectionist. It leads to depression, lethargy and weakness. Periodic mood shifts also indicate the stress status of the students, executives and professionals.

6)   In a study sponsored by World Health Organization and carried out by Harvard School of Public Health, the global burden of diseases and injury indicated that stress diseases and accidents are going to be the major killersin 2020.

7)   The heart disease and depression – both stress diseases – are going to rank first and second in 2020. Road traffic accidents are going to be the third largest killers. These accidents are also an indicator of psycho-social stress in a fastmoving society. Other stress diseases like ulcers, hypertensions and sleeplessness have assumed epidemic proportions in modern societies.

8)   A person under stress reacts in different ways and the common ones are flight, fight and flee depending upon the nature of the stress and capabilities of the person. The three responses can be elegantly chosen to cope with the stress so that stress does not damage the system and become distress.

9)   When a stress crosses; the limit, peculiar to an individual, it lowers his performance capacity. Frequent crossings of the limit may result in chronic fatigue

in which a person feels lethargic, disinterested and is not easily motivated to achieve anything. This may make the person mentally undecided, confused and accident prone as well. Sudden exposure to un-nerving stress may also result in a loss of memory. Diet, massage, food supplements, herbal medicines, hobbies, relaxation techniques and dance movements are excellent stress busters.

a) What is stress? What factors lead to stress?   3
b) What are the signs by which a person can know that he is under stress?   2
c) What are the different diseases a person gets due to stress?   2
d) Give'any two examples of stress busters.   2
e) How does a person react under stress?   2
f) Which words in the above passage mean the same as the following?
   i)   fall down (para 1)
   ii) rebuke (para 3)
   iii) inactive (para 9)   1×3

Q.2   From adjectives from the following nouns and verbs:
      a) accident   b) danger   c) length   d) star   e) obey   f) talk   1×6

Q.3   Choose the correct answer from the options given below:
      a) The verb form of 'note' is
          i)   notify   ii)   noticeable
          iii) notification   iv) notation
      b) The adjective form of 'black' is
          i)   blackish   ii)   blacken
          iii) blacked   iv) none of these
      c) The adjective form of 'courage' is
          i)   courageously   ii)   courageous
          iii) courageousness   iv) none of these
      d) The adjective form of'ease' is
          i)   easy   ii)   uneasy
          iii) easiness   iv) none of these
      e) The verb form of 'tireless' is
          i)   tired   ii)   tire
          iii) tiredness   iv) tiresome
      f) The adjective form of 'heaven' is
          i)   heavenly   ii)   heave
          iii) hellish   iv) none of these
      g) The adjective form of 'talk' is
          i)   talking   ii)   talked
          iii) talkative   iv) none of these
      h) The noun form of 'stormy' is
          i)   storminess   ii)   stormed
          iii) stormful   iv) none of these
      i) The adjective form of 'wealth' is
          i)   wealthy   ii)   wealthiness
          iii) unwealthy   iv) none of these
      j) The noun form of 'compete' is
          i)   competition   ii)   competing
          iii) competitive   iv) competed   1×10

Q.4   Choose the correct antonym of the word from the four options:
      a) This seems like a good hotel.
          i)   Brilliant   ii)   Bad

iii) Great   iv) Dirty

b) She is foolish.
- i) dumb
- ii) idiotic
- iii) brainy
- iv) wise

c) That seems expensive.
- i) Overpriced
- ii) Wealthy
- iii) Great
- iv) Inexpensive

d) Why are you being so arrogant?
- i) Snooty
- ii) Stupid
- iv) Humble
- iv) Cunning

e) I do not want to live in this filthy colony.
- i) Nice
- ii) Dirty
- iii) Clean
- iv) Pretty 2×5

Q.5 Why are Group Interviews conducted? How can you perform best at group interview? 10

Q.6 What do you mean by Negotiation? Why is it an essential trait to be successful? 10

Q.7 Choose the correct option:

a) If one-third of one-fourth of a number is 15, then three-tenth of that number is:
- i) 35
- ii) 36
- iii) 45
- iv) 54

b) A and B invest in a business in the ratio 3:2. If 5% of the total profit goes to charity

and A's share is `855, the total profit is
- i) 1425
- ii) 1500
- iii) 1537.50
- iv) 1576

c) A vendor bought toffees at 6 for a rupee. How many for a rupee must he sell to gain 20%?
- i) 3
- ii) 4
- iii) 5
- iv) 6

d) Find the odd one out:396, 462,572, 427, 671,264:
- i) 396
- ii) 427
- iii) 671
- iv) 264

e) A bag contains 2 red, 3 green and 2 blue balls. Two balls are drawn at random. What is the probability thatnone of the balls drawn is blue?
- i) 10/21
- ii) 11/21
- iii) 2/7
- iv) 5/7 2×5

Q.8 Write various steps to improve presentation skills   5

End Semester Examination, Dec. 2016
BCA – SixthSemester
JAVA PROGRAMMING (BCA-601A)

Time: 3 hrs.   Max Marks:75

No. of pages:2

Note: Attempt FIVE questions in all; taking at least ONE question from each UNIT.
Q.1 is compulsory. All questions carry equal marks.

Q.1   a)   What will be result of the expression?
           (1 + 2) + (3/4)
      b)   What does the following fragment display?
           String S = "Six:" + 3 + 3;
           System out println (s).
      c)   A special method that is used to initialize a class object _____.
      d)   What will be the output of the following program?

           Class B
           {
                   staticint count = 100;
                   public void increment()
           {
                   count ++;
           }
                   public static void main (string [] args)
           {
                   B b1 = new B();
                   b1 increment();
                   B b2 = new B();
                   system.out.println (b2.count);
           }
           }
      f)   What is the purpose of garbage collection?
      g)   What is casting?
      h)   What is the difference between static and non-static variables?
      State TRUE / FALSE:
      e)   Can an abstract class final?
      i)   Is it possible in Java to create arrays of length zero?
      j)   Java always provide default constructor to a class.   1½×10

UNIT-I

Q.2   a)   Explain the salient features of java language in detail.   8
      b)   Explain the importance of java virtual machine in detail.   7

Q.3   a)   Discuss the tools available in JDK. How do they help in application development?   8
      b)   What is hypertext markup language? Describe its role in implementation of java
           applets.   7

UNIT-II

Q.4   a)   Write a program for subtraction of two matrices in java.   6

b) Why do we need the control statements? Name the five important control statements in Java. 9

Q.5 a) What is an array? What are the advantages of using arrays? Explain in detail. 9
b) Write a program to print the following output:

```
1
2  2
3  3  3
4  4  4  4
```
6

UNIT-III

Q.6 a) What is a constructor? What are its special properties? How do we invoke a constructor? 8
b) How do we access the static variable and static methods of a class? What is the advantage of using 'this' keywords? 7

Q.7 a) What is an exception? How does the 'try ... catch' mechanism handle on exception?

8
b) Explain the difference between 'overloading' and 'overriding' methods. 7

UNIT-IV

Q.8 a) Discuss the different levels of access protection available in java. 8
b) Explain the life cycle of applet in detail. 7

Q.9 a) Write a short note on:'delegation event model'. 9
b) When do we declare method or class abstract? Justify your answer with a program. 6

End Semester Examination, 2016
BCA – SixthSemester
SQL, PL/SQL AND D2K (BCA-601B)

Time: 3 hrs.   Max Marks:75

No. of pages:1

Note: Attempt FIVE questions in all; taking at least ONE question from each UNIT. Q.1 is compulsory. All questions carry equal marks.

Q.1 a) DML stands for _____.
     b) Network model uses _____ relationship.
     c) In Hierarchical Model _____ and _____ relationships can be represented.
     d) _____ is an example of data type available in SQL.
     e) Two control structures available is PL/SQL are _____ and _____.
     f) Sequence is used to _____.
     g) Exception handling section in PL/SQL is _____.
     h) _____ is an example of inbuilt string function available in SQL.
     i) LOV in D2K stands for _____.
     j) Reports in D2K are saved with the _____ extension.   1½×10

UNIT-I

Q.2 What is data model? Explain the need of using data model. Also explain the relational model in detail.   15

Q.3 What is functional dependency? Explain the need or use of functional dependency in normalization with the help of an example.   15

UNIT-II

Q.4 a) Explain five DML commands with the help of examples.   5
     b) What is a sequence? Explain the need of sequence with the help of an example. Also give the command to create a sequence in oracle.   10

Q.5 What do you mean by join in oracle? Explain different types of Joins available in oracle with the help of examples.   15

UNIT-III

Q.6 What is an exception? Explain how exception handling is done in PL/SQL?   15

Q.7 Explain the IN, OUT and INOUT types of parameters used in a procedure or function in oracle. Give suitable examples to show the usage of these types of parameters.   15

UNIT-IV

Q.8 Explain the steps of creating a report in D2K with and without parameters.   15

Q.9 Explain the following terms in D2K:
     a) Text Item.
     b) List Item.
     c) Alert.   5×3

End Semester Examination, Dec. 2016
BCA – SixthSemester
DATA COMMUNICATION AND NETWORKING(BCA-602)

Time: 3 hrs.   Max Marks:75

No. of pages:1

Note: Attempt FIVE questions in all;taking at least ONE question from each UNIT.
Q.1 is compulsory. All questions carry equal marks.

Q.1   Answer the following in two lines:
   a) Discuss the two types of line configuration.
   b) Describe the components of a co-aerial cable. Draw a picture.
   c) Draw a neat diagram of TCPI IP reference model.
   d) For public key encryption discuss the keys and their relationship.
   e) Define repeaters.
   Fill in the blanks:
   f) The _____ layer is responsible for dialog establishment, maintenance, synchronization and termination.
   g) CSMA/CD stands for _____.
   h) In _____ each packet of a message need not follow the same path from sender to receiver.
   i) The sum of the checksum and data at the receiver is _____ if there are no errors.
   j) The _____ layer lies between network layer and session layer.   1½×10

UNIT-I

Q.2   Discuss the following:
   a) Transmission impairment.
   b) Signal characteristics.   7½×2

Q.3   What are the three major categories of guided media? Discuss the each with a suitable diagram.   15

UNIT-II

Q.4   What is the relationship between the size of CRC reminder and the divisor? Given an 8-bit sequence 10110011 and a divisor 1001, find the CRC and check your answer.   15

Q.5   How TDM does combines multiple signals into one? Discuss the two types of TDM implementation and how they differ from each other.   15

UNIT-III

Q.6   Write the short notes on the following:
   a) LAN
   b) WAN
   c) MAN   5×3

Q.7   Justify why adaptive routing is superior to non-adaptive routing. Discuss shortest path routing algorithm with a suitable example.   15

UNIT-IV

Q.8   Discuss the following with suitable diagrams:
   a) CSMA/CD.
   b) Token Ring.   7½×2

Q.9 What is the relationship between plain text and cipher text? Explain any public key encryption method with an example. 15

Time: 3 hrs   Max Marks: 75

No. of pages: 2

Note: AttemptFIVEquestions in all; taking at least ONE question from each Unit.Q.1 is compulsory. All questions carry equal marks.

Q.1   Multiple choice questions:
   a) VR in multimedia stands for:
      i) Virtual reality   ii) Visual response
      iii) Video raster   iv) Valid registry
   b) For multimedia production, mastering your medium means knowing:
      i) Instructional design   ii) Video production
      iii) Hardware and software   iv) Screen writing
      v) Marketing and communication.
   c) An interface should:
      i) Be "transparent" to the user.
      ii) Provide control to the people who use it.
      iii) Allow the user to move about within the project.
      iv) Provide access to the "media" in the project.
      v) All of the above.
   d) A family of graphic characters that usually include many type sizes and styles is called a:
      i) Typeface   ii) Font
      iii) Link   iv) Node
      v) Point
   e) Which of the following is a character encoding system?
      i) Font tab   ii) HTML.
      iii) CSS.   iv) WYSIWYG.
      v) Unicode.
   f) A printed page might be presented in which of these orientations:
      i) News scape   ii) Portrait
      iii) Flat-file   iv) X-height
      v) Node
   g) Each individual measurement of a sound that is stored as digital information is called a:
      i) Buffer   ii) Stream
      iii) Capture   iv) Sample
      v) Byte
   h) Removing blank space or "dead air" at the beginning or end of a recording is sometimes called:
      i) Quieting   ii) Pre-rolling
      iii) Quantizing   iv) Trimming
      v) Flashing.
   i) Which of the following is not a native Windows graphics file format?
      i) BMP   ii) RIFF
      iii) TIFF   iv) PCX
      v) PICT
   j) Vector-drawn objects are used for all of the following except:
      i) Lines.   ii) Circles.
      iii) Polygons.   iv) Photographs.

v) Boxes. 1½x10

UNIT-I

Q.2 a) Describe the two primary multimedia delivery media-CD-ROM and DVD versus the World Wide Web and their primary differences. 8
b) List various places where multimedia can be used effectively. 7

Q.3 a) Define:
i) Multimedia   ii) Integration in multimedia
iii) Interactive multimedia   iv) HTML 8
b) What is virtual reality? Name four devices which enhance the functionality of virtual reality. 7

UNIT-II

Q.4 a) Name and explain the four stages of a multimedia project.
b) Define the multimedia skillset. Discuss how it applies to multimedia projects and the skills needed to successfully manage a project team. 15

Q.5 a) List atleast 3 factors that affect the legibility of text. 8
b) Discuss some attributes of a block of text. 7

UNIT-III

Q.6 List the important steps and considerations in recording and editing digital audio. 15

Q.7 a) Define various aspects of 3-D modeling. 8
b) Describe the capabilities and limitations of vector images. 7

UNIT-IV

Q.8 Write short notes on (any three):
a) Principles of animation.
b) Animation techniques.
c) Kinematics.
d) Morphing. 5x3

Q.9 a) Define animation and describe how it can be used in multimedia. 8
b) Define the capabilities of computer animation and the mathematical techniques that differ from traditional Cel animation. 7

End Semester Examination, Dec. 2016

BCA-Sixth Semester
INSTALLING, CONFIGURING, MAINTAINING AND TROUBLESHOOTING A PC/NETWORKING AND PERIPHERALS AND WORKING WITH MS-OFFICE (BCA-605)

Time: 3 hrs

Max Marks:75

No. of pages: 2

Note: Attempt FIVE questions in all;Q.1 is compulsory. Attempt any TWO questions from Part A and TWO questions from Part B. Each question carries equal marks.

Q.1 a) The concentric circles on the platter of hard disk are known as _____.
  i) Tracks.   ii) Sector.
  iii) Circles.   iv) All of the above.
  b) From what location are the first computer instruction available on boot.
  i) ROMBIOS.   ii) CPU.
  iii) Boot.ini   iv) Config.sys.
  c) How many Pins on VGA?
  i) 15.   ii) 9.
  iii) 25.   iv) 32.
  d) The standard IRQ for the floppy drive is:
  i) 9   ii) 6
  iii) 10   iv) All of the above
  e) The output voltages of PC power supply are in the form of _____ current.
  i) AC.   ii) DC.
  iii) Amperage.   iv) Resistive.
  f) Which provides the fastest access to large video files?
  i) Optical drives.   ii) IDE hard drives.
  iii) SCSI hard drives.   iv) EIDE hard drives.
  g) A 25 Pin female connector on the back of your computer will be:
  i) Serial port   ii) Parallel port
  iii) Docking   iv) Com2port
  h) During boot-up the memory test:
  i) Is a superfluous step that should be ignored?
  ii) Check and verifies that contiguous memory is installed.
  iii) Is an operational error.
  iv) Display what memory is installed, but nothing else.
  i) BPO stands for _____.
  j) Which the following device is used to connect two systems especially if the system use different protocols.
  i) Hub   ii) Bridge
  iii) Gateway   iv) Repeater.   1½x10

PART-A

Q.2) a) What is the difference between BPO and KPO? Explain different BPO models. 5
  b) What are the series of diagnostic test that run automatically when your computer turn on. Explain the steps that should be followed by the POST.   7
  c) Write a short note on 'cold booting'.   3

Q.3 a) When all the voltages and current level are acceptable why (SMPS) supply sends the power good signal to the microprocessor.   4
  b) Differentiate between FAT and NTFS file system.   4

c) Write down the steps to troubleshoot monitor if there is not image.   4
d) Write down the step to troubleshoot keyboard if it is not detected by the computer system.   3

Q.4   a) What is the difference between low level and high level formatting?   4
        b) What is Bus? Explain the Bus architecture used in computer systems.   8
        c) What is external fragmentation? How it can be removed from the computer system?   3

PART-B

Q.5   a) Write down the steps to carry out preventative maintenance of computer system.   7
        b) Diagnose and troubleshoot laptop problem if laptop turns on and off repeatedly.   5
        c) Differentiate between static RAM and dynamic RAM.   3

Q.6   a) Explain the various network security threats in detail.   7
        b) Write short notes on:
           i) Hub.   ii) Bridge.
           iii) Router.   iv) Gateway.   2x4

Q.7   a) What is green computing? Describe the approaches of green computing in detail.   8
        b) What is difference between point-to-point and multipoint connection?   2
        c) Write short notes on:
           i) Mesh topology.
           ii) Ring topology.   2½x2

End Semester Examination, Dec. 2016
BCA – FirstSemester
FUNDAMENTALS OF INFORMATION TECHNOLOGY AND PROGRAMMING TECHNIQUES(BCA-1001)

Time: 3 hrs. Max Marks:75

No. of pages:2

Note: Attempt FIVE questions in all;taking at least ONE question from each UNIT. Q.1 is compulsory. All questions carry equal marks.

Q.1 Answer the following:
   a) A light sensitive device that converts drawing, printed text or other images into digital form is:
   i) Keyboard   ii) Plotter
   iii) Scanner   iv) OMR
   b) In how many generations a computer can be classified?
   i) 3   ii) 4
   iii) 5   iv) 6
   c) GUI stands for:
   i) Graph user interface   ii) Graphical universal interface
   iii) Graphical user interface   iv) None of these
   d) Any data or instruction entered into the memory of a computer in considered as:
   i) Storage   ii) Output
   iii) Input   iv) Information
   e) Which network protocol is used to send e-mail?
   i) FTP   ii) SSH
   iii) SMTP   iv) POP3
   f) Operating system is the most common type of _____ software.
   i) Communication   ii) Application
   iii) System   iv) None of these
   g) Which memory is non-volatile and may be written only once?
   i) RAM   ii) EEPROM
   iii) EPROM   iv) PROM
   h) Which of the following is the fastest?
   i) CPU   ii) Magnetic Tapes
   iii) Video Terminals   iv) Sensors
   i) Which of the following terms is not used in LAN?
   i) Computer   ii) Modem
   iii) Printer   iv) Cable
   j) Computer virus is a:
   i) Hardware   ii) Software
   iii) Bacteria   iv) Freeware   1½×10

UNIT-I

Q.2 a) What is a computer? Why is it also known as a data processor?   5
   b) Differentiate between data and information. Which is more useful and why?   5
   c) Why are modern digital computers often referred to as stored program digital computers?   5

Q.3 Write short notes on:

a) Mouse.   b) Trackball.
c) Touch screen.   d) Joystick.
e) Electronic Pen.   3×5

UNIT-II

Q.4   a) What is ROM? Why is it so called? Give uses of ROM.   8
        b) Differentiate between PROM and EPROM.   7

Q.5   Explain the following:
        a) System software.
        b) Application software.
        c) Relationship between hardware and software.   5×3

UNIT-III

Q.6   a) What is an algorithm? What are the characteristics necessary for a sequence of
            instructions qualify as an algorithm?   10
        b) Write an algorithm to find out whether the number is even or odd.   5

Q.7   a) Is it easier to detect a syntax error or a logic error in a program? Give reasons for
            your answer.   10
        b) Differentiate between testing and debugging.   5

UNIT-IV

Q.8   Draw a flowchart to find out greatest of three numbers.   15

Q.9   Explain the following control structures with examples:
        a) Do-while loop.
        b) For loop.   7½×2

End Semester Examination, Dec. 2016
BCA-First Semester
PROGRAMMING IN 'C' (BCA-1002)

Time: 3 hrs

Max Marks: 75

No. of pages: 2

Note: AttemptFIVEquestions in all; taking at least ONE question from each Unit. Q.1 is compulsory. All questions carry equal marks.

Q.1 a) Are logical operators sequence points?
   i) True
   ii) False
   iii) Depends on the compiler
   iv) Depends on the standard

   b) All keywords in C are in:
   i) Lowercase letters
   ii) Uppercase letters
   iii) Camel case letters
   iv) None of these

   c) Which of the following is not a valid variable name declaration?
   a) int_a3,
   ii) int_3a
   iii) int_A3
   iv) None of these

   d) C Programs are converted into machine language with the help of:
   i) Editor
   ii) Interpreter
   iii) Compiler
   iv) All of the above

   e) For initialization a=2, c=1, the value of a and c after this code will be c=(c)?
   a=0:2;
   i) a=0, c=0
   ii) a=2, c=2
   iii) a=1, c=2
   iv) a=0, c=2

   f) The elements in the array of the following code are int array [5]={5};
   i) 5,5,5,5,5
   ii) 5,0,0,0,0
   iii) 5, (garbage), (garbage), (garbage), (garbage)
   iv) 0,0,0,5,

   g) What will be the output of code given below?
   ```
   # include <stdio.h>
   void main< >
   {
   intary [4] = {1,2,3,4};
   intP [4];
   P = ary;
   Printf("% d/n", P [1]);
   }
   ```
   i) 1
   ii) compile time error
   iii) 2
   iv) None of the above

   h) One can insert a pre-written code in a C program by using _____?
   i) Write any two differences between Malloc() and calloc() function.
   j) EXITL is same as return:
   i) TRUE
   ii) FALSE   1½x10

UNIT-I

Q.2 State the difference between variable and constant? Why constants are not in much use in the programming? Also explain the advantages and disadvantages of constants in detail.   15

Q.3   a) What are the different operators in C? Explain all in detail with the help of suitable examples.   10

        b) Writea short note on:'data types in C'.   5

UNIT-II

Q.4 Explain the difference between;   15
      a) Break and continue.
      b) For loop and while loop.
      c) intmain() and void main( )
      d) getch() and getchar( )

Q.5   What do you understand by an array? What are the different ways to declare an array? Also explain the advantages and disadvantages of using arrays. Describe your answer within the help of an example.   15

UNIT-III

Q.6   Discuss the role of pointers in C. Also explain can one locate the memory address of any variable without using the pointer. Describe your answerby giving a suitable example.   15

Q.7   Write short notes on the following:
      a) Function prototype.
      b) gets( ) and Puts( ).
      c) Recursion.   5x3

UNIT-IV

Q.8   Write a program in C to perform all the file operation functions which are used to organize the data   15

Q.9   Write a program to read the student's record from the user and store that data in a file using appropriate file functions.   15

End Semester Examination, Dec. 2016
BCA-First Semester
ENVIRONMENTAL STUDIES (BCA-1003)

Time: 3 hrs

Max Marks: 75

No. of pages: 1

Note: Attempt FIVE questions in all; taking at least ONE question from each Unit. Q.1 is compulsory. All questions carry equal marks.

Q.1   Fill in the blanks:
   a) Each and every relationship of an organism with this environment is called _____.
   b) Environmental day is celebrated on _____.
   c) _____ resources can be generated in short period of time.
   d) Terrace farming is practised in _____ regions.
   e) The organisms who directly eat green plants are called _____.
   f) Pyramid of _____ is always upright.
   g) Cancer of skin and burns are due to _____.
   h) Bhopal gas tragedy was caused by _____.
   i) DNA stands for _____.
   j) AIDS stands for _____.   1½x10

UNIT-I

Q.2   a) Define the term 'environment'. What is meant by time scale of environment? 8
       b) Define e

nvironment awareness and state why it is necessary.   7

Q.3   a) What is the difference between 'renewable' and 'non-renewable resources'? 7
       b) Write short notes on the following:
          i) Afforestation.   ii) Soil erosion.   8

UNIT-II

Q.4   a) Explain ecological succession with an example.   8
       b) Discuss the models of energy flow in an ecosystem.   7

Q.5   a) Discuss the importance of 'ecosystem' in the given ecology in detail. 8
       b) Write a short note on '10% law of energy transfer in a food chain'. 7

UNIT-III

Q.6   a) What are the various causes of soil pollution?   8
       b) What is 'Acid Rain'?   7

Q.7   a) State 'Environmental Protection Act' in detail.   8
       b) What is greenhouse effect?   7

UNIT-IV

Q.8   a) How can awareness about human rights and value education help people? 8
       b) What do you mean by 'environmental ethics?   7

Q.9   Briefly describe the various schemes launched for women and child welfare in India.

15

End Semester Examination, Dec. 2016
BCA-First Semester
BASIC MATHEMATICAL SKILLS(BCA-1004)

Time: 3 hrs

Max Marks: 75

No. of pages: 2

Note: AttemptFIVEquestions in all; taking at least ONE question from each Unit. Q.1 is compulsory. All questions carry equal marks.

Q.1   a) Define identity matrix with an example.

b) Define singular matrix with an example.

c) Solve:$16^{-3/4}$

d) If A $= \begin{pmatrix} 1 & 3 \\ 0 & -7 \end{pmatrix}$ B $= \begin{pmatrix} 2 & 4 \\ 6 & 8 \end{pmatrix}$ find A+B

e) $\log_a m^n = n\log_a m$ (T/F)

f) Solve: $\lim_{x \to a} \left[f(x).g(x) \right] = $ ____?

g) Solve: $\lim_{x \to 1} \dfrac{4x^4 + 3x^2 - 1}{x^3 + 7} = $ ____?

h) If $\sin_n = \dfrac{8}{17}$ find $\tan_n + \sec_n$

i) The seventh term of A.P is : 3 5 7 9 ....

j) Give the full expression of Maclaurin Series.

1½x10

UNIT-I

Q.2   a) A $= \begin{pmatrix} 9 & 1 \\ 4 & 3 \end{pmatrix}$ B $= \begin{pmatrix} 1 & 5 \\ 7 & 12 \end{pmatrix}$

Find the matrix X such that 3A+5B+2X = 0   8

b) Find A^{-1} where A $= \begin{pmatrix} 1 & 2 & -1. \\ -1 & 1 & 2 \\ 2 & -1 & 1 \end{pmatrix}$ 7

Q.3   a) Find Rank of $\begin{pmatrix} -1 & 1 & 2 \\ 1 & -1 & 2 \\ -1 & 1 & 10 \end{pmatrix}$ 7

b) Verify Cayley – Hamilton Theorem   8

$\begin{pmatrix} 1 & -2 & 2 \\ 1 & 2 & 3 \\ 0 & -1 & 2 \end{pmatrix}$

UNIT-II

Q.4 a) Find the sum of all natural numbers between 200 and 400 which are divisible by 7.

8

b) Find the term Independent of x in the expansion $\left(2x - \dfrac{3}{x^2}\right)^{15}$

7

Q.5 a) How many different words can be made out of the letters in the word ALLAHABAD? In how many of these will the vowels occupy even places?   8

b) Simplify $\dfrac{2^{m+3} \times 3^{2m-n} \times 5^{m+n+3} \times 6^{n+1}}{6^{m+1} \times 10^{n+3} \times 15^m}$

7

UNIT-III

Q.6 a) Prove that $\sqrt{\dfrac{1+\sin A}{1-\sin A}} = \sec A + \tan A$

8

b) Evaluate: $\log\dfrac{81}{8} - 2\log\dfrac{3}{2} + 3\log\dfrac{2}{3} + \log\dfrac{3}{4}$

7

Q.7 a) Prove that $\cos 24^0 + \cos 55^0 + \cos 125^0 + \cos 204^0 + \cos 300^0 = \dfrac{1}{2}$

8

b) Show that $\log\dfrac{x^2}{yz} + \log\dfrac{y^2}{zx} + \log\dfrac{z^2}{xy} = 0$

7

UNIT-IV

Q.8 a) Evaluate: $\lim\limits_{x\to 0}\dfrac{\sqrt{1+x}-1}{x}$

7

b) A function $f(x)$ is defined as follows:

$f(x)=3+2x, \forall -3/2 \le x < 0$

$f(x)=3-2x, \forall 0 \le x < 3/2$

$f(x)=-3-2x, \forall x \ge 3/2$

Show that function is continues at $x=0$ and is discontinuous at $x=3/2$ 8

Q.9 a) Differentiate w.r.t x: $\dfrac{(2x+1)(3x+1)}{(4x+1)}$

6

b) By Maclaurins Series expend: e^{5x}

9

End Semester Examination, Dec. 2016
BCA— First Semester
ENGLISH LANGUAGE PROFICIENCY-I (BCA-1005)

Note: *All questions are Compulsory.*

Q.1   Answer the following questions: *(ANY FIVE)*
   a) What are the two types of calls?
   b) Name the various kinds of nouns.
   c) What do you mean by voiced and unvoiced consonant sounds?
   d) Write the count and name the vowels and consonants in English alphabet.
   e) Define Adjectives. Give one example.
   f) Write the different types of vowel sounds.   **2×5**

Q.2   Underline the sound for the given vowel sounds:
a) Believe.
b) Break.
c) About.
d) Because.
e) Euphemism.   **1×5**

Q.3   Fill in the blanks with "a", "an" or "the":
a) _____ ink in my pen is red.
b) I lived on _____ Main Street when I first came to town.
c) One of the students said, "_____ professor is late today."
d) I bought _____ umbrella to go out in the rain.
e) _____ apple a day keeps the doctor away.   **1×5**

Q.4   Write the contracted form of the given words:
a) It + is= _____.
b) Would + not = _____.
c) They + will = _____.
d) I + had = _____.
e) Let + us = _____.   **1×5**

Q.5   Fill in the blanks with a suitable determiner:
a) They were bored because there was _____ to do.
b) Every one of _____ sent me a birthday card, but none of them bought me a present.
c) I always keep _____ money in my wallet for emergencies.
d) She gave a cookie to _____ child.
e) How _____ money did they steal?   **1×5**

Q.6   Underline the consonant sounds in the given words:
a) Climb.
b) Uniform.
c) Tip.
d) Gem.
e) Open.   **1×5**

Q.7   Change the following sentences into (given in brackets):
a) He doesn't like playing video games. (Positive)
b) I like to going to Cinema. (Negative)
c) Did the burglar steal anything valuable?(Positive)
d) He doesn't enjoy fishing. (Interrogative)
e) Do you think they are going to win the match? (Negative)   **1×5**

Q.8   Use the Present Continuous/Simple Past/Present Perfect Continuous/ Past Perfect Continuous
       in the following sentences:
a) I _____ English for seven years now. (learn)
b) During my last summer holidays, my parents _____ me on a language course to London.
c) At the moment I _____ English grammar. (revise)
d) And after my apprenticeship, maybe I _____ back to London to work there for a while. (go)
e) The whole day yesterday, the boy's _____ to the cricket commentary. (listen)   **1×5**

Q.9   Arrange the words to make sentences:
a) I read paper in the burglar been caught had the that.
b) parts many coffee popular in world the is very of.
c) the dog James talking sat next to himself to.

d) kind / very / is / it / to / me / help / you / of.
e) his / belief / Gandhiji's / greatest / was / in / strength / God.
f) hit / he / the ball / so hard / lost / it / was/ that.
g) shall / misconduct / be / you / for / your / punished.
h) are / the / description / of / beyond / beauties / nature.
i) assistants / shop / required / salesmen / and / are.
j) main / growth / is / population / the problem.   **1×10**

Q.10 Write a paragraph on the topics given below in 100 words:
       a) Digitization of education system.
       b) Youth and politics.   **5×2**

Q.11 Answer the questions in 80-100 words:
       a) Is Start-Up India a good scheme for India?
       b) Is the examination system of India better than that of any other country?   **5×2**

End Semester Examination, Dec. 2016

BCA— First Semester
ENGLISH LANGUAGE PROFICIENCY-I (BCA-1005)

Time: 3 hrs.   Max Marks: **75**
No. of pages: 2

Note: *All questions are Compulsory.*

Q.1   Answer the following questions: *(ANY FIVE)*
   a)   What are the two types of calls?
   b)   Name the various kinds of nouns.
   c)   What do you mean by voiced and unvoiced consonant sounds?
   d)   Write the count and name the vowels and consonants in English alphabet.
   e)   Define Adjectives. Give one example.
   f)   Write the different types of vowel sounds.   **2×5**

Q.2   Underline the sound for the given vowel sounds:
   a)   Enough.
   b)   Earnest.
   c)   Boat.
   d)   Always.
   e)   Eight.   **1×5**

Q.3   Fill in the blanks with "a", "an" or "the":
   a)   I love living in the _____ city.
   b)   Generally speaking, _____ boys are physically stronger than girls.
   c)   My brother is _____ expert at fixing cars.
   d)   Can you give me _____ envelope, please?
   e)   Would you like _____ hamburger?   **1×5**

Q.4   Write the contracted form of the given words:
   a)   Can + not = _____.
   b)   It + = _____.
   c)   They + will = _____.
   d)   I + had = _____.
   e)   Let + us = _____.   **1×5**

Q.5   Fill in the blanks with a suitable determiner:
   a)   I gave her a _____ of flowers.
   b)   He has spilt _____ ink on his clothes.
   c)   It rained heavily. Only _____ children came to school.
   d)   Could you bring me _____ books I left in the garden?
   e)   Henry had _____ idea what the answer to the question was.   **1×5**

Q.6   Underline the consonant sounds in the given words:
   a)   Choke.
   b)   Throw.
   c)   Depend.
   d)   Pill.
   e)   Great.   **1×5**

Q.7   Change the following sentences into (given in brackets):
   a)   My great grandmother came to America as an immigrant from Russia. (Negative)
   b)   Did Robert exceed his goals? (Positive)
   c)   I was confident on the line because free-throw shooting is my strong side. (Negative)

d) Your perfume stinks! (Interrogative)

e) Make sure you pay your bills on time. (Interrogative) **1×5**

Q.8 Use the Present Continuous/Simple Past/Present Perfect Continuous/ Past Perfect Continuous in the following sentences:

a) I _____ the assignment before the bell _____. (do, ring)

b) When I _____ to the hospital, the doctor _____ the operation. (reach, start)

c) At the moment I _____ English grammar. (revise) **1×5**

Q.9 Arrange the words to make sentences:

a) I read paper in the burglar been caught had the that.

b) parts many coffee popular in world the is very of.

c) the dog James talking sat next to himself to.

d) kind / very / is / it / to / me / help / you / of.

e) his / belief / Gandhiji's / greatest / was / in / strength / God.

f) hit / he / the ball / so hard / lost / it / was/ that.

g) shall / misconduct / be / you / for / your / punished.

h) are / the / description / of / beyond / beauties / nature.

i) assistants / shop / required / salesmen / and / are.

j) main / growth / is / population / the problem. **1×10**

Q.10 Write a paragraph on the topics given below in 100 words:

a) Education system: empowering or spoiling the students.

b) Surgical attacked Good or bad. **5×2**

Q.11 Answer the questions in 80-100 words:

a) Is Start-Up India a good scheme for India?

b) Is the examination system of India better than that of any other country? **5×2**

End Semester Examination, Dec. 2016
BCA – SecondSemester
DATA STRUCTURES(BCA-2001)

Time: 3 hrs

Max Marks:75

No. of pages:2

Note: Attempt FIVE questions in all;taking at least ONE question from each UNIT. Q.1 is compulsory. All questions carry equal marks.

Q.1   a) Queue is based on:
   i) LIFO   ii) FIFO   iii) Piles   iv) FILO
   b) Which is heterogeneous data structure?
   i) Array   ii) Structure   iii) Stack   iv) Queue
   c) Efficiency of algorithm is based on:
   i) Time   ii) Space   iii) Both   iv) None of these
   d) Graph contains a cycle:
   i) True   ii) False
   e) 2-D array is also called:
   i) Matrix   ii) Stack   iii) Queue   iv) Linked list
   f) What is leaf node?
   g) What is time space complexity trade off?
   h) What is the difference between tree and graph?
   i) What are two methods of MST?
   j) What is structure?
   1½×10

UNIT-I

Q.2   What do you mean by data structure? What are various types of data structure? Explain in detail.   15

Q.3   a) What do you mean by sparse array?   5
   b) Write an algorithm to find largest and second largest element from a list.   10

UNIT-II

Q.4   a) What is linear queue? What are its disadvantages? How can we overcome the limitations of linear queue? Explain with the help of an example.   10
   b) Write algorithm for push operation on stack.   5

Q.5   a) Convert the following infix expression into postfix. Also write algorithm for the same:
   $P:-A*(B+D)/E-F*(G+H/K)$ 10
   b) What do you mean by recursion?   5

UNIT-III

Q.6   a) Write in-order, pre-order and post-order traversal of the given tree:
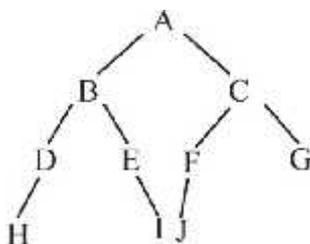
b) What do you mean by threaded tree? What are various types of threading?   9

Q.7   What are various methods to traverse a graph? Explain with an example.   15

UNIT-IV

Q.8   a) What do you mean by searching? Explain binary search algorithm in detail.   10
      b) What do you mean by file organization?   5

Q.9   a) Write algorithm for bubble sort.   8
      b) What do you mean by hashing? What are various types of hashing?   7

End Semester Examination, Dec. 2016
BCA – Second Semester
DATABASE SYSTEMS(BCA-2002)

Time: 3 hrs.   Max Marks:75

No. of pages:2

Note: Attempt FIVE questions in all;taking at least ONE question from each UNIT. Q.1 is compulsory. All questions carry equal marks.

Q.1   Multiple Choice Questions:
a) A relational database developer refers to a record as:
   i)   A criteria   ii) A relation
   iii) A tuple   iv) An attribute
b) The normal form that is not necessarily dependency preserving is:
   i)   2 NF   ii) 3 NF
   iii) BCNF   iv) 4 NF
c) The DBMS language component which can be embedded in a program is:
   i)   DDL   ii) DML
   iii) DBA   iv) A query language
d) The number of entity types that participate in a relationship is called:
   i)   Number   ii) Degree
   iii) Counter   iv) Member
e) Two phase in locking protocol are:
   i)   Dead lock   ii) Cascading rollback
   iii) Both i) and ii)   iv) None of the above
f) The causes of failures include:
   i)   System crash   ii) Media failure
   iii) User error   iv) All of the above
g) DML is a language that allows:
   i)   To define data   ii) To define relationships
   iii) To add new rows   iv) All of the above
h) Revoke command allows:
   i)   Withdrawl of privileges   ii) Read operation
   iii) Granting privileges   iv) None of the above
i) If the closure of an attribute set is the entire relation then the attribute set is a:
   i)   Super key   ii) Candidate Key
   iii) Primary Key   iv) Not a Key
j) Count function is SQL returns the number of:
   i)   Values   ii) Distinct values
   iii) Groups   iv) Columns   1½×10

UNIT-I

Q.2   Define data and information. What is DBMS and what are the components of DBMS? What are the advantages of DBMS over file oriented approach?   15

Q.3   What is meant by ER diagram? Describe the various attributes and relationship constraints in ER diagram with an example.   15

UNIT-II

Q.4   What are different types of relational operators? Explain traditional and special operators used in relational algebra with proper syntax and suitable examples.   15

Q.5   What is structured query language? What are DDL and DML commands? Explain with examples.   15

UNIT-III

Q.6   What is functional dependency? Explain normalization of databases and all the normal forms with examples.   15

Q.7   Define the various problems of concurrency control. What are the different approaches used by concurrency control algorithms to solve these problems? Discuss.15

UNIT-IV

Q.8   What are the different types of failures? Explain the concept of recovery. Explain shadow-paging technique.   15

Q.9   Why database security is important for an organization? Discuss the various techniques to implement database security in an organization.   15

End Semester Examination, Dec. 2016
BCA – SecondSemester
LOGICAL ORGANIZATION OF COMPUTER (BCA-2003)

Time: 3 hrs.   Max Marks:75

No. of pages:1

Note: Attempt FIVE questions in all;taking at least ONE question from each UNIT. Q.1 is compulsory. Eachquestions carry equal marks.

Q.1   Fill in the blanks:
   - a) Number of flip-flops required for 16-bit register are _____.
   - b) In the toggle mode the JK flip-flop has _____ condition.
   - c) Xclusive OR is also known as _____.
   - d) A full adder circuit can be implemented by using _____.
   - e) In Boolean algebra, $A + \bar{A}$ is equal to _____.
   - f) $(327)_8 + (123)_8 = $ _____.
   - g) Instruction code consist of _____ and _____.
   - h) Octal equivalent of the binary number 1011011 is _____.
   - i) MIMD stands for _____.
   - j) Draw the logic diagram of NAND gate. $1\frac{1}{2} \times 10$

UNIT-I

Q.2   Convert the following:
   - a) $(\quad)_2 = (73.65)_8 = (\quad)_{10} = (\quad)_{16}$.
   - b) $(10110111.110)_2 = (\quad)_8 = (\quad)_{10} = (\quad)_{16}$. $7\frac{1}{2} \times 2$

Q.3   What are hamming codes? The data sent 1100 and received as 1101. Find and correct the error.   15

UNIT-II

Q.4   What are canonical and standard forms? Find the other canonical form of:
F (A, B, C) = Σ (1, 3, 4, 6)   15

Q.5   a) Explain the various laws of Boolean theorem.   7
        b) Simplify the following using K-map and draw the circuit diagram:
           F (A, B, C) = π (1, 2, 4, 5)   8

UNIT-III

Q.6   a) What is the difference between 'sequential and combinational circuit'?   5
        b) Construct a 5 to 32 line decoder with four 3 to 8 line decoders with enable and one 2 to 4 line decoder. Use block diagram.   10

Q.7   What are flip-flops? Explain various types of flip-flops in detail.   15

UNIT-IV

Q.8   Write short notes on:

a) Associative memory.
b) Basic components of microprocessor.   7½×2

Q.9   What is virtual memory? Explain address mapping using pages in detail.   15

End Semester Examination, Dec. 2016
BCA – SecondSemester
CONCEPTUAL FOUNDATION OF MANAGEMENT (BCA-2004)

Time: 3 hrs.   Max Marks:75
                                                                                No. of pages:1

Note: Attempt FIVE questions in all;taking at least ONE question from each UNIT.
Q.1 is compulsory. All questions carry equal marks.

Q.1   Fill in the blanks:
   a) A firm that is involved in two or more distinct businesses is known as _____
   b) The _____ of a strategy specifies the range of markets in which an organization will complete.
   c) _____ is the degree to which people see an issue as an ethical one.
   d) The decision making process is _____ oriented.
   e) _____ is the lowest level of management.
   f) Leader exist in both _____ and _____ groups.
   Multiple choice questions:
   g) All of the following are mentioned in the text book as decision making styles except _____.
      i)   Directive   ii) Egotistical
      iii) Analytic   iv) Conceptual
   h) What is the guiding principle of scientific management?
      i)   Experimentation   ii) fluid working relationships
      iii) Freedom of association   iv) One best way to do a job
   State whether the following statements are TRUE or FALSE:
   i) Non-programmed decisions are typically made under a condition of uncertainly.
   j) Management is the process of using a business resources to produce goods and services.   1½×10

UNIT-I

Q.2   Define the term: 'management'. Explain characteristics and importance of management. 15

Q.3   Describe principles of Henry Fayol towards administrative management.   15

UNIT-II

Q.4   a) What are the steps in the planning process? Explain them in detail.   8
      b) Mention any four advantages and four limitations of planning by taking suitable examples.   7

Q.5   State and explain the common steps involved in a typical managerial decision making process.   15

UNIT-III

Q.6   Explain about the different factors affecting the organizational environment in detail. 15

Q.7   Mention the factors which are responsible for the emergence of formal and informal organization.   15

UNIT-IV

Q.8   What are the basic leadership styles? Explain them critically.   15

Q.9   Write short notes on:
      a)   Importance of a good leader.   7½
      b)   Leadership and motivation.   7½

End Semester Examination, Dec. 2016
BCA – SecondSemester
ENGLISH LANGUAGE PROFICIENCY-II (BCA-2005)

Time: 3 hrs

Max Marks:75

No. of pages:2

Note: Attempt ALL questions.

Q.1 Answer the following questions:
a) Whey word stress is required in English pronunciation? Give some example words with single syllable, two syllables, three syllables and four syllables.
b) What is pronouns? Give three examples to replace a noun with appropriate pronoun.
c) What are various types of Articles used in English language? Discuss with examples.
d) Illustrate the use of following prepositions with an example.
   i) on   ii) at   iii) in
e) What are fill in the blanks questions? Write two examples of such questions.   3×5

Q.2 Fill in the blanks with correct pronouns:
a) _____ is some of the nicest weather we have had lately.
b) I searched all over, but could not find my notes _____
c) _____ flavor do you prefer.
d) I slipped on the sidewalk and hurt _____.
e) Ben was surprised when _____ discovered that his friends were hiding in the living room.   1×5

Q.3 Break into syllables and write the number of syllables.
a) Fire
b) KINDERGARDEN
c) SEPTEMBER
d) CHECKED
e) ENACT   1×5

Q.4 Fill in the blanks with appropriate ARTICLE "a", "an", "the":
a) _____ man is mortal.
b) I am _____ university student.
c) She goes to the temple in _____ morning.
d) Kiran is _____ best student in the class.
e) _____ camel is the ship of the desert.
f) This book has won _____ booker prize.
g) Harish Chandra was _____ honest king.
h) I am fond of _____ classical music.
i) I met _____ boy in _____ store.
j) gold is _____ precious metal.   1×10

Q.5 Complete the exercise with correct prepositions:
a) Peter is playing _____ Sunday.
b) My brother's birthday is _____ the 5th of November.
c) My birthday is _____ May.

d) We are going to see my parent _____ the weekend.
e) What are you doing _____ the afternoon.
f) I have been waiting for you _____ 7 O'clock.
g) I will have finished their essay _____ Friday.
h) My friend have been living in Canada _____ two years.
i) I will meet you _____ 12 p.m.
j) I wear a ring _____ my finger.   1×10

Q.6 Fill in the blanks with appropriate form of verbs:
a) I like (listen) _____ to music when I am tired.
b) When I saw his performance, I couldn't help _____ (laugh).
c) I hate (sleep) _____ in the dark.
d) Would you mind (post) _____ this letter to me.
e) He gave up (smoke) _____ many years ago.
f) He went out without (say) _____ good bye.
g) (Drink) _____ milk is good for your bones.
h) I hope mom will (buy) _____ us some cookies.
i) Use always (do) _____ well on test in math.
j) Katie likes (draw) _____ pictures of butterflies.   1×10

Q.7 Fill in the blanks using appropriate models:
a) _____ I help you?
b) We _____ win a prize but I doubt it!
c) John has revised all day. He _____ be ready for his exams.
d) _____ I order a Taxi.
e) _____ you join us for coffee.   1×5

Q.8 Answer the following question in 80-100 words:
"Saving Tigers – what young children can do?"   5

Q.9 Write a paragraph on Topics given below in 100 Words:
a) A Newspaper I like to read.
b) A TV program I like to match.   5×2

End Semester Examination, Dec. 2016

BCA – ThirdSemester

PROGRAMMING IN C++ (BCA-3001)

Time: 3 hrs.   Max Marks:75

No. of pages:2

Note: Attempt FIVE questions in all;taking at least ONE question from each UNIT.
Q.1 is compulsory. All questions carry equal marks.

Q.1   a)   What is the only function all C++ program must contain?
i)   main()   ii)   system()
iii) program()   iv)   start
b)   What symbol is used to show the beginning & end of program?
i)   { }   ii)   →&←
iii) BEGIN & END   iv)   ( )
c)   Which of the following is not a correct variable type?
i)   float   ii)   real
iii) int   iv)   double
d)   Which of the following is Boolean operator for logical and?
i)   &&   ii)   ¦¦
iii) ¦   iv)   ¦&
e)   Which of the following statement is a output statement in C++?
i)   cout   ii)   cin
iii) print   iv)   write
f)   Which of the following header file must include to use string stream?
i)   <iostream>   ii)   <string>
iii) <sstring>   iv)   <sstream>
g)   The size of datatypeint is:
i)   2 bytes   ii)   4 bytes
iii) 1 byte   iv)   none of these
h)   A function can't be overloaded by its return type:
i)   True   ii)   False
i)   Inline functions involve some overhead at running time:
i)   True   ii)   False
j)   This pointer points to _____.   1½×10

UNIT-I

Q.2   Explain following with an example of each:
a)   Data abstraction.
b)   Encapsulation.
c)   Polymorphism.
d)   Inheritance.
e)   Data binding.   3×5

Q.3   What do you mean by a data type? Why data types are required in a program?   15

UNIT-II

Q.4   Write a program to show the functionality of constructors and destructors.   15

Q.5   Explain "ios" stream in detail.   15

UNIT-III

Q.6   Define following:
    a) Function overloading.
    b) Data binding.
    c) Virtual function.   5×3

Q.7   Write a program to show the concept of polymorphism.   15

UNIT-IV

Q.8   What do you mean by inheritance? How it implements reusability? Explain through an example.   15

Q.9   Explain the concept of exception handling through an example.   15

End Semester Examination, Dec. 2016
BCA-Third Semester
INFORMATION TECHNOLOGY TRENDS(BCA-3002)

Time: 3 hrs

Max Marks: 75

No. of pages: 1

Note: AttemptFIVEquestions in all; taking at least ONE question from each Unit.Q.1 is compulsory. All questions carry equal marks.

Q.1
a) Write two applications of artificial intelligence.
b) What does GPRS stands for?
c) Define 'cyber-crime'.
d) Write the components of cloud computing.
e) Give an advantage of telecommunication.
f) What kind of architecture does mobile computing deploy?
g) Technology that helps companies to change business by allowing them to use new methods is _____.
h) What operating system is used as the base of the android?
i) Define 'artificial intelligence'.
j) What is software as a service?   1½x10

UNIT-I

Q.2 Compare between the following:
a) 3G and 4G generation.
b) Smart phones and tablets.
c) IOS and android platform.   5x3

Q.3
a) How a smart phone is better than traditional phone? Justify your answer.   7
b) Define 'communication technology'. What is the most commonly used mobile platform in communication? Explain its features.   8

UNIT-II

Q.4 How can one say that the cloud computing visualizes the different cloud models with respect to services? How does it take into account that different types of services can be offered as cloud services? Explain.   15

Q.5
a) Explain the business benefits of cloud computing.   7
b) Describe the service models of cloud computing.   8

UNIT-III

Q.6 Write short notes on:
a) E-mail spoofing.
b) Password sniffing.
c) Hacking.

Q.7 What is computer networks intrusion? How can we protect ourself from network intrusion?   15

UNIT-IV

Q.8
a) How E-Commerce has changed the today's life? Explain.   8
b) Compare: E-Commerce and M-Commerce.   7

Q.9 Define data mining. Compare data mining with data warehousing. Explain the role of data mining in the field of education. 15

End Semester Examination, Dec. 2016
BCA – ThirdSemester
NUMERICAL ANALYSIS AND STATISTICAL TECHNIQUES(BCA-3003)

Time: 3 hrs.

Max Marks:75

No. of pages:2

Note: Attempt FIVE questions in all;taking at least ONE question from each UNIT.
Q.1 is compulsory. All questions carry equal marks.

Q.1 a) Order of convergence of Newton Raphson method is _____.
  b) In false position method if roof lies between a and b then f(a) × f(b) is:
    i) < 0   ii) > 0
    iii) = 0   iv) None of these
  c) State Newton's backward difference interpolation formula.
  d) What do you mean by measures of central tendency?
  e) Formula for Newton Raphson method for finding x is _____ .
  f) Interpret the following values of coefficient of correlation:
    $r = 0$ $r = 1$ $r = .25$
  g) What is random sampling?
  h) What is correlation?
  i) Write the formula for Simpson's 3/8 rule of integrate.
  j) Show that $\Delta \equiv E - 1$.

$1\frac{1}{2} \times 10$

UNIT-I

Q.2 a) Find the real root of $x^3 - 18 = 0$ by Regula-Falsi Method. 7

  b) Evaluate $\int_0^4 e^x$ by Simpson's Rule and Trapezoidal Tule. 8

Q.3 a) Evaluate cube root of 12 by Newton Raphson Method. 7
  b) Apply R-K Method to find $y(.2)$ taking step size of $h = .1$ given that $\frac{dy}{dx} = 3x + \frac{y}{2}, y(0) = 1$. 8

UNIT-II

Q.4 a) Using Newton's divided difference interpolation formula to find $F(27)$.

x	14	17	31	35
$f(x)$	68.7	64	44	39.1

10

  b) Prove that $\Delta \nabla \equiv \Delta - \nabla \equiv \nabla \Delta$ 5

Q.5 a) Write the eq^{ns} to fit a straight line by least square method. 5
  b) Fit a second degree parabola $y = a + bx + x^2$ to the following:

X	1	3	5	7	9
Y	2	7	10	11	9

10

UNIT-III

Q.6 a) Calculate the mean, mode and median for the following data pertaining to marks in statistics out of 140 mark for 80 students in class:

Marks more than:	0	20	40	60	80	100	120
No. of Students:	80	76	50	28	18	9	3

10

b) Given the following pairs of values:

Capital Employed (Rs. Crores)	1	2	3	4	5	6	7	8	9	10	11
Profits (` Lakhs)	3	5	4	7	9	8	10	11	12	14	13

i) Make a scatter diagram.
ii) Do you think there is a correlation between profits and capital employed? Is it positive? 5

Q.7 a) Find the coefficient of correlation by Karl Pearson's method between x and y and interpret its value.

x	57	42	40	33	42	45	42	44	40	56	44
y	10	60	30	41	29	27	27	19	18	19	31

10

b) Assume that on an average one telephone number out of fifteen is busy. What is the probability that if six randomly selected telephone numbers are called:
i) Not more than three will be busy.
ii) At least three of them will be busy. 5

UNIT-IV

Q.8 a) What is random sampling? What are the limitations and advantages of random sampling? 5

b) Differentiate between sample and populations.Explain the concept of sampling distribution with suitable examples. 10

Q.9 Write short notes on:
a) Type-I and Type-II errors.
b) Null hypothesis and alternative hypothesis.
c) One tailed and two tailed tests. 5×3

End Semester Examination, Dec. 2016
BCA – ThirdSemester
SOFTWARE ENGINEERING(BCA-3004)

Time: 3 hrs. Max Marks:75

No. of pages:1

Note: Attempt FIVE questions in all;taking at least ONE question from each UNIT. Q.1 is compulsory. All questions carry equal marks.

Q.1　a)　Effort is measured in terms of:
　　　　i)　Person-months　　　　　　ii)　Rupees
　　　　iii)　Person　　　　　　　　　iv)　Months
　　b)　Management of software development depends on:
　　　　i)　Product　　　　　　　　　ii)　Process
　　　　iii)　People　　　　　　　　　iv)　All of the above.
　　c)　Which is not a size measure of software?
　　　　i)　Loc　　　　　　　　　　　ii)　Cyclometric complexity
　　　　iii)　Function count　　　　　iv)　Halstead's length
　　d)　McCall has developed a
　　　　i)　Quality Model　　　　　　ii)　Process Model
　　　　iii)　Requirement Model　　　iv)　Design Model
　　e)　Maturity models in CMM has:
　　　　i)　One KPA　　　　　　　　ii)　Equal KPAs
　　　　iii)　Several KPAs　　　　　　iv)　No. KPA
　　f)　Define 'software engineering'.
　　g)　What do you mean by software quality?
　　h)　Define software reliability.
　　i)　Differentiate between Static vs dynamic testing.
　　j)　Differentiate between Program vs process.　　　　　　　1½×10

UNIT-I

Q.2　Explain software development life cycle and all its phases in detail.　　15

Q.3　What is prototype model? Explain its various phases with the help of an example.　15

UNIT-II

Q.4　a)　Explain tradeoff between 'time' and 'cost'.　　　　　　　5
　　b)　Explain the following token count:
　　　　i)　Program length.
　　　　ii)　Program volume.
　　　　iii)　Difficulty.
　　　　iv)　Effort and time.
　　　　v)　Language level.　　　　　　　　　　　　　　2×5

Q.5　Explain COCOMO Model in detail.　　　　　　　　　　15

UNIT-III

Q.6　What do you mean by STLC?　　　　　　　　　　　15

Q.7　Write the equivalence class test cases for roots of a quadratic equation.　15

UNIT-IV

Q.8   Explain the quality models:
a) Boehm Quality Model.   b) McCalls Quality Model.   7½×2

Q.9   Define 'software maintenance'. What are various steps involved in maintenance of the
software?   15

End Semester Examination, Dec. 2016
BCA – FourthSemester
WEB APPLICATION DEVELOPMENT(BCA-4001)

Time: 3 hrs.   Max Marks:75

No. of pages:1

Note: Attempt FIVE questions in all;taking at least ONE question from each UNIT.
Q.1 is compulsory. All questions carry equal marks.

Q.1   Multiple choice questions:
a)   JavaScript is also called client side JavaScript.
   i)   Microsoft   ii)   Navigator
   iii) Livewire   iv)   Native
b)   JavaScript code having extension:
   i)   .js   ii)   .JavaScript
   iii) .jvs   iv)   .jsc
c)   _____ is the basis for web services.
   i)   PHP   ii)   CSS
   iii) XML   iv)   CGI
d)   What is the correct HTML tag for inserting line break?
   i)   <lb>   ii)   <break>
   iii)
                                     iv)   <bl>
e)   How can you make a bulleted list?
   i)   <list>   ii)
   iii)   iv)   <ll>
f)   Define web server
g)   Define functions in JavaScript with syntax.
h)   Write the syntax for prompt function with an example.
i)   How can we create radio button in HTML?
j)   What do you mean by protocol.   1½×10

UNIT-I

Q.2   What are various applications of internet? Explain in detail.   15

Q.3   a)   Explain e-mail architecture in detail.   10
       b)   Write a short note on:'SMTP'.   5

UNIT-II

Q.4   a)   Explain five formatting tags in HTML with their syntax and semantics. 10
       b)   How can one create a hyperlink on an image in HTML?   5

Q.5   What are various types of lists can one create in HTML?   15

UNIT-III

Q.6   Explain the following tags.
       a)   <input>
       b)   <form>
       c)   <frameset>   5×3

Q.7   Create a registration form using tables in HTML.   15

UNIT-IV

Q.8   What do you mean by CCS? What are different types of CSS?   15

Q.9   Define:

a) Dialog box.   b) Event handler.   c) Classselector. 5×3

End Semester Examination, Dec. 2016
BCA – Fourth Semester
OPERATING SYSTEM (BCA-4002)

Time: 3 hrs.   Max Marks:75

                                                                No. of pages:2

Note: Attempt FIVE questions in all; taking at least ONE question from each UNIT. Q.1 is compulsory. All questions carry equal marks.

Q.1   Fill in the blanks:
   a)   _____ is useful when applications do not require user interaction.
   b)   _____ is logical extension multiprogramming.
   c)   Interface between user and computer system is called _____.
   d)   Details of a process are stored in a data structure called _____.
   e)   Amount of time spent in ready to run a queue but actually not running is called _____.
   f)   The system is in _____ state when each process holds a resource being requested by the other process and no process is a position to release the resource it holds.
   g)   In _____ scheme a routine is not loaded into memory until it is called.
   h)   _____ is a logical entity in a program.
   i)   The situation when the required page is not present in the memory is called _____.
   j)   _____ is used to organize files. $1½×10$

UNIT-I

Q.2   Explain the statement: "operating systems as an extended machine and resource manager".   15

Q.3   Explain the following:
   a)   Operating system classification.
   b)   System calls. $7½×2$

UNIT-II

Q.4   a)   Explain the various transition of a process with the help of a process state diagram.   7
      b)   Explain the concept of process synchronization.   8

Q.5   Consider a system with five processes [P_0, P_1, P_2, P_5, P_4] and three resource types A, B and C. Resource type A has 12 instances, resource type B has 7 instances and resource type C has 8 instances.
   a)   Compute the need matrix for the following snapshot of the system.
   b)   Whether the system is in safe state? If yes what is the safe sequence?

Process	Allocation			Need			Available		
	A	B	C	A	B	C	A	B	C
P_0	0	1	0	7	5	3	3	4	3
P_1	4	1	0	4	2	2			
P_2	3	0	2	9	0	2			

P₃	2	1	1	2	2	2
P₄	0	0	2	4	3	3

15

UNIT-III

Q.6 Differentiate between:
  a) Logical and physical memory address.   7½
  b) External and internal fragmentation.   7½

Q.7 Explain all the page replacement algorithms by taking suitable examples.   15

UNIT-IV

Q.8 a) Define seek time, latency time and access time in the context of disk drives.   7½
  b) Explain the disk scheduling algorithm by taking suitable examples.   7½

Q.9 What are the various allocation methods in a file system? Explain contiguous allocation method by giving advantages and disadvantages. Also mention the differences between contiguous allocation and linked allocation.   15

End Semester Examination, Dec. 2016
MCA – Third Semester
BCA / B.Sc.-IT / B.A. (Hons) - English- Fifth Semester
ENTREPRENEURSHIP DEVELOPMENT (COM-0306)

Time: 3 hrs   MaxMarks: 100

                                                              No. of pages: 1

Note: AttemptFIVEquestions in all;Part – A is compulsory. Attempt any FOUR questions from Part-B. Each questions carry equal marks.

PART-A

Q.1   Explainany five of the following:
a) Advantages of starting business.
b) Key to success for any business.
c) Market Research.
d) Risk in startups.
e) Seed money.
f) Sources of finance for Small Scale Industries (SSIs).   4x5

PART-B

Q.2   In order to process investment proposals and arrive at investment decisions, the Planning Commission of India (Now Niti Aayog)has issued guidelines for preparing / formulating projects. Discuss Planning Commission's guidelines for formulating a project report.   20

Q.3   Name any successful entrepreneur of your choice and highlight his/ her success factors.   20

Q.4   Explain the process of new products development (NPD) alongwith the barriers in new product development in detail.   20

Q.5   Several Researchers have carried out research studies to identify the factors that motivate people to start business enterprises.Discuss various factors that motivate people to go into business.   20

Q.6   Write short notes on (any two):
a) Sources of business ideas.
b) Role of entrepreneurs in economic development.
c) Characteristics of an entrepreneur.   10x2

End Semester Examination, Dec. 2016

B. Tech. - Seventh Semester
B. Sc. (ID) — Fifth Semester
ENTREPRENEURSHIP DEVELOPMENT(COM-0306)

Time: 3 hrs.   Max Marks: **100**
                                                                           No. of pages: 1
Note: *Attempt **FIVE** questions in all; **Q.1 is compulsory.**Attempt **ANYFOUR**questions from the remaining out of five questions. Each question carries equal marks.*

Q.1   Explain the following in brief:
        a) What are key characteristics of entrepreneurs?
        b) Spell out different forms of business.
        c) What is importance of markets research for a business organization?
        d) Differentiate between 'industry' and 'competitor analysis'.
        e) How do we asses a business risk in a startup company?
        f) Write the key components of a business plan.
        g) What is the importance of team management and team development in a business company?
        h) Explain "control" aspect as an important component of "management".
        i) Outline some of the alternate sources of finance for entrepreneurs.
        j) Explain the sources of seed money for new business ventures.   **2×10**

Q.2   Compare the "LLP" and "company" form of business.Which of the forms is better and why? Spell out some of the main factors that affect the choice of type of business organization.   **20**

Q.3   What is meant by demand estimation and forecasting? How is it relevant to a new business company? What is its importance for business success?   **20**

Q.4   After you complete your academic qualification as planned, if you wish to become an entrepreneur, what would be the area of business? Write a smart business plan along such business.   **20**

Q.5   It is said that the "entrepreneur" is a leader of his business organization. What are the "leadership traits" he /she must process? How does he/she develop these traits?   **20**

Q.6   What is the role of business angles and venture capitalists in providing funding support to business companies/entrepreneurs?   **20**

End Semester Examination, Dec. 2016
B. Sc. (Information Technology) -Sixth Semester

MOBILE COMMUNICATION (IT.606)

Time: 3 hrs   Max Marks: 50
                                                                           No. of pages: 1

Note: Attempt FIVE questions in all; Q.1 is compulsory. Attempt anyTWO questions from Part A and TWO questions from Part B. All questions carry equal marks.

Q.1   Write short notes on:
      a) Adhoc networks.
      b) GPRS.   5x2

PART-A

Q.2   Compare various multiple access schemes for cellular system.   10

Q.3   a) Write sown the functioning of HLR, VLR, EIR and AUC registers.   5
      b) Compare different handovers in GSM.   5

Q.4   What is modulation? What are its advantages and disadvantages? Compare frequency and phase modulation with proper diagram.   10

PART-B

Q.5   What is bluetooth? Explain the layered architecture of bluetooth.   10

Q.6   What is wireless LAN? Describe the family of specifications developed by IEEE for wireless LAN.   10

Q.7   What is Kernel? What are the different types of Kernel? Explain the basic functions of kernel.   10

End Semester Examination, Dec. 2016

B.Sc. (Information Technology)– FourthSemester
PERSONALITY DEVELOPMENT-IV (IT-403)

Time: 3 hrs.

Max Marks:50

No. of pages:1

Note: Attempt FIVE questions in all;Q.1 is compulsory. Attempt any TWO questions from Part A and TWO questions from Part B. Each question carries equal marks.

Q.1 Write short notes on any five of the following:
a) Emotional Quotient.
b) Time management matrix.
c) Planning alternatives (Plan-B).
d) Emotional dysfunctions.
e) Closing a business deal.
f) Managing an angry customer.
g) Curriculum vitae. 2×5

PART-A

Q.2 How is time management important in leading a productive life? Write about various techniques that you can adopt to manage your time well. 10

Q.3 What is emotional intelligence? Explain the basic kinds of emotions in detail. 10

Q.4 "Customer is the King". Explain the statement in light of various customer care concepts. 10

PART-B

Q.5 Prepare a CV which you shall use at the time of the campus placement drive. Also prepare a cover letter for the same which may be used for applying to a company off-campus. 10

Q.6 What are the Do's and Don'ts of participating in a GD? What strategies can you use for an influential opening and closing? 10

Q.7 Let's assume that an interview has been scheduled for you. How will you answer the following questions?
a) Where do you see yourself 5 years from now?
b) What are the important lessons that you have learnt from your parents? 5×2

PERSONALITY DEVELOPMENT-V (IT.518)

Time: 3 hrs.   Max Marks:50
                                                                           No. of pages:1

Note: Attempt FIVE questions in all;Q.1 is compulsory. Attempt any TWO questions from Part A and TWO questions from Part B. Each question carries equal marks.

Q.1   Briefly answer:
   a) _____ a GD is a high profit high loss situation.
   b) _____ are those skills necessary for getting, keeping and being successful in a job.
   c) _____ and the way one carriers himself are the two things that first get noticed upon entering a room.
   d) Wearing casuals on Friday is named as _____.
   e) Never wear _____ shirts for inter views.
   f) Always cover your mouth using _____ while laughing of sneezing.
   g) _____ is the first criteria of election in an job interview.
   h) Which is the most important document required for interview _____.
   i) The candidate must know his _____ properly while or before going for interviews.
   j) Employers look for people who communicate well both _____ and in writing.   1×10

PART-A

Q.2   Explain the following terms:
   a) Self introductions.
   b) Interview skills do's and don'ts.   5×2

Q.3   What does an employer want? Elaborate the qualities you must inculcate and exhibit during an interview.   10

Q.4   Compare the following:
   a) Group discussions and Personal Interview.
   b) Formal and Informal dressing.   5×2

PART-B

Q.5   What are grooming standards that one should follow to have first impression in interview? List down the dress code for interview to be followed.   10

Q.6   What are the techniques of group discussion? Explain.   10

Q.7   What are the points to be included while giving yourself introduction? Write yourself introduction that you would follow for your job interview.   10

End Semester Examination, Dec. 2016

B. Tech. — Third Semester
DATA COMMUNICATION AND COMPUTER NETWORKS (IT-401A)

Time: 3 hrs.   Max Marks: 100
                                                                       No. of pages: 1

Note: Attempt FIVE questions in all; Q.1 is compulsory. Attempt ANYTWO questions from PART-A and TWO questions from PART-B. Each question carries equal marks.

Q.1 a) Define 'mesh topology'.
     b) What do you mean by multiplexing?
     c) Define 'cryptography'.
     d) Define 'UDP'.
     e) What is the basis for membership in a VLAN?
     f) What is the purpose of hamming code?
     g) What do you mean by sub-netting?
     h) Define the term:'token ring'.
     i) What is multicast routing?
     j) Explain Shannon limit.   2×10

PART-A

Q.2 a) Differentiate between simple, half duplex and full duplex with suitable examples. 10
     b) Explain the synchronous and asynchronous transmission in detail with a suitable diagram.   10

Q.3 a) Write a note on 'RS-232 physical layer interface'.   6
     b) What do you mean by line coding? Explain different types of encodings with examples.   14

Q.4 a) Define 'multiplexing'. Explain different types of multiplexing in a computer network.   10
     b) Explain run length encoding for data compression with an example.   5
     c) Explain cyclic redundancy check in error correction.   5

PART-B

Q.5 a) Discuss and state the differences between pure and slotted Aloha.   6
     b) Explain OSI reference model in detail.   14

Q.6 Write short notes on:
     a) Frame relay.
     b) ATM.
     c) DQDB.
     d) Distributed routing.   5×4

Q.7 a) Explain proxy servers in detail.   5
     b) What is the concept of firewall? How they are installed? Upto what extent they are effective as far as security is concerned?   10
     c) Write a short note on 'Virtual LAN'.   5

End Semester Examination, Dec. 2016

Time: 3 hrs.   Max Marks: 100
                                                                           No. of pages: 1

Note: Attempt FIVE questions in all; Q.1 is compulsory. Attempt ANYTWO questions from PART-A and TWO questions from PART-B. Each question carries equal marks.

Q.1   a) What are the components for data communication?
      b) What are the different types of line configuration?
      c) What is data encryption?
      d) What is routing? Explain the concept of routing as function of network layer.
      e) List different types of transmission impairments?
      f) What is domain name system?
      g) Define tree topology.
      h) How do we classify networks on the basis of size?
      i) Differentiate between IP address and port address.
      j) What is the role of transport layer in OSI model?   2×10

PART-A

Q.2   a) Differentiate between synchronous and asynchronous transmission modes.   8
      b) Explain different types of topologies.   8
      c) What are the various transmission modes?   4

Q.3   a) List the advantages of using optical-fiber over twisted-pair and coaxial cable.   6
      b) Explain how guided media differ from unguided media.   10
      c) Differentiate between Manchester and differential Manchester encoding scheme. 4

Q.4   a) Differentiate between secret and public key cryptography.   10
      b) What is multiplexing? Differentiate between frequency, wave and time division multiplexing.   10

PART-B

Q.5   a) Explain TCP and UDP protocols and its working architecture in detail.   10
      b) Explain the layered architecture of OSI model alongwith functions of each layer in detail.   10

Q.6   a) Differentiate between static and dynamic routing.   8
      b) Write short notes on:
          i) ATM.
          ii) Frame relay.   6×2

Q.7   a) What are various remote monitoring techniques?   10
      b) What are firewalls? Explain the various implementation modes of firewall? 10

End Semester Examination, Dec. 2016

B. Tech. – Fourth Semester
JAVA PROGRAMMING (IT-402)

Time: 3 hrs.   Max Marks: 100
                                                                           No. of pages: 1
Note: Attempt FIVE questions in all; Q.1 is compulsory. Attempt any two questions from
       PART-A and TWO questions from PART-B. Each question carries equal marks.

Q.1   a) What are classes and objects?
      b) Define 'JAR files'.
      c) What is loggers and handless?
      d) Explain the use of "this" keyword.
      e) Differentiate between multitasking and multithreading.
      f) What is metadata?
      g) Describe the two ways of accessing the files.
      h) What is thread priority? How can it be set for a thread?
      i) Why java is platform independent language?
      j) Differentiate between 'applets' and 'application program'. 2×10

PART-A

Q.2   a) What are constructors? Can constructors be overloaded?Explain it with an
          example.   10
      b) How array are declared and initialized in java, explain it and also write a program
          for two dimensional matrix multiplications.   10

Q.3   a) Explain "super" keyword with all it usages. Support explanation with a program.   8
      b) What are applet? Write an applet that draws a circle, a live, an arc and also set the
          background color as block inside the applet.   12

Q.4   a) What do you mean by event delegation model in java?   5
      b) Explain a program to design a form by including the following components:
          i) Textbox,   ii) Textarea   iii) Labels   iv)RadioButton
          v) CheckBox   vi) Buttons   vii) ListBox   viii) ChoiceBox   15

PART-B

Q.5   a) What is thread? How do we create threads in java?Explain it by giving an example.10
      b) What is thread priority? How can it be set for a thread?Explain it with the help of
          an example.   10

Q.6   a) Explain the different types of JDBC drivers.   10
      b) Write a program to connect to a database and retrieve all the data. The database
          type (Access), driver name, database name, DSN etc. has to fed by user.   10

Q.7   Write short notes on:
      a) CORBA
      b) SOAP   10x2

End Semester Examination, Dec. 2016

Time: 3 hrs.   Max Marks:100

No. of pages:1

Note: Attempt FIVE questions in all;Q.1 is compulsory. Attempt any TWO questions from Part A and TWO questions from Part B. Each question carries equal marks.

Q.1 a) Define 'network'.
     b) List down the modes of connecting to internet.
     c) Introduce HTTP.
     d) What are plugins?
     e) What is meta search engine?
     f) What is the use of XML?
     g) What are cookies?
     h) How web browser is different from a web server?
     i) What are servlets?
     j) Briefly explain firewall. 2×10

PART-A

Q.2 a) Explain the working of a internet in detail.   10
     b) Briefly explain each of the following internetworking devices:
         Hub, Switch, Bridge, Router.   10

Q.3 a) Explain how a search engine works in detail.   10
     b) Explain URL and its types in brief.   5
     c) What are the various MIME types used?   5

Q.4 a) Explain the structure of an HTML document with an example.   6
     b) Explain XML schema.   4
     c) Differentiate between HTML, XHTML and DHTML.   10

PART-B

Q.5 a) What do you mean by client side programming?   5
     b) Explain JavaScript DOM.   8
     c) Create a login form in HTML and apply validations using JavaScript.   7

Q.6 a) Introduce server side technologies:
         CGI, ASP, JSP.   10
     b) Explain the lifecycle of servlets in detail.   10

Q.7 a) Explain how digital signatures are performed?   10
     b) What do you mean by encryption? Explain any two encryption schemes in detail. 10

End Semester Examination, Dec. 2016
B.Sc. (Information Technology)– FifthSemester
SOFTWARE PROJECT MANAGEMENT (IT.512)

Time: 3 hrs.   Max Marks:50

No. of pages:1

Note: Attempt FIVE questions in all;Q.1 is compulsory. Attempt any TWO questions from Part A and TWO questions from Part B. Each question carries equal marks.

Q.1   Briefly answer:
a) What is feasibility study?
b) What are the limitations of CPM/PERT?
c) What is slack/float?
d) Give names of three tools for project quality management.
e) What are the objectives of earned value management?   2×5

PART-A

Q.2   What is project scheduling? Explain different techniques for project scheduling in detail.
                                                                                       10

Q.3   Explain the different types of organizational structures in detail.   10

Q.4   The planning department of an electronics firm has setup the activities for developing and production of a new MP3 player. Given the information below, develop a project using Microsoft project. Assume a five-day workweek and the project starts on November 4, 2016. The project team has requested that you create a network for the project, and determine if the project can be completed in 45 weeks. How forward pass and backward is used for calculating finish time of project:

Activity ID	Description	Activity Predecessor	Activity Time (weeks)
1	Staff	None	3
2	Develop market program	1	6
3	Select channels of distribution	1	9
4	Patent	1	12
5	Pilot production	1	5
6	Test market	5	5
7	Ad promotion	2	5
8	Setup for production	4, 6	15

                                                                                       10

PART-B

Q.5   Explain the project quality management with the help of an example? Also, explain different stages of a project for quality management.   10

Q.6   Explain termination steps of a project closure with the help of an example.   10

Q.7   Explain the methods to monitor, evaluate and control planned cost and schedule performance with the help of an example.   10

End Semester Examination, Dec 2016
B. Sc. (Information Technology) —Fifth Semester
ARTIFICIAL INTELLIGENCE(IT-513)

Time: 3 hrs.

Max Marks: 50

No. of pages: 1

Note: Attempt FIVE questions in all; Q.1 is compulsory. Attempt any TWO questions from PART-A and TWO questions from PART-B. Each question carries equal marks.

Q.1 a) Draw knowledge pyramid.
b) Give an example of heuristic search with heuristic function.
c) What are desirable properties of knowledge representation scheme?
d) What are the applications of neural networks?
e) Differentiate 'forward chaining' and 'backward chaining'. 2×5

PART-A

Q.2 What is meant by hill climbing search techniques? What are the various problems encountered? How will you handle them? 10

Q.3 Discuss the knowledge representation schemes with examples. 10

Q.4 What do you understand by inferencing? Discuss various inferencing rules with suitable examples. 10

PART-B

Q.5 Write short notes on:
a) Fuzzy logic.
b) Certainty factor. 5×2

Q.6 What do you understand by an expert system? What are the applications of expert system? Discuss rule based system architecture in detail. 10

Q.7 What are the applications of neural networks? Also discuss the advantages and disadvantages of neural network in detail. 10

Time: 3 hrs.   Max Marks:50
                                                                             No. of pages:1
Note: Attempt FIVE questions in all;Q.1 is compulsory. Attempt any TWO questions from Part A and TWO questions from Part B. Each question carries equal marks.

Q.1   Fill in the blanks with the most appropriate answer:
       a)   _____ tools are software tools designed to manage individual multimedia elements and provide user interaction.
       b)   _____ blends the colors along the edges of the letters (called dithering) to create a soft transition between the letter and its background.
       c)   _____ is a process whereby the color value of each pixel is changed to the closest matching color value in the target palette, using a mathematical algorithm.
       d)   The series of frames in between the 1st and last frames in an action are drawn in a process called _____.
       e)   When reforming a 4:3 aspect ratio video to fit in the center of a HDTV screen, leaving the sides empty, the effect is called _____.
       f)   A (n) _____ file requires no cross-platform conversion.
       g)   A prototype in which most of the features are working, and you are distributing it to a wide area of testers, is called a(n) _____.
       h)   A multimedia structure in which users navigate freely through the content of the project, unbound by predetermined routes, could be called _____.
       i)   Even if the owner of a work doesnot wish to give up or sell ownership rights, you may shall be able to _____ the rights to use that material.
       j)   Each internet service is implemented on an Internet server by dedicated software known as a(n) _____.   1×10

PART-A

Q.2   a)   Define common multimedia terms such as multimedia, integration, interactive, HTML and Authoring.   5
       b)   Describe the difference between a typeface and a font and list atleast three attributes of a font, for examples; uppercase/lowercase, Postscript/True Type/Open Type.   5

Q.3   a)   Cite the various file types used in multimedia.   5
       b)   Differentiate among bitmap, vector, and 3-D images and describe the capabilities and limitations of all three.   5

Q.4   a)   Discuss the animation technique a of cell and computer animation and choose the correct file types for animations.   5
       b)   Discuss video analog and digital technologies and displays.   5

PART-B

Q.5   a)   Describe the four primary stages in a multimedia project.   5
       b)   Identify the typical members of a multimedia project team and describe the skills thatthey need for their work.   5

Q.6   a)   Write and structure the elements of a multimedia project proposal.   5
       b)   How to produce a successful multimedia project and work with clients? Discuss.   5

Q.7   Discuss the current state of multimedia on the internet and tools for the World Wide Web.   10

End Semester Examination, Dec. 2016

B.Sc. (Information Technology)– FifthSemester

VISUAL BASIC PROGRAMMING (IT.515)

Time: 3 hrs. Max Marks:50

No. of pages:1

Note: Attempt FIVE questions in all;Q.1 is compulsory. Attempt any TWO questions from Part A and TWO questions from Part B. Each question carries equal marks.

Q.1 Fill in the blanks:
   a) Two important features of Visual Basic Language are _____ and _____. 2
   b) Three data types available in Visual Basic are _____, _____ and _____. 3
   c) Name two control structures available in Visual Basic. _____ and _____ 2
   d) Combo-box control is a combination of _____ and _____ controls. 1
   e) Two string functions available in Visual Basic are _____ and _____. 2

PART-A

Q.2 Explain the IDE of visual basic in detail. 10

Q.3 Explain the advantages and disadvantages of visual basic language in detail. 10

Q.4 What do you mean by a scope of a variable? Explain the difference between local and static scope with the help of an example. 10

PART-B

Q.5 a) Differentiate between the following:
      i) List-box and Combo-box.
      ii) Checkbox and Option button.
      iii) Label and textbox. 2×3
   b) What is control array? Explain the advantages of using control array with the help ofan example. 4

Q.6 Explain the steps of creating a menu on a form in visual basic in detail. 10

Q.7 Explain how data control can be used to connect the control on a visual basic from to a database in MS-Access. 10

End Semester Examination, Dec. 2016
B. Sc. (Information Technology)- Sixth Semester
PROGRAMMING WITH JAVA(IT-607)

Note: Attempt Five questions in all;Q.1 is compulsory. Attempt anyTWOquestions from Part A and TWO questions from Part B. All questions carry equal marks.

Q.1   Answer (any two):
       a) What are access modifier?
       b) What is the difference between 'pass-by-reference' and 'pass-by-value'?
       c) What do you mean by encapsulation? Explain in brief.
       d) What are static initializersor static blocks with no function name?   5x2

PART-A

Q.2   State the significance of public, private, protected, default modifiers both singly and in combination and static the effect of package relationships on declared items qualified by these modifiers.   10

Q.3   What is an array? How array are declared in java? Write a program to find the largest number in 10 elements by using array.   10

Q.4   When do you know about the java garbage collection? When does the garbage collection occur?   10

PART-B

Q.5   What is the basic difference between the two approaches to exception-handling?
       a) Try catch block.
       b) Specifying the candidate exceptions in the throw's clause.When should you use which approach?   10

Q.6   Explain outer class and inner class in java. When will you use an inner class?   10

Q.7   Write applets to draw the following shapes:
       a) Cone.
       b) Cylinder.   5x2

End Semester Examination, Dec. 2016
B. Sc. (Information Technology) – SixthSemester
PERSONALITY DEVELOPMENT-VI(IT-609)

Note: All questions arecompulsory. All questions carry equal marks.

Q.1 The Hindustan Times, 29 April 2016:- Wanted Software Developer, for TCS, India. Thecandidate should be an IT Engineering Graduate (Fresher). The candidate must possessexcellent communication skills and expertise in its respective field. Attractive salary withperks will be offered to the right candidate. Apply through e-mail, to MsPoorvaSengupta, Manager Recruitment, TCS, India, e mail id- purvasengupta@hotmail.com.Attach your CV alongwith a covering letter to the mentioned e-mail id.　　　　10

Q.2 Analyse the following case and write your interpretation in 300 words:

Case Study:
a) John was the personnel executive of a reputed bank and had been working there for 15 years. During this period he had developed a good rapport with the subordinates. The subordinates commonly sought his help for their personal problems. Frank was a clerk and had been working with the bank for the past 20 years. One day, Frank went to John and confessed to him an event of his past. He said that when he was a teenager, he was caught stealing and had been sentenced to prison for 2 years. But he escaped from the prison, when 6 months were left. This had been a secret since, but he often had nightmares and he asked John to help him. John expelled Frank from the bank and handed him over the police. When the Vice-President came to know about John's actions, he sacked John on the grounds that he had breached the faith of the employee. John wrote a letter to the President explaining that he was not a priest and so cannot be expected to remain confidential. Since Frank was a runaway convict he had done his social duty by handing him over to the police. Moreover, it was company's policy not to employ any ex-convicts. Since all his actions were justified, he should be reinstated. What should the president do?　　　　10

b)　　　　　　　　　　　　　　　　　　　　　　　　　　　A fertilizer company, Pizza and Urea, is located near a village, Payamudirsholai on the banks of river Pamba. One day, the villagers find fish dying due to fluid waste from the fertilizer plant. The community makes a representation to the Govt, through their local MLA and fishing being the main source of income for these villagers, Govt, issues an order whereby the fertilizer company is to be closed down and they also have to pay compensation to the villagers, while the fertilizer company's contention is that it is not due to their fault. The company manages to get a stay order on the govt, ruling from the High Court. While, the social activists go to Supreme Court and hope for justice, common villagers suffer due to the death of fish. Suggest a solution to the problem in the case.　　　　10

Q.3 What are the most important points to be taken care in a group discussion? Why one should accept criticism in. a group discussion?　　　　10

Q.4 Discuss "Youth should join politics, to bring CHANGE" in your own words (word limit-300):
　　　　10

End Semester Examination, Dec. 2016
B. Tech.— Seventh/ Eighth Semester
NETWORK PROGRAMMING AND ADMINISTRATION (IT-701)

Time: 3 hrs.　　　　Max Marks:　　100

Note: Attempt FIVE questions in all; Q.1 is compulsory. Attempt ANYTWO questions from PART-A and TWO questions from PART-B. Each question carries equal marks.

Q.1   a) What is OSPF?
      b) Differentiate between 'static' and 'dynamic routing'.
      c) What is the use of ARP and RARP in network communication?
      d) What do you mean by socket and elementary node?
      e) Explain RADIUS in brief.
      f) Define 'subnetting'.
      g) What do you mean by 'security planning'?
      h) Explain functions of presentation layer of OSI model in brief.
      i) Explain the role of firewalls.
      j) Explain the concept of RPC in brief.   2×10

PART-A

Q.2   a) State the use of following TCP/IP trouble shooting commands:
          Ping, IPconfig, Tracert, Netstat, Finger.   5
      b) Write short notes on NAT and VLAN.   5
      c) Explain in detail, classfullinternet addresses. How classless addressing scheme is different from classful addressing scheme?   10

Q.3   a) Explain the echo services of TCP.   7
      b) Write a short note on TLI.   3
      c) Explain the system calls with respect to elementary TCP socket with the help of a neat diagram.   10

Q.4   a) Explain in detail, the working of multi service servers with respect to TCP and UDP both.   10
      b) What do you mean by concurrent servers?   5
      c) Explain the algorithm of Iterative connectionless server (UDP) in server software design.   5

PART-B

Q.5   a) Write short notes on the following:
          i)   Dynamic port mapping.
          ii) RPC authentication.   5×2
      b) What do you mean by remote programs and procedure? Explain the analogy between RPC of client and server.   10

Q.6   a) Explain in detail the configuration of proxy server.   10
      b) Explain in detail the configuration of Linux as a router.   10

Q.7   a) Explain the four categories of security with respect to network security.   10
      b) What are the major threats in network security? List some methods to secure password.   10

End Semester Examination, Dec. 2016
B. Tech.— Third / Fifth Semester
SOFTWARE ENGINEERING (IT-702)

Time: 3 hrs.   Max Marks: 100
Note: Attempt FIVE questions in all; Q.1 is compulsory. Attempt ANYTWO questions from PART-A and TWO questions from PART-B. Each question carries equal marks.

Q.1   a) What is software engineering?
      b) What are the advantages of incremental model?
      c) Explain KLOC.
      d) Explain requirement engineering.
      e) Define 'data dictionary'.
      f) Explain the difference between 'verification' and 'validation'.
      g) Explain Acceptance testing.
      h) What are the advantages of CASE tool?
      i) Define error, failure and fault of software.
      j) What are the different types of cohesion? 2×10

PART-A

Q.2   a) Explain in detail following life cycle models:
          i) Waterfall model.
          ii) Spiral model. $7\frac{1}{2} \times 2$
      b) Write down the applications of software in our daily life.   5

Q.3   a) What is a SRS document? What are the characteristics of good SRS documents?   5
      b) What are the benefits of prototyping? What are the various prototyping methods and tools?   10
      c) Explain the different levels of CMM model.

Q.4   Write short notes on: 5
      a) Size estimation techniques.
      b) COCOMO model.
      c) Categories of Risk.
      d) Staffing level estimation. 5×4

PART-B

Q.5   a) What is coupling? Explain its different types.   10
      b) Describe decomposition levels of abstraction and modularity concept in software design.   10

Q.6   a) Explain the software testing objectives and its principle.   10
      b) Write short notes on (ANY TWO):
          i) White box testing.
          ii) Black box testing.
          iii) Basic path testing. 5×2

Q.7   a) What is software reliability? How does it contribute to software quality?   10
      b) Explain the building blocks and architecture of CASE in detail.   10

End Semester Examination, Dec. 2016
B. Tech.–Sixth / Seventh / EighthSemester
MANAGEMENT INFORMATION SYSTEMS (IT-721)

Time: 3 hrs   Max Marks: 100

Note: Attempt FIVE questions in all;Q.1 is compulsory. Attempt any TWO questions from Part A and TWO questions from Part B. Each question carries equal marks.

Q.1   a) Differentiate between 'data' and 'information'.
       b) Name few organizational sectors using MIS.
       c) What is an automated MIS?
       d) How information prove as quality product for MIS?
       e) What is customization of MIS software?
       f) What does management views in a system contain?
       g) Explain MIS as a decision-maker.
       h) What is a strategic planning?
       i) Define 'work domain of service sector'.
       j) Give any two examples for 'security issues of MIS'.
            2x10

PART-A

Q.2   a) What is MIS? What are its basic components? Also explain functional model of production sector with respect to MIS.
            10
       b) Distinguish between data warehouse and data mining. Explain their role in MIS in detain.
            10

Q.3   a) Classify and explain information. What are the different methods of data and information collection?
            10
       b) Describe MIS as a system. Explain with the help of an example the design of modules, layout and input/output.
            10

Q.4   a) Explain complete architecture of MIS. Also discuss about the different types of system controls.
            10
       b) How development, implementation and testing of MIS is done?
            10

PART-B

Q.5   a) What is DSS? Explain DSS models along with their working in detail.
            10
       b) Throw some light on planning tools of strategic management.
            10

Q.6   a) What is the role of MIS in service sector? Discuss its various activities in detail.
            10
       b) Discuss electronic business system and supply chain management system as an application of MIS.
            10

Q.7   Write short notes on:
       a) Security, ethical and societal challenges of IT.
            10
       b) Security of MIS.   5

c) DBMS in MIS.   5

End Semester Examination, Dec. 2016
B. Tech. – Sixth / Seventh Semester
E-COMMERCE AND ERP (IT-722)

Time: 3 hrs   Max Marks: 100
                                                                           No. of pages: 1

Note: Attempt FIVE questions in all; Q.1 is compulsory. Attempt any TWO questions
      from Part A and TWO questions from Part B. Each question carries equal marks.

Q.1   a) Define e-commerce.
      b) What do you understand by e-strategy?
      c) Differentiate between internet and intranet.
      d) Differentiate between e-cheque and e-cash.
      e) What are risk of e-commerce?
      f) Define e-marketing and tele-marketing.
      g) Define ERP.
      h) What are advantages of ERP?
      i) Differentiate between credit card and debit card.
      j) What are benefits of interne?   2x10

PART-A

Q.2   a) Justify the role of different models that are based on transaction party.
          10
      b) Explain the four C's of e-commerce.
          10

Q.3   a) Explain electronic payment system in detail.
          10
      b) How does a cyber-cash-model works? Explain.
          10

Q.4   Write short notes on:
      a) EDI
      b) FIREWALL
      c) Security of e-commerce.
      d) Cryptography.
          5x4

PART-B

Q.5   a) What are advantages and disadvantages of ERP? Explain the importance of ERP is
          business ERA.
          10
      b) What is SCM? Explain the role of ERP is SCM.
          10

Q.6   a) List different modules of ERP. Explain any two modules in detail with the help of
          example.
          10
      b) Write short notes on:
          i) Production planning and production scheduling.
          ii) BPR and KE.
          10

Q.7   a) List various steps those are helpful in implementation of an ERP system.   5
      b) Briefly explain ERP life cycle model.   7
      b) Write short notes on:

i) CRM.
ii) PLCM. 8

End Semester Examination, Dec. 2016
B. Tech.–Sixth / Seventh Semester
ADVANCED JAVA PROGRAMMING (IT-801)

Time: 3 hrs

Max Marks: 100

No. of pages: 1

Note: Attempt FIVE questions in all;Q.1 is compulsory. Attempt any TWO questions from Part A and TWO questions from Part B. Each question carries equal marks.

Q.1 a) Describe half close sockets with syntax.
     b) Explain transparency and composition.
     c) How coordinate transformations is done in awt?
     d) What is socket programming?   5x4

PART-A

Q.2 a) Consider a database with roll_no and percentage of marks. Write a program to update the percentage of marks for a given roll_no.
          10
     b) Describe LDAP.Explain connection management in web and enterprise application.

          10

Q.3 a) How client-server communication is accomplished in javareference to sockets. Write suitable client and server classes.
              10
     b) Write a program to print the protocol, port,host and file component of a URL.
          10

Q.4 a) Write a program to create a JList. Illustrate:
        i) Addition   ii) Deletion of elements in list.
          10
     b) What are component organizers? Write a program to implement tabbed panes.
          10

PART-B

Q.5 a) How printing is done using AWT components in java? Explain with the help of an example.
          10
     b) Explain the following: rendering and clipping.
          10

Q.6 Explain the following:
     a) Bean writing process.
          10
     b) Naming patterns for bean components.
          10

Q.7 Write short notes on:
     a) Code signing.
     b) Encryption.
     c) Byte code verification.
     d) Security manager and permissions.   5x4

End Semester Examination, Dec. 2016
B. Tech.–Seventh/ Eighth Semester
SOFTWARE PROJECT MANAGEMENT (IT-821)

Time: 3 hrs   Max Marks: 100
                                                    No. of pages: 1
Note: Attempt FIVE questions in all;Q.1 is compulsory. Attempt any TWO questions
       from Part A and TWO questions from Part B. Each question carries equal marks.

Q.1 a) What are the SDLC models?
     b) Define 'process'.
     c) Write the equation for effort and development time for basic COCOMO model.
     d) What are the advantages of RAD model?
     e) Define effort estimation.
     f) How quality control can be achieved in a project?
     g) Explain project crashing.
     h) What is resource planning?
     i) What is critical change management?
     j) Explain defect analysis.
        2x10

PART-A

Q.2 a) Explain the different phases of project life cycle.
        10
     b) Explain CMM model with an example.
        10

Q.3 a) What are the failures of waterfall model?
        10
     b) Explain spiral model. Also write the advantages and disadvantages of spiral model.

        10

Q.4 a) Explain SRS. How isit useful in project planning?
        10
     b) Explain CPM scheduling in detail.
        10

PART-B

Q.5 a) How does defect prevention planning ensures the better software quality?
        10
     b) Write short notes on:
        i) Risk identification.
        ii) Configuration management.   5x2
Q.6 a) How network analysis is important for project tracking and control?
        10
     b) What is flexibility matrix? Also explain scope management in detail.
        10
Q.7 a) Explain perato chart and its principles.Also discuss when it is used?
        10
     b) Explain defect analysis and prevention in detail.
        10

End Semester Examination, Dec. 2016
B. Tech.–Seventh / Eighth Semester
SOFTWARE PROJECT MANAGEMENT(IT-821)

Time: 3 hrs   Max Marks: 100
                                                         No. of pages: 1
Note: Attempt FIVE questions in all; Q.1 is compulsory. Attempt any TWO questions
      from Part A and TWO questions from Part B. Each question carries equal marks.

Q.1 a) Explain product.
   b) What is the importance of SDLC models?
   c) Write the equation for effort and development time for intermediate COCOMO model.
   d) What are the advantages of spiral model?
   e) Explain project planning.
   f) Write the difference between 'quality control' and 'quality assurance'.
   g) What is foot tracking?
   h) Explain risk management.
   i) What is project closure analysis?
   j) How reports are generated?
        2x10

PART-A

Q.2 a) Explain in detail different KPA's of project management?
        10
   b) Difference between standard and customized process. Also write a short note on process planning.
        10
Q.3 a) Write notes on:
        i) Financial Planning.
        ii) Software testing plan.   5x2
   b) How SDLC models are selected? Explain RAD model in detail.
        10
Q.4 a) Explain in detail the approaches of effort estimation.
        10
   b) Explain PERT chart scheduling in detail.
        10

PART-B

Q.5 a) Explain the factors affecting the software quality. How will you define the software quality assurance?
        10
   b) Explain risk monitoring and tracking in detail.
        10
Q.6 Explain the following terms:
   a) Schedule management.
        10
   b) Scope management.
        10
Q.7 a) What is rum-chart? How it is created?
        10
   b) What do you mean by quality control? Explain its key points in detail.
        10

End Semester Examination, Dec. 2016
B. Tech.–Seventh/EighthSemester
DATA WAREHOUSING AND DATA MINING (IT-822)

Time: 3 hrs.   Max Marks:100
                                                                     No. of pages:1
Note: Attempt FIVE questions in all;Q.1 is compulsory. Attempt any TWO questions from Part A and TWO questions from Part B. Each question carries equal marks.

Q.1 a) Differentiate between 'fact table' and 'dimension table'.
     b) Define 'text mining'.
     c) Define 'data cube'.
     d) Write down the applications of data mining.
     e) What are the advantages of ROLAP and MOLAP?
     f) What are the requirements of cluster analysis?
     g) What does slice and dice means? Give an example.
     h) Differentiate between 'data warehouse' and 'data mart'.
     i) Define 'data transformation'.
     j) List out two different types of reporting tools.   2×10

PART-A

Q.2 a) What are the different components of a data warehouse? Explain with the help of
        examples.   10
     b) What are multi-dimensional data models? Discuss star and fact-constellation
        schemas.   10

Q.3 a) Explain 3-tier data warehouse architecture with a neat sketch.   10
     b) Write short notes on the following:
        i) Virtual Warehouse.
        ii) Types of OLAP servers.   5×2

Q.4 a) Explain various data smoothing techniques in detail.   10
     b) Write short notes on:
        i) Discovery driven cube.
        ii) Multi-feature cube.   5×2

PART-B

Q.5 a) List the primitives that specify a data mining task.   10
     b) Explain the syntax for the following data mining primitives:
        i) Task relevant data.
        ii) Kind of knowledge to be mined.   5×2

Q.6 a) What is a decision tree? Where they can be used? Why is tree pruning useful in
        decision tree induction?   10
     b) Explain the following:
        i) K-means algorithm.
        ii) Partition methods.   5×2

Q.7 Write short notes on the following:
     a) Mining spatial databases.   7
     b) Mining the www.   7
     c) Mining multimedia databases.   6

End Semester Examination, Dec. 2016
MCA—Fifth Semester
HR MANAGEMENT (MCA-006 (CB))

Time: 3 hrs.   Max Marks: 50
                                                               No. of pages: 1
Note: Attempt FIVE questions in all; Q.1 is compulsory. Attempt ANYTWO questions
      from PART-A and TWO questions from PART-B. Each question carries equal marks.

Q.1 Answer the following in 50 to 100 words:
 a) What do you understand by term "human resource"?
 b) What is the importance of human resource planning in H.R. management?
 c) Define term 'career development'.
 d) Discuss term 'job analysis'.
 e) Describe the significance of providing welfare facilities to workers.   2×5

PART-A

Q.2 Identify five major challenges of human resource management (HRM). Discuss the various functions of HRM to meet these challenges.   10

Q.3 What do you understand by "recruitment"? Discuss critically the various sources of recruitment.   10

Q.4 Discuss the role of training in employee's professional stay in organization. Also state the importance of a good training in brief.   10

PART-B

Q.5 Explain the significance of individual health and safety of effective management resources. What are the impacts of working conditions on employees health?   10

Q.6 Define 'job analysis'. Discuss the significance of it in management of human resources. 10

Q.7 What is a trade union? Explain the objectives and functions of trade unions in detail.   10

End Semester Examination, Dec. 2016
MCA – FirstSemester
DISCRETE STRUCTURES(MCA-102)

Time: 3 hrs.   Max Marks:75
                                                                                                No. of pages:2
Note: Attempt FIVE questions in all; taking at least ONE question from each UNIT.
 Q.1 is compulsory. All questions carry equal marks.

Q.1 a) Solve the difference equation:

$a_r - 7a_{r-1} + 12a_{r-2} = 0$.

b) Let F, $g:A{\to}A$ denote functions defined by $f(x) = x + 2$ and $g(x) = x^3$ for every $x{\in}R$. Find Fog.

c) Define 'partially ordered set'.

d) What is a Bounded Lattice?

e) Define a closed circuit.

f) Define finite state automata along with an example.

g) Draw the Hasse diagram of D_{30}.

h) Define acyclic graph with an example.

i) Draw the complete bipartite graph $K_{2,3}$.

j) Define'semigroups'. $1\frac{1}{2}{\times}10$

UNIT-I

Q.2 a) Solve the recurrence relation:
$a_n = a_{n-1} + 2a_{n-2}$, $\forall n{\geq} 2$,with the initial conditions
$a_0 = 1$ and $a_1 = 8$ 9

b) Show that if 25 journals in a library contain a total of 52042 pages, then one of the journal must contains at least 2082 pages.   6

Q.3 a) Consider the set $A = \{9, 10, 11, 12\}$ and the relation
$R = \{(9, 10), (10, 9), (9, 9), (11, 10), (11, 11),(11, 12), (12, 12)\}$ on set A
Determine M_R^2 from R.   9

b) Determine whether the following are equivalent, using biconditional statement:
$(q \to p) \to t \cong (q^\wedge {\sqcup} P) \to t$ 6

UNIT-II

Q.4 a) Find the truth table for the Boolean function $f : B_3 \to B$ defined by:
$f(x_1, x_2, x_3) = x_1 \wedge (x_2^1 \vee x_3)$ 9

b) Define a lattice along with a suitable example.   6

Q.5 a) Let (Q)be the set of rational numbers. Show that $(Q, +)$ is not a cyclic group.   9

b) Design a circuit that accepts a 3-bit number and gives output (0) if input represent even decimal number and gives an output (1) if input represents an odd decimal number.   6

UNIT-III

Q.6 Define the following terms:
a) Minimum spanning trees.
b) Degree of the vertex.
c) Complement of a subgraph.
d) Isomorphism's of graphs.
e) Length of a path. $3{\times}5$

Q.7 Find the shortest path between (K) and (L) by using Dijkstra's Algorithm.
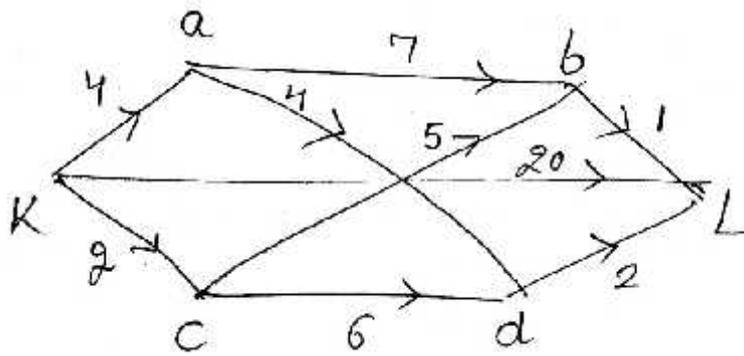
15

UNIT-IV

Q.8 Construct deterministic finite state automaton equivalent to the following non-deterministic finite state automaton:

$M = \left[(0, 1)(S_0, S_1)S_0(S_1), f\right]$ where f is given by the table:

	f	
S \ I	0	1
S_0	$\{S_0, S_1\}$	$\{S_1\}$
S_1	ϕ	$\{S_0, S_1\}$

15

Q.9 Let the transition table of a Moore machine:

$M = \left[(0, 1)(S_0, S_1, S_2, S_3)(0, 1), S_0, f, g\right]$

be as given below:

	f		g
S \ I	0	1	
$\rightarrow S_0$	$S_3 S_1$		0
S_1	$S_1 S_2$		1
S_2	$S_2 S_3$		0
S_3	$S_3 S_0$		0

Construct a Mealy machine M_2 equivalent to M_1.

15

Time: 3 hrs.
Max Marks: 100
No. of pages: 1

Note: Attempt FIVE questions in all; Q.1 is compulsory. Attempt ANYTWO questions from PART-A and TWO questions from PART-B. Each question carries equal marks.

Q.1 a) What are add-on cards? Give two examples.
     b) Differentiate between primary and secondary storage medium.
     c) Write the steps to install and configure a network printer.
     d) Distinguish between LAN and WAN.
     e) What is Trojan Horse? 4×5

PART-A

Q.2 Write short notes on:
     a) RAM.
     b) Types of ROM.
     c) Virtual memory.
     d) Cache memory. 5×4

Q.3 a) What are the different types of printers? What is the difference between impact type and non-impact type printers?   15
     b) Discuss the principle to display a character on a CRT screen in brief.   5

Q.4 Discuss some modern processors. Differentiate between a mobile processors and network processor.   20

PART-B

Q.5 a) Why there is a need of layered architecture? Support your answer with an example.   7
     b) Explain OSI model in detail. How is it different from TCP/IP model?   13

Q.6 a) What are interconnecting devices? Explain all with the reference of layered architecture.   12
     b) Differentiate between token-bus and token-ring.   8

Q.7 a) Why do we need network security? What are the different methods to provide network security?   12
     b) Write short notes on:
         i)   Trojan horse.
         ii) Worms.
         iii) Virus.
         iv) Spam. 2×4

End Semester Examination, Dec. 2016
MCA—Second Semester
PROGRAMMING IN C++(MCA-203 (CB))

Note: Attempt FIVE questions in all; Q.1 is compulsory. Attempt ANYTWO questions from PART-A and TWO questions from PART-B. Each question carries equal marks.

Q.1　Multiple choice questions:
　　a) What is data hiding?
　　　　i) It is related with hiding internal object details.
　　　　ii) It is related with showing internal object details.
　　　　iii) It is related with datatypes.
　　　　iv) None of the above.
　　b) What is purpose of abstract class?
　　　　i) To provide help with database connectivity.
　　　　ii) To provide data input to other classes.
　　　　iii) To provide security to other classes.
　　　　iv) To provide an appropriate base class from which other classes can inherit.
　　c) Size of a char is:
　　　　i) 1　　　　　　ii) 2　　　　iii) 3　　　　iv) 4
　　d) Enumerators are stored by the complier in:
　　　　i) String.　　　　ii) Integer.　iii) Float.　　iv) None of the above.
　　e) Inheritance is referred to as:
　　　　i) Is a relationship.
　　　　ii) Have a relationship.
　　　　iii) Both of above.
　　　　iv) None of above.
　　f) Destructors are called?
　　　　i) Not defined.
　　　　ii) In any order.
　　　　iii) In the reverse order of constructor calls.
　　　　iv) In the same order of constructor calls.
　　g) Operator overloading is:
　　　　i) Giving new meaning to existing C++ operators.
　　　　ii) Making C++ operators work with objects.
　　　　iii) Giving C++ operators more than they can handle.
　　　　iv) Making new C++ operators.
　　h) What is default scope for a structure?
　　　　i) Private.　　　ii) Protected.　iii) Public.　iv) None of the above.
　　i) Which of the following can derived class inherit?
　　　　i) Members.　ii) Functions.　iii) Both.　　iv) None of the above.　　$1\frac{1}{2} \times 10$
　　j) Which is used to create a pure virtual function?
　　　　i) $　　　　　ii) =o　　　　iii) &　　　　iv) !
　　k) Explain the following terms:
　　　　i) Inheritance　ii) Function overloading　　　　　　　　　　　　　　$2\frac{1}{2} \times 2$

PART-A

Q.2　What are the data types supported by C++? Explain in detail with examples of each. 20

Q.3　Demonstrate a program to elaborate the function calling and returning mechanism. 20

Q.4　a) What is a class? How does it accomplish data hiding?　　　　　　　　　10
　　　b) Explain static data members and static member functions in detail.　　　10

PART-B

Q.5 a) List some of the special properties of a constructor function.   10

        b) Why is it necessary to overload an operator? Describe the syntax of an operator function.   10

Q.6 a) Explain the order of execution of constructor and destructor in inheritance.   10

        b) Why do we need a virtual function? Explain.   10

Q.7 Write short notes on:

        a) Formatted console I/O operation.   10

        b) Exception handling mechanism.   10

End Semester Examination, Dec. 2016
MCA—Second Semester
OPERATING SYSTEM(MCA-204 (CB))

Time: 3 hrs.
Max Marks: 100
No. of pages: 1

Note: Attempt FIVE questions in all; Q.1 is compulsory. Attempt ANYTWO questions from PART-A and TWO questions from PART-B. Each question carries equal marks.

Q.1 Fill in the blanks:
a) The operating system of a computer serves as a software interface between the user and the _____.
b) An operating system is a_____ software.
c) _____ provides an interface between a process and the operating system.
d) Details of a process are stored in a data structure called _____.
e) Amount of time spent in ready to run queue but actually not running is called_____.
f) Section of code where shared data structure is updated by processes is called a _____.
g) Swapping needs _____ to store the swapped out program.
h) A _____ is a logical entity in a program.
i) The _____ of the hard disk has enabled to have several disks within a disk.
j) Define the following:
  i) Critical section.
  ii) Demand paging. 2×10

PART-A

Q.2 Explain the following with suitable examples:
a) Batch processing.
b) Multi programming.
c) Multitasking.
d) Distributed operating system. 5×4

Q.3 Consider the following processes:

Process	Burst time	Arrival time
P_0	23	0
P_1	5	1
P_2	17	2
P_3	4	3

Compute the average turnaround time and waiting time using FCFS, SJF, and Round Robin algorithm.   20

Q.4 a) What is inter process communication? List various IPC mechanisms and give examples.   10
b) Explain the classical problems in concurrent programming.   10

PART-B

Q.5 What are the characteristics of a deadlock? Give conditions under which deadlock would occur?   20

Q.6 a) Explain swapping in the context of memory management.   10
b) Explain why compaction is used in memory management.   10

Q.7 Write short notes on:
a) RAID structure.

b) File system implementation. 10×2

End Semester Examination, Dec. 2016
MCA— Second Semester

LINEAR ALGEBRA AND STATISTICAL TECHNIQUES (MCA-204)

Time: 3 hrs. Max Marks: **75**
No. of pages: 2

Note: *Attempt **FIVE** questions in all; **taking at leastONE** question from each **Unit**. **Q.1** is compulsory.Each question carries equal marks.*

Q.1 a) Using graphical methodsolves the LPP:
$Max\ Z = 5x_1 + 3x_2$
Subject to the constraint
$3x_1 + 5x_2 \leq 15$
$5x_1 + 2x_2 \leq 10$
$x_{1,}\ x_2 \geq 0$

b) Solve the system of linear equations:
$3x + y + 2z = 3$
$2x - 3y - z = -3$
$x + 2y + z = 4$
by Cramer's rule.

c) Show that intersection of two subgroup is also a subgroup. **5×3**

UNIT-I

Q.2 a) Show that the set $S = \{e^x, xe^x, x^2 e^x\}$ in $C^2(-\infty, \infty)$ is linearly independent. **7**

b) Show that $S = \left\{ \begin{bmatrix} 1 & 2 \\ 1 & -2 \end{bmatrix}, \begin{bmatrix} 0 & -1 \\ -1 & 0 \end{bmatrix}, \begin{bmatrix} 0 & 2 \\ 3 & 1 \end{bmatrix}, \begin{bmatrix} 0 & 0 \\ -1 & 2 \end{bmatrix} \right\}$ is a basis for M_{22}. **8**

Q.3 Diagonalize the matrix $A = \begin{bmatrix} 1 & 0 & -1 \\ 1 & 2 & 1 \\ 2 & 2 & 3 \end{bmatrix}$ **15**

UNIT-II

Q.4 a) For the matrix $A = \begin{bmatrix} 1 & 1 & 2 \\ 1 & 2 & 3 \\ 0 & -1 & -1 \end{bmatrix}$, find nonsingular matrixes P and Q such that PAQ is in normal form, hence find the rank of A. **10**

b) What do you mean by an orthogonal matrix, verify that the following matrix is orthogonal?
$$\begin{bmatrix} \cos_{''} & 0 & \sin_{''} \\ 0 & 1 & 0 \\ -\sin_{''} & 0 & \cos_{''} \end{bmatrix}$$
5

Q.5 Verify Caley – Hamilton theorem for the matrix $A = \begin{bmatrix} 1 & 0 & 2 \\ 0 & 2 & 1 \\ 2 & 0 & 3 \end{bmatrix}$ and find its inverse. **15**

UNIT-III

Q.6 a) The following table show the marks obtained by 100 candidates in an examination. Calculate the mean, median and standard deviation.

Marks obtained	1-10	11-20	21-30	31-40	41-50	51-60
No. of candidate	3	16	26	31	16	8

9

b) A random variable x has the following probability function:

x	-2	-1	0	1	2	3
$P(x)$	0.1	k	0.2	$2k$	0.3	k

6

Q.7 a) The mortality rate for a certain disease is 6 per 1000. What is the probability for just four deaths from that disease in a group of 400? **8**

b) Fit a binomial distribution to the following data and compare the theoretical frequencies with the actual ones:

x:	0	1	2	3	4	5
y:	2	19	20	34	22	8

7

UNIT-IV

Q.8 Solve the following LPP by two – phase method:

Maximize $P = 8x + 5y$

Subject to the constraints:

$$2x + y \le 250$$

$$x + y \le 200$$

$$x \ge 25 \ and \ x, y \ge 0$$

15

Q.9 Express the following transportation problem as on LPP. Find its initial basic solution by VAM:

	D_1	D_2	D_3	D_4	Supply a_i
O_1	2	3	11	7	6
O_2	1	0	6	1	1
O_3	5	8	15	9	10
Demand bj	7	5	3	2	

15

Note: Attempt FIVE questions in all; Q.1 is compulsory. Attempt ANYTWO questions from PART-A and TWO questions from PART-B. Each question carries equal marks.

Q.1 a) Differentiate between 'normal file system' and 'database management system'.
     b) What is cardinality, entity, week entity set and relationship?
     c) What are composite, derived, multivalued and key attributes?
     d) Differentiate between DDL and DML.
     e) Name different locking techniques. 4×5

PART-A

Q.2 a) Explain three level architecture of database management system? Why mapping is required between different levels? Give suitable example.   12
     b) What are the characteristics of database approach?   8

Q.3 Construct an E-R diagram for a hospital with a set of patients and a set of medical doctors.Associate with each potency, a log of various tests and examinations conducted. Construct the appropriate tables for this E-R diagram and list the tables with their attributes primary key and foreign keys.   20

Q.4 a) Explain the term "Relational Algebra" with the help of an example.Explain in detail, all primitive operations in relational algebra.   15
     b) Consider the following relation:
        Student (S-ID, S-name, address, gender and course) id course (course-id, course-name) using SQL and solve the following queries:
        i) List all information about all students in student table.
        ii) List all the students who are enrolled in course "BCA". $2\frac{1}{2} \times 2$

PART-B

Q.5 a) Explain Armstrong rules of functional dependency. What are different anomalies in a database? Support your answer with the help of suitable examples.   12
     b) Explain BCNF in detail with the help of an example.   8

Q.6 a) What is meant by query processing? Explain and discuss the various methods for query processing and query optimization with the help of examples.   15
     b) What do you mean by distributed database? Explain merits and demerits of such database.   5

Q.7 Write short notes on:
     a) Concurrency control locking techniques.
     b) Dead lock.
     c) Solution to inconsistency problem.
     d) Database security and recovery. 5×4

End Semester Examination, Dec. 2016
MCA—Second Semester
OBJECT ORIENTED ANALYSIS AND DESIGN(MCA-207 (CB))

Note: Attempt FIVE questions in all; Q.1 is compulsory. Attempt ANYTWO questions from PART-A and TWO questions from PART-B. Each question carries equal marks.

Q.1 a) The method for industrial development of software based on use-case-driven design is _____.
b) What is an object? Give a real world example of it.
c) The purpose of Booch methodology is _____.
d) OOSE stands for:
   i) Object-oriented system engineering.
   ii) Object-oriented system evolution.
   iii) Object-oriented software evolution.
   iv) Object-oriented software engineering.
e) Object oriented life cycle model deals with:
   i) Changing requirements.
   ii) Real-world projects.
   iii) Business objects.
   iv) All of the above.
f) A use case addresses _____ requirements.
g) In a state chart diagram _____ is a behavior that occurs in response to a state transition.
h) On a sequence diagram an asynchronous message is shown as a:
   i) Full, solid arrow head.
   ii) Transverse tick mark.
   iii) Hollow arrowhead.
   iv) Half arrowhead.
i) The state transition diagram:
   i) Depicts relationships between data objects.
   ii) Depicts function that transforms the data flow.
   iii) Indicates how data are transformed by the system.
   iv) Indicates system reactions to external events.
j) Object oriented analysis identifies the objects that can be used to provide alternative solutions to the problem. (TRUE / FALSE) $1\frac{1}{2} \times 10$
k) Define 'inheritance' and 'encapsulation' in brief. $2\frac{1}{2} \times 2$

PART-A

Q.2 a) The Rumbaugh methodology is popularly known as OMT. Explain the methodology in detail.   8
b) Explain 'unified process model' in detail.   7
c) Explain 'OOSE methodology' in brief.   5

Q.3 a) What does an activity represents in an activity diagram? How to represent activity in activity diagram?   8
b) What is the use of branching in activity diagram?   6
c) State difference between fork and join diagrammatically.   6

Q.4 Explain following terms with an example:
a) Use case.
b) Actor.
c) Relationship between actor and use case.   20

PART-B

Q.5 Sequence diagrams are used to depict the sequence of messages that are passed objects. How does messaging take place in sequence diagrams? Explain with the help of a diagram. 20

Q.6 Explain the concept of a state machine with the help of an example of various states of a CD player. 20

Q.7 The structure diagrams show the static structure of the system and its parts on different abstraction and implementation levels and how they are related to each other. Elaborate. 20

Note: Attempt FIVE questions in all; Q.1 is compulsory. Attempt ANYTWO questions from PART-A and TWO questions from PART-B. Each question carries equal marks.

Q.1   a) Define a "Singular Matrix".
      b) State consistency theorem.
      c) What do you mean by inconsistent system of linear equation?
      d) Compute determinant of the matrix $A = \begin{bmatrix} 3 & 1 \\ -1 & 2 \end{bmatrix}$.
      e) Define a vector space over the field F.
      f) What do you mean by "Null hypothesis"?
      g) Differentiate between derogatory and non-derogatory matrix.
      h) What is a "Augmented matrix"?
      i) Discuss "Regression" in the statistics.
      j) Find the rank of the matrix $A = \begin{bmatrix} 1 & 2 & 3 \\ 4 & 6 & 5 \\ 8 & 7 & 1 \end{bmatrix}$ 2×10

PART-A

Q.2   a) Prove that $(Z, .)$ is not an abeliangroup.
      b) Find the inverse of the given matrix $A = \begin{bmatrix} 1 & 3 & 3 \\ 1 & 4 & 3 \\ 1 & 3 & 4 \end{bmatrix}$ 10×2

Q.3   a) Show that the system:
      $$x + 2y - z = 3$$
      $$3x - y + 2z = 1$$
      $$2x - 2y + 3z = 2$$
      $$x - y + 2 = -1$$
      of linear equation is consistent.
      b) For what values of $(\})$ and $(\sim)$ the system of equations:
      $$x + y + z = 6$$
      $$x + 2y + 3z = 10$$
      $$x + 2y + \} z = \sim$$
      has a unique solution. 10×2

Q.4   a) Verify Cayley – Hamilton theorem for the matrix:
      $$A = \begin{bmatrix} 8 & -8 & -2 \\ 4 & -3 & -2 \\ 3 & -4 & 1 \end{bmatrix}$$
      b) Find the Eigen values and the corresponding Eigen vectors of the matrix:

$$A = \begin{bmatrix} 3 & 1 & 0 \\ 0 & 3 & 1 \\ 0 & 0 & 3 \end{bmatrix}$$

10×2

PART-B

Q.5 a) Find the Mean, Median and Standard deviation of the given data:

Weight	Frequency
210-215	08
215-220	13
220-225	16
225-230	29
230-235	14
235-240	10
240-245	07
245-250	03

15

    b) Discuss the concept of "Probability".   5

Q.6 a) What is Chi-square test?   5

    b) Two independent samples of sizes 6 and 5 have the following values:

Sample A:	27	29	31	32	32	28
Sample B:	28	29	29	23	26	

Examine whether the samples have been drawn from normal population's having the same variance.   15

Q.7 a) Discuss "Simplex method".   5

    b) Use the simplex method to solve the problem:

Maximize:

$u = 2x + 3y$

Subject to:

$-2x + 3y \le 2$

$3x + 2y \le 5$

and x, $y \ge 0$ 15

End Semester Examination, Dec. 2016
MCA – ThirdSemester
OPERATING SYSTEM (MCA-301)

Note: Attempt FIVE questions in all;taking at least ONE question from each UNIT.
      Q.1 is compulsory. All questions carry equal marks.

Q.1   a) To access the services of operating system, the interface is provided by the:
          i)   System calls.   ii) API.
          iii) Library.   iv) Assembly instructions.
      b) Which of the following refers to the associative memory?
          i)   The address of the data generated by CPU.
          ii) The address of the data supplied by the users.
          iii) There is no need for an address i.e., the data is used as an address.
          iv) None of the above.
      c) Process is:
          i)   Contents of main memory.   ii) Program in execution.
          iii) A job in secondary memory.   iv) None of these.
      d) Which of the following is the part of operating system?
          i)   Kernel services.   ii) Library Services.
          iii) Application level services.   iv) All of the above.
      e) The system of _____ generally ran one job at a time. These were called single
          stream batch processing.
          i)   40's   ii) 50's
          iii) 60's   iv) 70's
      f) _____ executes must frequently and makes the fine-grained decision of which
          process to execute the next.
          i)   Long-term scheduling.   ii) Medium-term scheduling.
          iii) Short-term scheduling.   iv) None of the above.
      g) Resources are allocated to the process on non-sharable basis is:
          i)   Mutual exclusion.   ii) Hold and wait.
          iii) Circularwait.   iv) No pre-emption.
      h) In round robin CPU scheduling as time quantum is increased the average
          turnaround time.
          i)   Increases.   ii) Decreases.
          iii) Remains Constant.   iv) Varies irregularly.
      i) _____ is a large operating system which providesa wide range of services.
          i)   Multilithic Kernel.   ii) Monolithic Kernel.
          iii) Micro kernel.   iv) Macro Kernel.
      j) For batch and payroll applications which of the following file organization is better
          _____.
          i)   Random file.   ii) Sequential file.
          iii) Indexed file.   iv) Hashed file.   1½×10

UNIT-I

Q.2   a) What are the different characteristics of real time system and time sharing
          system? Explain in detail.   10
      b) Discuss the different advantages of multiprogramming in brief.   5

Q.3   a) What inconveniences that a user can face while interacting with a computer
          system,which is without an operating system?   10
      b) Explain how buffering can improve the performance of a computer system?   5

UNIT-II

Q.4 What do you mean by process scheduler? Explain different types of processes which are assigned to the CPU on a particular scheduling algorithm. 15

Q.5 a) Explain the life cycle of a process. 10
b) What is the difference between scheduler and dispatcher? 5

UNIT-III

Q.6 Implement following memory allocation policies with given data:
FCFS.
First Fit.
Best Fit.
Available memory : 35 Units.
OS : 10 Units.
User process : 25 Units.

Time of arrival (Units)	0	3	7	12	18	25	29
Processing time (Units)	5	3	9	10	16	2	8
Memory required (Units)	3	5	8	12	2	6	9

15

Q.7 On a system with paging, a process cannot access memory that it does not own; why? How could the operating system allow access to other memory? Why should it or should it not? 15

UNIT-IV

Q.8 How does NTFS handle data structure? How does NTFS recover from a system crash? What is guaranteed after a recovery takes place? 15

Q.9 Write short notes on the following:
a) Disk management.
b) Page allocation.
c) Virtual memory. 5×3

End Semester Examination, Dec. 2016

MCA – ThirdSemester
LOGICAL AND QUANTITATIVE REASONING-I (MCA-302 (CB))

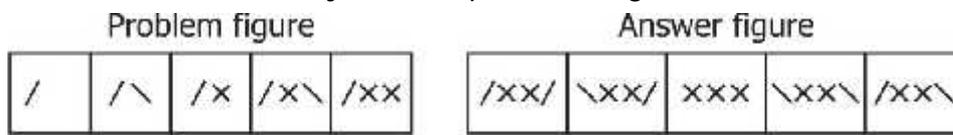Time: 3 hrs.   Max Marks:50
                                                                            No. of pages:2

Note: Attempt FIVE questions in all;Q.1 is compulsory. Attempt any TWO questions
      from Part A and TWO questions from Part B. Each question carries equal marks.

Q.1   a) What was the day of week on 15 August 2016?
      b) Pointing to a photograph Asha said,"she is the daughter of the only daughter of
          my mother". How is Asha related to that girl?
      c) Mohan ranks 29th in class of 50 students. What is his rank from the last?
      d) Find the missing series:
          1, 3, 3, 6, 7, 9, ?, 12, 21
      e) Select a figure from the amongst answer figure which will continue the same
          series as established by the five problems figure.

                                                                            2×5

PART-A

Q.2   a) Complete the series:
          i)   13, 35, 57, 79, 911, _____?
          ii)   AZY, BUT, CXW, DWV, _____?
          iii) A, CD, GHI, _____? UVWXY.
          iv)   Pulp: Paper : : Hemp : _____?
          v)   Botany : Pants : : Entomology : _____?   1×5
      b) Deepa moved towards north for a distance of 75 m. She then turned to the left
          and walking about 25 m, turned left again and walked 80m. Finally, she turned to
          the right at an angle of 45°. In which direction was she moving finally?   2½
      c) A man is facing south. He turns 135° in the anticlock wise direction and then 180°
          in the clockwise direction. Which direction he is facing now?   2½

Q.3   a) A, B, C and D plays a game of cards. A says to B, " if I give you 8 cards, you will
          have as many as C has and I shall have 3 less than what C has. Also if I take 6
          cards from C, I shall have twice as many as D has." If B and D together have 50
          cards, how many cards has C got?   5
      b) Aman is 16th from the left in a Row if boys and Vivek is 18th from the right end.
          Gagan is 11th from Aman towards the right and 3rd from Vivek towards the right
          end. How many boys are there in the row?   5

Q.4   a) What was the day of week on 26 January 1947?   5
      b) If 1st July 2016 is Friday then 1st December 2016 will be.   5

PART-B

Q.5   a) Ponting to Kapil, Shilpa said, "his mother's brother is the father of my son Ashish".
          How is Kapil related to Shilpa?   4
      b) Showing the man receiving the prize, Saroj said,"he is the brother of my uncle's
          daughter". Who is the man to Saroj?   4
      c) Complete: Lion : Den : : Rabbit :_____.
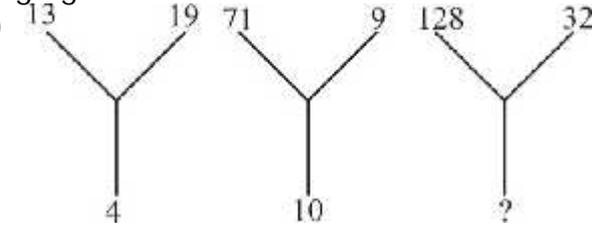   Complete: Monday : Saturday : : Thursday :_____.   2

Q.6 a) If '+' means minus, '×' mean divided by, '÷' means plus and '–'means 'multiplied'
bythen what will be the value of expression300 × 9 – 4 + 16 ÷ 8.   5
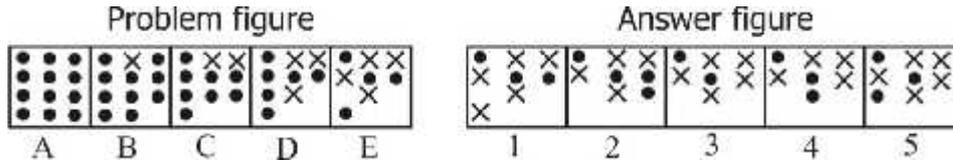
b) Find the missing value in the following figures:

i)

1	2	3
4	5	6
7	8	9
27	38	?

ii)

5

Q.7 a) Select a figure from the amongst the answer figure which will continue the same
series as established by the five problems figure.

3

b) Choose the correct option:
— c — bd — cbcda — a — db — a
  i) adabcd   ii) bdbcba
  iii) cdbbca   iv) daabbc   2½

c) a — bb — baa — bbb — aa —
  i) abdca   ii) bcadc
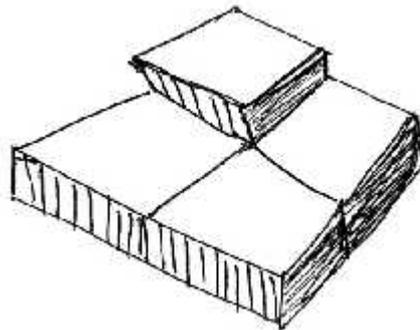 iii) edbbca   iv) daabbc   2½

d) Count the number of blocks in the given figure:

  i) 3   ii) 4
  iii) 5   iv) 6   2

End Semester Examination, Dec. 2016
MCA – ThirdSemester
DATA STRUCTURES (MCA-303(CB))

Time: 3 hrs   Max Marks:100
                                                                No. of pages:2
Note: Attempt FIVE questions in all;Q.1 is compulsory. Attempt any TWO questions
      from Part A and TWO questions from Part B. Each question carries equal marks.

Q.1   Multiple choice questions:
      a) Which of the following is/are the levels of implementation of data structure?
         i) Abstract.   ii) Application.
         iii) Implementation.   iv) All of the above.
      b) The operation of processing each element in the list is known as:
         i) Sorting.   ii) Merging.
         iii) Traversal.   iv) Inserting.
      c) _____ is very useful in situation when data have to stored and then
         retrieved in reverse order.
         i) Stack.   ii) Queue.
         iii) List.   iv) Link list.
      d) The number of comparisons done by sequential search is _____.
         i) $(N+1)/2$ ii) $N/2+1$

         iii) $(N-1)/2$ iv) None of these
      e) Which of the following is not type of Queue?
         i) Ordinary queue   ii) Single ended queue
         iii) Circular queue   iv) Priority queue.
      StateTRUE/FALSE:
      f) An empty tree is also a binary tree.
      g) A linear array does not keep track of address of every element in the list.
      Answer the following:
      h) Give the disadvantages of circular linked list.
      i) What is the complexity of insertion sort?
      j) Define 'data'. 2×10

PART-A

Q.2   a) Explain shell sorting technique with an example. Give the complexity of above
         technique in terms of comparisons and storage required for both best and worst
         cases.   10
      b) What is sparse array? Write an algorithm to represent a sparse array.   10

Q.3   a) Write C code to perform the following operation in a queue:
         i) Create a queue.
         ii) Insertion.
         iii) Deletion.
         iv) Display.
             15
      b) What is the difference between 'stack and queue'?   5

Q.4   a) Write atleast three differences between circular-linked-list and doubly-linked-list.
         Write an algorithm for insertion operation on a doubly-linked-list.   10
      b) Explain the method to represent the polynomial equation using linked list. Write
         and explain method to add two polynomial equations using linked list.   10

PART-B

Q.5 a) What is binary search tree? Write the important applications of binary search tree. Write an algorithm to delete a node from a binary search tree. 10
b) Show that the maximum number of nodes in a binary tree of height h is $2^{h+1}-1$. 5
c) Write a short note on:'threaded trees'. 5

Q.6 a) Discuss various representations of graph. 5
b) Discuss coloring of graph and minimum spanning tree in detail. 10
c) Write algorithm for BFS method. 5

Q.7 a) What do you understand by hashing? What is the need of using it? Explain collision resolution techniques used in hashing. 10
b) Write a short note on:'file organization'. 10

End Semester Examination, Dec. 2016
MCA – ThirdSemester

COMPUTER GRAPHICS(MCA-304(CB))

Time: 3 hrs   Max Marks:100

No. of pages:2

Note: Attempt FIVE questions in all;Q.1 is compulsory. Attempt any TWO questions from Part A and TWO questions from Part B. Each question carries equal marks.

Q.1   Multiple choice questions:
   a) User can make any change on image with the use of:
      i)   Non-interactive graphics.
      ii) Interactive graphics.
      iii) Both i) and ii)
      iv) None of these.
   b) CAD stands for:
      i)   Computer Aided Design.
      ii) Car Aided Design.
      iii) Computer Art Design.
      iv) None of these.
   c) A display controller serves to pass the control of:
      i)   Frame buffer to monitor.
      ii) Monitor to frame buffer.
      iii) Both i) and ii)
      iv) None of these.
   d) The display controller converts O_s and 1_s into:
      i)   TV Monitor.
      ii) Video signal.
      iii) Electronic signal.
      iv) None of these.
   e) The area of picture that is captured by application is called:
      i)   Window
      ii) Viewport.
      iii) Display.
      iv) None of these.
   f) The division displayed on screen into row and column is known as:
      i)   Rubber band method.
      ii) Gravity field.
      iii) Dragging.
      iv) Grid.
   g) The function of a plotter is like.
      i)   Monitor
      ii) Projector.
      iii) Printers.
      iv) None of these.
   h) _____ ink is used in laser printer.
      i)   Wet
      ii) Dry
      iii) Both i) and ii)
      iv) None of these
   i) LCD stands for:
      i)   Liquid core display.
      ii) Lipid crystal display.
      iii) Liquid crystal display.
      iv) None of these.

j) The process of cutting of the line which are outside the window are called:
   i)   Shear
   ii) Reflection.
   iii) Clipping
   iv) Clipping window.
       1×10

Explain the following in brief:
k) Bezier curve.
l) Hidden surface. 5×2

PART-A

Q.2 a) What are the primary components of a CRT? Explain them in detail.   10
     b) What is the basic technique used to design a flat panel display?   10

Q.3 a) Plot the points which will be used to draw a line between points A(0, 0) and B(9, 7) using DDA.   10
     b) Explain the following terms in brief:
        i)   Constraint.   ii) Gravity field.
        iii) Sketching.   iv) Rubber band method. $2\frac{1}{2} \times 4$

Q.4 a) Explain the properties of B-spline curve.   10
     b) How does Seed fill algorithm helps to fill color in an image? Explain through an example.   10

PART-B

Q.5 a) Perform a 45° degree rotation of triangle A(0, 0), B(10, 2) and C(5, 9):
        i) About the origin.
        ii) About the point P(1, 1).   10
     b) Prove that multiplication of transformation matrices for each of the sequence of transformation is commutative.   10

Q.6 A clipping window whose lower left corner is at (0, 0) and upper right corner is at (40, 40).Check whether two lines P(-20, 70), Q (20, 30) and R(50, 10), S(70, 70) are totally invisible or partially visible.   20

Q.7 a) Write Z-buffer algorithm for back face removal.   10
     b) Explain the following:
        i)   Back face removal.
        ii) Back face detection.
        iii) Hidden surface.
             10

End Semester Examination, Dec. 2016
MCA –ThirdSemester
COMPUTER SYSTEM ARCHITECTURE (MCA-305 (CB))

Time: 3 hrs.   Max Marks:100
                                                                 No. of pages:1

Note: Attempt FIVE questions in all;Q.1 is compulsory. Attempt any TWO questions from Part A and TWO questions from Part B. Each question carries equal marks.

Q.1 a) What are BCD codes?
     b) ASCII stands for _____.
     c) What are the utilities of Boolean operators?
     d) State Absorption law.
     e) What is the difference between Hard Disk and CD-ROM?
     f) State True/False:
         i)   The machine cycle executes instructions one at a time during instruction cycle and execution cycle.
         ii) The push and pop instructions transfer data among processor registers and a memory stack.
     g) A _____ sequences the micro instructions in control memory.
     h) The most obvious use of ROM is as _____ converter.
     i) Differentiate between 'CISC' and 'RISC'.
     j) What do you understand by 'external storage devices'? 2×10

PART-A

Q.2 a) What are error detecting and correcting codes? Explain with suitable examples.   10
     b) Perform following operations:
         i) $(11000)_2 / (110)_2$
         ii) Subtract $(1101)_2 – (1001)_2$ using 2's complement method. 5×2

Q.3 What is flip-flop? What is its function? What are the shortcomings of S-R flip-flop? Explain how shortcoming is removed using J-K flip-flops?   20

Q.4 a) Discuss various types of addressing modes which are usually provided in a microprocessor. Give suitable examples.   15
     b) Write a short note on 'stack organization'.   5

PART-B

Q.5 a) What is interrupt? What is the need of priority interrupt?   5
     b) Discuss the need of Direct Memory Access (DMA) interface. Explain with suitable diagram.   15

Q.6 a) Differentiate between 'address space' and 'memory space'.   5
     b) Differentiate between 'associative mapping' and 'direct mapping' with suitable diagramandexample.   15

Q.7 a) What is the need of pipelining?   5
     b) Explain arithmetic pipelining in detail using suitable diagram and example.   15

End Semester Examination, Dec. 2016
MCA– ThirdSemester
WEB APPLICATIONS DEVELOPMENT USING PHP (MCA-306 (CB))

Time: 3 hrs.   Max Marks:100
                                                                               No. of pages:2

Note: Attempt FIVE questions in all; Q.1 is compulsory. Attempt any TWO questions from Part A and TWO questions from Part B. Each question carries equal marks.

Q.1 a) _____ tag is an empty Tag that simply inserts a line break.
    i)   BR   ii) Break
    iii) HR   iv) P

    b) _____ tag is used for title of table:
    i)   <title>   ii) <head>
    iii) <caption>   iv) <none>

    c) What is the correct HTML for making a dropdown list?
    i)   <select>   ii) <input type = "list">
    iii) <list>   iv) <input type = "dropdown">

    d) Who is making the web standards?
    i)   Netscape   ii) Microsoft
    iii) wwwc   iv) None of these

    e) Which property is used to change the background colour?
    i) color: ii) background-color:
    iii) bg color: iv) None of these

    f) Which CSS property controls text size?
    i) text-size   ii) font-style
    iii) text-style   iv) font-size

    g) What is the correct way to add 1 to the & count variable?
    i) $ count = + 1   ii) count ++
    iii) ++ count   iv) $ count ++

    h) Which one of these variables has an illegal name?
    i) $my-var   ii) $myvar
    iii) $my-var   iv) None of these

    i) All variables in PHP starts with which symbol?
    i) !   ii) $
    iii) &   iv) None of these

    j) What is the correct way to create function in PHP?   2×10

PART-A

Q.2 a) What do you mean by web browser? Write down the steps for creating a website.   10
    b) What are form elements? Write a program in HTML to create an admission form using checkbox, list-box, radio button and submit button.   10

Q.3 a) Define and explain the different ways of creating styles.   10
    b) Write a program to insert unordered list, ordered list and definition list on webpage including styles.   10

Q.4 a) What are strings in PHP? What are various string functions in PHP?   5
    b) What are arrays? Explain different types of arrays with suitable examples in PHP. 10
    c) Differentiate Int, Float, Octal, Binary and Hexadecimal data types in PHPH.   5

PART-B

Q.5 a) Explain exception handling in PHP in detail.   10
    b) Differentiate between public, private and protected methods.   10

Q.6 a) Write a program in JavaScript to add two numbers.   10
    b) Differentiate for_while and do_while loop in JavaScript.   10

Q.7 a) What are joins? Differentiate between inner, outer and cross joins in MySQL.   10
   b) Why do we use MySQL database? Explain any five data manipulation statements in MySQL.   10

Time: 3 hrs.   Max Marks:100
                                                                                No. of pages:2

Note: Attempt FIVE questions in all;Q.1 is compulsory. Attempt any TWO questions
from Part A and TWO questions from Part B. Each question carries equal marks.

Q.1 a) Which different security mechanisms are available in Unix?
     b) How will you create 5 empty files F_1, F_2, F_3, F_4, F_5 at single command?
     c) State two different ways in which you would identify whether a given file is an
         executable file or not without executing it?
     d) You are given a file my-file without opening this file how would you make a fair
         estimate about its extents?
     e) What is the internal value associated with the standard input, standard output and
         standard error?
     f) What are the three modes of operations of vi?
     g) What are the different states in which a process can be?
     h) List four commands which are available in Unix to communicate with other users.
     i) What is the purpose of this command:
         if [! Z "$frame"]
         where frame is a filename.
     j) What will be the output of:
         i) $$
         ii) $?   2×10

PART-A

Q.2 a) What are the salient features of aUnix operating system?   5
     b) What is difference between Kernel and Shell in Unix? What are the different types
         of Shells available in Unix?   8
     c) Describe the meaning of portability. Also discuss the password ageing in detail. 7

Q.3 What will be the effect of following Unix commands?
     a) umask
     b) chmod 777   my file
     c) chmodu+w   g-w   my file
     d) chmodUg+rw   q=x   my file
     e) chmodu+tmydir   4×5

Q.4 a) What is the difference between compress and pack? Discuss in detail.   5
     b) How would you perform the following?
         i)   Conversion of all capital letters in a file to small case letters.
         ii)   Extract the address field from a file which contains records having fields
               name: age: address: phone.
         iii) Search all lines in a file which end with a semicolon.
         iv)   Merge and sort the contents of files a, b and c and display the sorted output
               on the screen.
         v)   Merge the contents of file f1 with the input supplied from the keyboard and
               store the sorted output in a file f2.   3×5

PART-B

Q.5   In a five digits number input is through the keyboard, write a program to calculate the sum of it's digits.   20

Q.6   What are the control instructions in shell? Discuss various control instructions in shell by taking suitable examples.   20

Q.7   What are sockets? What is the role of sockets in creating remote applications? Explain the working of a socket with the help of a diagram.   20

End Semester Examination, Dec. 2016
MCA— Fourth Semester
RAPID APPLICATION DEVELOPMENT (MCA-401)

Time: 3 hrs.   Max Marks: **75**
                                                                         No. of pages: 1
Note: *Attempt **FIVE** questions in all; **taking atleastONE** question from each Unit. **Q.1 is**
compulsory. Each question carries equal marks.*

Q.1   Fill in the blanks:
       a)   Forms in VB are saved with the extension _____.
       b)   The local variables are always declared _____.
       c)   _____ is an event attached with the timer control in VB.
       d)   _____ and _____ properties are attached with list box in VB.
       e)   MDI stands for _____.
       f)   _____ and _____ are active X controls.
       g)   _____ is an example of user defines data type in VB.
       h)   Constants in VB are declared as _____.
       i)   RDO stands for _____.
       j)   _____ is an unconditional branch statement.   **1½×10**

UNIT-I

Q.2   What is GUI? What is the need of a good GUI? Explain how a graphical user interface can be
       made more users friendly.   **15**

Q.3   Explain the following terms:
       a)   Menu bar.
       b)   Tool bar.
       c)   Tool box.   **5×3**

UNIT-II

Q.4   Write short notes on:
       a)   Module.
       b)   General procedure.
       c)   Event procedure.   **5×3**

Q.5   What is menu? Explain all the steps required to create a menu in VB.   **15**

UNIT-III

Q.6   What is control array? Explain the ways the control array can be created in VB. **15**

Q.7   Write short notes on:
       a)   Built in data types in VB.
       b)   Operators in VB.   **7½×2**

UNIT-IV

Q.8   Explain the following terms:
       a)   Bound data controls.
       b)   The jet database engine.   **7½×2**

Q.9   Explain in detail the steps required in creating a crystal report in VB.   **15**

End Semester Examination, Dec. 2016
MCA—Fourth Semester
OBJECT ORIENTED PROGRAMMING IN JAVA(MCA-402 (CB))

Time: 3 hrs.

Max Marks: 100
No. of pages: 1

Note: Attempt FIVE questions in all; Q.1 is compulsory. Attempt ANYTWO questions from PART-A and TWO questions from PART-B. Each question carries equal marks.

Q.1 State whether the following statements are TRUE or FALSE:
a) Exceptions can be caught or rethrown to a calling method. 1
b) Can a for statement loop indefinitely? 1
c) The java program is enclosed in a class definition. 1
d) Comparison / Legal operators are used for testing and magnitude. 1
e) Object class is a superclass of all other classes. 1
Answer the following:
f) What is the difference between throw and throws? 2
g) What are the two ways to create the threads? 2
h) What is meant by time slicing or time sharing? 2
i) What are identifiers and what is naming convection? 2
j) What is casting? 1
k) An interface contains _____ methods. 1
l) Can we declare variable inside a method as final variables? 1
m) What is the purpose of the system class? 2
n) What are the steps involved in Applet development? 2

PART-A

Q.2 a) What are the features of object oriented programming? Explain. 10
b) Explain the following with illustrative examples:
    i) Copy constructor.   ii) Parameterized constructor. 5×2

Q.3 a) Explain different types of inheritances with suitable examples. 15
b) Write the rules for overloading operators in brief. 5

Q.4 What do you mean by function overloading and function overriding? Describe with suitable examples. 20

PART-B

Q.5 Write short notes on:
a) Event driven programming.
b) Tasks of servlets.
c) Classpath.
d) JDBC (Java database connectivity). 5×4

Q.6 a) What is a thread? Explain multithreading with suitable examples.
b) What is an exception? Write a program which throws an exception of Array index Out of Bound. 10×2

Q.7 Differentiate between the following:
a) Abstract class and interface.
b) Checked and unchecked exceptions.
c) Applet and application.
d) POST and GET requests. 5×4

End Semester Examination, Dec. 2016
MCA (L)—Fourth Semester
SOFTWARE ENGINEERING AND TESTING(MCA-403 (CB))

Note: Attempt FIVE questions in all; Q.1 is compulsory. Attempt ANYTWO questions
       from PART-A and TWO questions from PART-B. Each question carries equal marks.

Q.1   Fill in the blanks:
       a) During software development, _____ factor is most crucial.
       b) Software engineering approach is used to achieve _____.
       c) Effects are measured in term of _____.
       d) Token count method was developed by _____.
       e) Function point can be calculated by _____.
       f) _____ is the international standard for size measure.
       g) Highly coupled and low cohesive module is _____ to debug.
       h) For a function of n variables, robust testing yields _____ test cases.
       i) Software mistake during coding is known as _____.
       j) Cyclomatic complexity is denoted by _____. 2×10

PART-A

Q.2   a) Discuss the phases of spiral model with its advantages and disadvantages.   15
       b) Discuss the selection process parameters for a life cycle model.   5

Q.3   Compute the function point value for a project with the following information:
       Number of user input = 30
       Number of user outputs = 42
       Numbers of user enquiries = 08
       Numbers of files = 07
       Number of external interfaces = 06
       Assume all weighting factors as average and all complexity adjustment factors as
       significant.   20

Q.4   Discuss the objectives of software design. Discuss the module cohesion and explain
       different types of cohesion.   20

PART-B

Q.5   a) Explain the testing principles for effective testing.   10
       b) What should we test? Comment on this statement. Illustrate the importance of
           testing.   10

Q.6   A program reads three numbers a, b, c with the range (1, 50) and prints the largest
       of numbers. Design the test cases for this program using boundary value analysis and
       robust testing.   20

Q.7   Write short notes on:
       a) Load testing.
       b) Stress testing.
       c) Regression testing.
       d) Interface testing.   5x4

End Semester Examination, Dec. 2016
MCA – FourthSemester
ARTIFICIAL INTELLIGENCE(MCA-404(CB))

Note: Attempt FIVE questions in all;Q.1 is compulsory. Attempt any TWO questions from Part A and TWO questions from Part B. Each question carries equal marks.

Q.1 a) What is Skolemization?
     b) List quantifiers used in predicate logic.
     c) What is probability?
     d) List two expert systems.
     e) What is a neuron? 2×5

State true or false:
     f) A heuristic function improves the efficiency of search process.
     g) The knowledge in a neural network is distributed throughout the network.
     h) Expert system used data rather than knowledge.
     i) Minimax is complete if the tree is finite.
     j) Fuzzy logic allows values between 1 and -1. 1×5

Fill in the blanks:
     k) Non monotonic logic is basically an extension of _____.
     l) AI is a technique that exploits _____.
     m) _____ errors are major sources of uncertainty.
     n) _____ is the most important element in development of an expert system.
     o) LISP is _____. 1×5

PART-A

Q.2 a) Discuss the following:
        i) Knowledge   ii) Intelligence   iii) Artificial intelligence.
        15
     b) List and discuss two potentially negative effects on society of the development of artificial intelligence techniques.   5

Q.3 Discuss A* algorithm in detail with the help of an example.   20

Q.4 Consider following sentences:
     a) John likes all kinds of food.
     b) Apples are food.
     c) Chicken is food.
     d) Anything anyone eats and is not killed by is food.
     e) Bill eats peanut and is still alive.
     f) Sue eats everything bill eats.
     Use resolution to check whether Sue eats peanuts.   20

PART-B

Q.5 What are the application areas of game playing using artificial intelligence? What is minimax strategy? How it is used in game playing?   20

Q.6. a) What is the difference between forward chaining and backward chaining?   10
      b) Why is rule based architecture is most preferable in expert system?   10
Q.7 a) What are the applications of neural networks?   10
     b) Discuss the Hopfield network in detail.   10

End Semester Examination, Dec. 2016
MCA— Fourth Semester
ADVANCED DATABASES (MCA-404)

Time: 3 hrs.   Max Marks: **75**

Note: *Attempt* **FIVE** *questions in all; taking at least* **ONE** *question from each Unit.* **Q.1 is compulsory.** *Each question carries equal marks.*

Q.1   Choose the correct answer:
a)   A database schema refers to:
   i)   Information at particular level.
   ii)   Overall design of database.
   iii) Query language.
   iv)   Validation issues.
b)   A query is used to:
   i)   Extract information from database.
   ii)   Create entities.
   iii) Create storage space.
   iv)   None of these.
c)   A relation can be logically connected to another relation by defining a:
   i)   Foreign key.
   ii)   Command field.
   iii) Primary key.
   iv)   Hyperlink.
d)   If you don't specify ASC or DESC after a SQL orderby clause, the following is used by default:
   i)   There is not default value.
   ii)   ASC.
   iii) DESC.
e)   Which of the following is not a SQL keyword?
   i)   Select.   ii) Insert.   iii) Update.   iv) Invert.
f)   Which of the following is the assignment operator in Oracle?
   i)   =   ii) : =   iii) = =   iv) None.
g)   Function will return values by using which statement:
   i)   IN   ii) OUT   ii) RETURN   iv) IN OUT
h)   Which of the following cursor attribute is invalid?
   i)   % not found
   ii)   % found
   iii) % open
   iv)   None of these
i)   DQL stands for:
   i)   Data Query Time.
   ii)   Data Query Language.
   iii) Direct Query Language.
j)   Relational algebra is a:
   i)   Procedural language.
   ii)   Non-Procedural language.
   iii) Commercial language.
   iv)   All the above.   **1½×10**

UNIT-I

Q.2   Explain the following:
a)   Difference between DBMS and RDBMS.
b)   Difference between entity and attribute.
c)   Difference between candidate key and primary key.   **5×3**

Q.3   What do you mean by normalization? Explain the concept of functional dependency and fully functional dependency with an example. Also explain the similarities and dissimilarities between BCNF and 3rd NF in detail.   **15**

UNIT-II

Q.4   Explain the following in SQL with examples:
i)   Minus.   ii) Intersect.   iii) Create view.
iv) Alter.   v)   Order by.   **3x5**

Q.5   What are joins and how joins can be used in SQL? Explain various joins with example.   **15**

UNIT-III

Q.6   What do you mean by functions and procedures? Differentiate it.Write down the syntax to create store procedure and explain it with an example.   **15**

Q.7   What do you mean by exceptions? What are the different types of exceptions? Explain each with an example.   **15**

UNIT-IV

Q.8   What do you mean by D2K? Discuss its characteristics and also explain the working of all push buttons in D2K.   **15**

Q.9   What do you mean by login screen? Explain the procedure to create login screen with the help of examples.   **15**

End Semester Examination, Dec. 2016

MCA – FourthSemester
DATA COMMUNICATION(MCA-405(CB))

Time: 3 hrs   Max Marks:100

No. of pages:1

Note: Attempt FIVE questions in all;Q.1 is compulsory. Attempt any TWO questions from Part A and TWO questions from Part B. Each question carries equal marks.

Q.1   Answer the following:
a) Name the factors that affect the performance of a network.
b) What are the advantages of a multipoint connection over a point-to-point connection? Discuss.
c) Discuss the merits and demerits of star topology in brief.
d) List all the layers of OSI model.
e) What are the responsibilities of presentation layer? Discuss.
f) Why is synchronization a problem in data communication? Explain.
g) What is the purpose of a carrier signal in modulation? Discuss.
h) Name the two major categories of transmission media.
i) What are the three major multiplexing techniques?
j) Discuss the difference between even parity and odd parity. 2×10

PART-A

Q.2   a) List out the types of data communication. What are the fundamental characteristics on which the effectiveness of data communication depends on?   8
b) Discuss the various applications and advantages of computer networks.   7
c) Explain the factors that affect the security of a data.   5

Q.3   a) Given a bit pattern is 1011100001. Encode this bit pattern using the following encoding schemes:
i) NRZ-L   ii) NRZ-I   iii) RZ
iv) HDB3   10
b) What is meant by multiplexing? What is the need of it and discuss time division multiplexing with its types.   10

Q.4   a) How do the layers of TCP/IP protocol suite correlate to the layers of OSI model? Discuss.   15
b) Explain the following:
i) Synchronization.
ii) DC component.   5

PART-B

Q.5   a) Draw the sender and receiver windows for a system using selective-reject ARQ with the following:
i) Frame O is sent; frame O is acknowledged.
ii) Frame 1 and 2 are sent; flames 1 and 2 are acknowledged.
iii) Frames 3, 4 and 5 are sent; NAK 4 is received.
iv) Frame 4, 5, 6 and 7 are sent; frames 4 through 7 are acknowledged.
     15
b) A receiver receives the bit pattern 01101011. If the system is using even parity VRC, is the pattern in error? Explain.   5

Q.6   a) A receiver receives the code 11001100111. When is uses the Hamming encoding algorithm, the result is 0101. Which bit is in error? What is the correct code? Explain.   15
b) Define transfer protocol and connection oriented transport protocol mechanisms.   5

Q.7   a) What is meant by wireless LAN technology? Discuss its operation on physical layer. 5

b) Explain the following:
i) Frame format of Ethernet.   ii) Logical link control.   iii) CSMA/CD   5x3

End Semester Examination, Dec. 2016

<div align="center">MCA— Fourth Semester

NETWORK SECURITY AND CRYPTOGRAPHY (MCA-405A)</div>

Time: 3 hrs.   Max Marks: **75**

No. of pages: 1

Note: *Attempt **FIVE** questions in all; **taking at leastONE** question from each **Unit**. **Q.1** is compulsory.Each question carries equal marks.*

Q.1   a)   *Answer the following in one line only:*
- i)   State the five different program threats.
- ii)   What do you mean by term 'eavesdropping'?
- iii)   Write down the equation for additive inverse.
- iv)   Write the condition when linear congruence has no solution.
- v)   What is public key cryptography?   **1½×5**

     b)   *Fill in the blanks:*
- i)   DES is used in _____ key encryption.
- ii)   Kerberos is a network authentication system based on the use of _____.
- iii)   Worm is _____.
- iv)   Access control list is _____.
- e)   Three defense models are _____, _____.   **1½×5**

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UNIT-I

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Q.2   What is network security? Explain with suitable examples the various threats of network security. Represent its hierarchy also.   **15**

Q.3   What do you mean by DOS attacks? What are the various types of DOS attacks? State DDOS in relation to spoofed IP address.   **15**

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UNIT-II

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Q.4   Write short notes on following:
- a)   Authentication.
- b)   Authorization.
- c)   Biometrics.   **5×3**

Q.5   a)   What is risk analysis? Discuss the various factors or parameters to measure risks.   **10**

     b)   Differentiate between 'data security' and 'data privacy'.   **5**

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UNIT-III

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Q.6   What is cryptography? Differentiate between 'public key' and 'private key' algorithm. RSA involves a public key and private key. How are these keys, for the RSA algorithm, generated? Write steps.   **15**

Q.7   Differentiate between the following:
- a)   Purpose and functions of PK I.
- b)   Data security and data integrity.
- c)   Substitution ciphers and transpositional cipher.   **5×3**

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UNIT-IV

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Q.8   Find the particular and the general solution to the following linear Diophantine equations:

     a) $25x + 10y = 15$.   b) $18x + 30y = 20$.   **7½×2**

Q.9   Define Fermat's little theorem and Euler's theorem with its applications.   **15**

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End Semester Examination, Dec. 2016

MCA – FourthSemester

CLOUD COMPUTING(MCA-406(CB))

</div>

Time: 3 hrs   Max Marks:100

Note: Attempt FIVE questions in all;Q.1 is compulsory. Attempt any TWO questions from Part A and TWO questions from Part B. Each question carries equal marks.

Q.1 Multiple choice questions:
a) Which of these services is not platform as a service?
   i) Force.com
   ii) Microsoft Azure
   iii) Amazon EC2
   iv) Joyent
b) What feature does not belong to a private cloud?
   i) Self-service portal.
   ii) Dial-home support.
   iii) Rapid elasticity.
   iv) None of the above.
c) Which of the following companies offer a cloud computing video game service?
   i) Ubisoft.
   ii) Blizzard
   iii) Online.
   iv) Cloud computing.
d) What is the term for restricting users so that they can access the features they are assigned?
   i) Authorization
   ii) Authentication
   iii) Administration
   iv) All of the above
e) Which of the following is not an advantage of cloud?
   i) No worries about running out of storage
   ii) Easier to maintain a cloud network.
   iii) Immediate access to computing resources.
   iv) Paying only for what you use.
State whether TRUE or FALSE:
f) A cloud environment can be accessed from anywhere in the world as long as the user has access to the internet.
Fill in the blanks:
g) _____ describes a distribution model in which applications are hosted by a service provider and mode available to user.
   i) IaaS   ii) PaaS   iii) SaaS   iv) Cloud service.
h) Onion encryption layers are _____, _____, _____ and _____.
i) Two examples of public cloud are _____ and _____.
j) Pods are managed by _____.   2×10

PART-A

Q.2 a) Give a brief about the relation between cloud and SOA? How the principle of SOA are implemented in cloud computing?   8
b) What is delivery of service? Explain its process in brief.   6
c) Classify he different types of clouds. Give an example of public cloud.   6

Q.3 a) What are the fundamental components introduced in the cloud reference model? 9
b) What is VIM? How is it related to cloud infrastructure management?   6
c) Explain any four desired features of a cloud.   5

Q.4 Explain the following in relation to IaaS, PaaS and SaaS:
a) Pods b) Silos c) Open SaaS d) SOA e) IDaaS   4x5

PART-B

Q.5 a) What is the current state of data security in cloud?   6

b) What are the various key mechanisms to protect data in cloud?   7
c) How are various service models ensure security at their home?   7

Q.6   Write short notes on:
a) Features of cloud platforms.
b) Distributed programming paradigms.
c) Programming on Microsoft Azure.
d) Programming support of Google App engine. 5×4

Q.7   Explain the following in relation to communicate with clouds:
a) Instant messaging client.
b) Micro blogs.
c) Instant messaging interoperability.   20

End Semester Examination, Dec. 2016
MCA-Fourth Semester

MOBILE COMPUTING(MCA-407(CB))

Time: 3 hrs   Max Marks: 100

No. of pages: 1

Note: Attempt FIVE questions in all; Q.1 is compulsory. Attempt any TWO questions from Part A and TWO questions from Part B. Each question carries equal marks.

Q.1   Write full form of:
a) BTS   b) BSS   c) RSS   d) HLR   e) VLR
f) GPRS   g) EDGE   h) SIM   i) OMC   j) IMEI   2x10

PART-A

Q.2   a) Explain GPRS network architecture in detail.   10
       b) What are the limitations of GPRS?   5
       c) Write a short note on 'CDMA'.   5

Q.3   a) What is the role of mobile communication in our life? Name any four major wireless technologies which has made our life easy.   10
       b) Explain the working of 3G and Wi-Fi.   10

Q.4   a) Explain the Wireless Application Protocol (WAP) architecture in detail.   10
       b) What are the limitations of wireless networks?   5
       c) What is IEEE 802.11 standard?   5

PART-B

Q.5   a) What is proactive versus reactive routing?   10
       b) What is RFID? What are the application areas of RFID?   10

Q.6   a) Explain the problems with message routing in wireless Ad-hoc Mobile Networks. 10
       b) What is HiperLAN? What are the application areas of HiperLAN?   10

Q.7   Write short notes on:
       a) WIMAX.
       b) HiperLAN2.
       c) Characteristics of ADHOC.
       d) Tunneling.   5x4

End Semester Examination, Dec. 2016
MCA-Fifth Semester
ADVANCED DATABASE SYSTEMS(MCA-501(CB))

Time: 3 hrs   Max Marks: 100

No. of pages: 1

Note: Attempt FIVE questions in all; Q.1 is compulsory. Attempt any TWO questions from Part A and TWO questions from Part B. Each question carries equal marks.

Q.1   Answer the following:
   a) Discuss any four SQL functions.
   b) Explain referential integrity.
   c) What is transaction? Explain.
   d) What do you mean by shared/exclusive locks? Discuss.
   e) Discuss views in terms of SQL with its syntax.
   f) What do you mean by multi-valued dependency? Explain.
   g) What do you mean by union clause in SQL? Discuss with its syntax.
   h) What is meant by specialization? Discuss.
   i) Explain foreign key with example.
   j) Define the term 'atomicity'.   2x10

PART-A

Q.2   a) What do you mean by normalization? Discuss its objectives and also explain 1st, 2nd and 3rd normal form with an example.   15
       b) Differentiate between DBMS and RDBMS in brief.   5

Q.3   a) Discuss the architecture of DDBMS in detail.   10
       b) What is meant by fragmentation and what are its different types? Explain with examples.   10

Q.4   a) What are SQL joins? Explain all the joins with its syntax and examples.   10
       b) Explain the following:
           i) Groupby clause   ii) Check   iii) Like operator   10

PART-B

Q.5   a) What do you mean by concurrency control? Explain two-phase locking protocol and also discuss deadlock prevention techniques.   15
       b) Explain the ACID properties of transaction in brief.   5

Q.6   a) What are the advantages of PL/SQL? Explain its architecture and also explain the features of ORACLE.   10
       b) What are the control statements and looping statements in PL/SQL? Explain with an example.   10

Q.7   a) What do you mean by cloud computing? Explain its architecture and various models in detail.   15
       b) Write a short note on: 'OODBMS'.   5

End Semester Examination, Dec. 2016
MCA– FifthSemester
DATA MINING (MCA-502(CB))

Time: 3 hrs.   Max Marks:100
                                                                  No. of pages:1

Note: Attempt FIVE questions in all; Q.1 is compulsory. Attempt any TWO questions from Part A and TWO questions from Part B. Each question carries equal marks.

Q.1
a) Give four features of a data warehouse. 4
b) Clustering is also known as _____. 1
c) Two advantages of data mart are _____ and _____. 2
d) The three famous schemas for multidimensional database of a data warehouse are

_____, _____ and _____. 3
e) Name two famous algorithms for classification. 2
f) Two famous algorithm based on Hierarchical method of clustering are _____ and

_____. 2
g) Web mining can be categorized into _____, _____ and _____. 3
h) Clustering is also known as _____. 1
i) Define the term normalization. 2

PART-A

Q.2
a) Give the advantages of 'data mart over data warehouse'. 5
b) Give the advantages of a data warehouse over database with the help of suitable examples. 10
c) Explain why ER model is not suitable for building and data warehouse. 5

Q.3
a) Explain snowflake model for a data warehouse in detail. 10
b) Explain the advantages and disadvantages of MOLAP over ROLAP. 10

Q.4 Define the following terms:
a) Level of granularity. 3
b) Concept hierarchy. 3
c) Data preprocessing. 4
d) KDD (Knowledge Discovery from Data). 5
e) Binning. 5

PART-B

Q.5 Generate association rules for the following data set taking minimum support count as two and confidence as 50%.

TID	Items
100	1, 3, 4
200	2, 3, 5
300	1, 2, 3, 5
400	2, 5

20

Q.6 Explain the K-means method of clustering using an example. 20

Q.7 Explain the use of data mining techniques in the field of healthcare with the help of a suitable examples. 20

End Semester Examination, Dec. 2016

MCA— Fifth Semester
ANALYSIS AND DESIGN OF ALGORITHM (MCA-502)

Time: 3 hrs.

Max Marks: **75**

No. of pages: 2

Note: *Attempt* **FIVE** *questions in all; taking at least* **ONE** *question from each Unit.* **Q.1 is compulsory.***Each question carries equal marks.*

Q.1 a) Differentiate between 'tree' and 'graph'.
b) What is the complexity of merge sort?
c) What do you mean by minimum spanning tree?
d) What do you mean by underflow situation?
e) What is recursion?
f) What is NP scheduling?
g) Define 'backtracking'.
h) Why binary search is better than linear search?
i) What is the complexity of Strassen's matrix multiplication method?
j) What is job sequencing with deadline? **1½×10**

UNIT-I

Q.2 a) What are various ways to check the performance of an algorithm? Write algorithm to delete an element from an array. **10**
b) Analyze complexity of binary search. **5**

Q.3 a) Write algorithm for sets and disjoint set union. Also explain its memory representation. **10**
b) What do you mean by 'recurrence relation'? **5**

UNIT-II

Q.4 a) Why dynamic programming is better than greedy method? Explain with the help of an example. **5**
b) Solve the following travelling salesman problem using dynamic programming:

$$\begin{bmatrix} 0 & 10 & 15 & 20 \\ 5 & 0 & 9 & 10 \\ 6 & 13 & 0 & 12 \\ 8 & 8 & 9 & 10 \end{bmatrix}$$

10

Q.5 a) Explain the concept of job sequencing with deadline. Also solve the following problem:

P	100	95	90	85	70
D	3	1	2	1	2

9
b) Write the general algorithm for dynamic programming. **6**

UNIT-III

Q.6 Write algorithm for Hamiltonian cycle. Also explain its concept with the help of an example.**15**

Q.7 What is 4-planar graph problem? Write an algorithm for graph coloring. Also explain with an example. **15**

UNIT-IV

Q.8   State and prove Cook's theorem.   **15**

Q.9   Differentiate between the following:
       a) NP and P problem.
       b) NP hard and NP complete.
       c) Deterministic and non-deterministic algorithm.   **5×3**

End Semester Examination, Dec. 2016
MCA—Fifth Semester
E-COMMERCE TECHNOLOGIES(MCA-503 (CB))

Time: 3 hrs.   Max Marks: 100

Note: Attempt FIVE questions in all; Q.1 is compulsory. Attempt ANYTWO questions from PART-A and TWO questions from PART-B. Each question carries equal marks.

Q.1   Answer the following:
  a) What is the difference between traditional commerce and electronic commerce?
  b) Who use EDI? Explain.
  c) What are URL and a web browser?
  d) What is DNS and its role in website based E-commerce?
  e) Differentiate between viruses and worms.
  f) Discuss the main difference between a debit card and credit card.
  g) Illustrate the unique features of a smart card.
  h) What do you understand by on-line banking?
  i) What is the procedure for working of digital signatures?
  j) Define B2B and C2B e-commerce model in brief. 2×10

PART-A

Q.2   What are the different models of e-commerce? Illustrate them with proper examples.   20

Q.3   Define domain names and domain name system. What are the various categories of domain names and their functionality? Describe the step-wise procedure to register a domain name for launching a website.   20

Q.4   Define the relationship between 'network security' and 'privacy'. Explain the various threats to network security. Also describe the impact of threats on e-commerce transactions.   20

PART-B

Q.5   a) Define 'internet'. Discuss the advantages and disadvantages in context to on-line transactions of internet.   15
  b) Differentiate between intranet and extranet.   5

Q.6   What is plastic money? What are the different modes of plastic money for an on-line transaction? Justify your answer by giving features of each types of plastic money. 20

Q.7   Explain the following terms:
  a) Internet market.
  b) Service centre.
  c) Personalized e-commerce.
  d) On-line shopping. 5×4

End Semester Examination, Dec. 2016
MCA – FifthSemester
DATA MINING AND DATA WAREHOUSING(MCA-503)

Time: 3 hrs.   Max Marks:75
                                                 No. of pages:1

Note: Attempt FIVE questions in all; taking at least ONE question from each UNIT. Q.1 is compulsory. All questions carry equal marks.

Q.1 a) List the four features of a data warehouse.   4
     b) Classification is also known as _____ learning.   1
     c) One of the famous algorithm for classification is _____.   1
     d) Define 'data mart'.   3
     e) KDD stands for _____.   1
     f) We remove _____ and _____ in data preprocessing.   2
     g) Web mining can be categorized into _____ and _____.   2
     h) Define 'normalization'.   1

UNIT-I

Q.2 a) Give the advantages of a data warehouse over a database with the help of suitable examples.   10
     b) Give the advantages of a data mart over data warehouse in brief.   5

Q.3 Explain the three layers' architecture of a data warehouse in detail.   15

UNIT-II

Q.4 Explain the following terms:
     a) Level of Granularity.
     b) Concept Hierarchy.
     c) Data Preprocessing.   5×3

Q.5 What is data preprocessing? Explain its need with the help of an example.   15

UNIT-III

Q.6 What is an association rule? Explain the Apriori algorithm of generating the association rules, with the help of an example.   15

Q.7 Explain the K-Means method of clustering in detail.   15

UNIT-IV

Q.8 Give two applications of data mining techniques in the field of healthcare and education.   15

Q.9 Explain how data mining techniques can be applied to data available on World Wide Web?   15

End Semester Examination, Dec. 2016
MCA—Fifth Semester
NETWORK SECURITY AND CRYPTOGRAPHY(MCA-504 (CB))

Time: 3 hrs.   Max Marks: 100
                                                                         No. of pages: 1

Note: Attempt FIVE questions in all; Q.1 is compulsory. Attempt any TWO questions from PART-A and TWO questions from PART-B. Each question carries equal marks.

Q.1 a) Fill in the blanks:
   i)   Full form of virus is _____.
   ii) Mention any two security threats _____, _____.
   iii) Linear congruence has no solution if _____.
   iv) DES is used in _____ key encryption.
   v)   Two examples of biometric authentication are _____ and _____.
   b) Answer the following in one line:
   i)   Define the term 'eaves dropping'.
   ii) What do you mean by 'trap door'?
   iii) Write five program threats.
   iv) What are 'Trojans'?
   v)   What do you mean by risk analysis?   2×10

PART-A

Q.2 a) What are four problems related to a network security? Explain the meaning of each of them.   10
   b) What are the three D's of security. Explain each "D" with a suitable example.   5
   c) Differentiate between worms and viruses in brief.   5

Q.3 a) What do you mean by DOS attacks? What are the various types of DOS attacks? State DDOS in relation to spoofed IP address.   10
   b) Write short notes on(ANY TWO):
   i)   Mail bombing.
   ii) Social engineering.
   iii) Need of security.   5×2

Q.4 a) What is biometrics and biometrics authentication? Why is there a need to take multiple samples during the user registration process of biometrics?   12
   b) Explain briefly confidentiality, integrity and availability with respect to information security.   8

PART-B

Q.5 Find the value of X for following set of congruence using Chinese remainder theorem.
   a) $x = 2 \bmod 7$ and $x = 3 \bmod 9$.
   b) $x = 7 \bmod 13$ and $x = 11 \bmod 12$.   10×2

Q.6 a) RSA involves a public and private key. How are these keys for the RSA algorithm generated? Write its steps.   10
   b) Find all solutions to each of the following linear equations:
   i) $4x = 4 \bmod 6$.
   ii) $9x + 4 = 20 \bmod 7$.   5×2

Q.7 a) Differentiate between the following:
   i)   Conventional signatures and digital signatures.
   ii) Stream and block cipher.   5×2
   b) Find the particular and the general solution to the following linear Diophantine equations.
   i) $25x + 10y = 15$.   10

End Semester Examination, Dec. 2016
MCA— Fifth Semester
ANALYSIS AND DESIGN OF ALGORITHM (MCA-507(CB))

Time: 3 hrs.

Max Marks: **100**

No. of pages: *2*

Note: *Attempt **FIVE** questions in all; **Q.1 is compulsory**. Attempt any **TWO** questions from **PART-A** and **TWO** questions from **PART-B**. Each question carries equal marks.*

Q.1 a) What is 4-planner graph problem?
    b) Differentiate between NP hard and NP complete.
    c) What are the strategies of branch and bound?
    d) What is recursion?
    e) Write a short note on time space trade off.
    f) The complexity of linear search is:
       i) $O(n)$ ii) $O(\log_2 n)$
       iii) $O(n^2)$ iv) $O(n\log n)$
    g) _____ is a top-down approach.
       i) Divide.   ii) Backtracking.
       iii) Dynamic programming.   iv) Divide and conquer.
    h) Complexity of Strassen's matrix multiplication is _____.
    i) Graphs can be represented using _____, _____.
    j) What are the two methods to get minimum spanning tree?   **2×10**

PART-A

Q.2 What are various matrix multiplication methods? Analyze the complexity of Strassen's matrix multiplication methods.   **20**

Q.3 a) Find out the minimum spanning tree of given graph using both Prim's and Kruskal's methods:
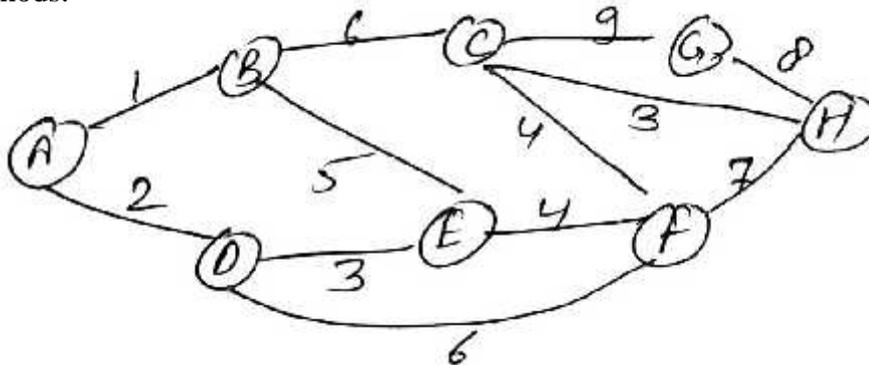
                                                      10

    b) Derive the complexity of Merge sort algorithm.   **10**

Q.4 a) Explain the concept of disjoint set union with its memory representation.   **10**
    b) Solve the Knapsack problem with n=7. Capacity of bag is 15. Profit and weights are given below:

P	10	5	15	7	6	18	3
W	2	3	5	7	1	4	1

                                                            10

PART-B

Q.5 a) What do you mean by dynamic programming? Write the general algorithm for it.   **10**
    b) Solve 0/1 Knapsack problem using dynamic programming with: n = 3

P	1	2	5
W	2	3	4

                                                            10

Q.6 State and explain Cook's theorem.   **20**

Q.7   a) What do you mean by backtracking? Write an algorithm for 8 queen's problem. Also explain it with the help of an example.   **10**
       b) Solve the Knapsack problem using LC branch and bound:
           n = 4   m = 15

P	10	10	12	18
W	2	4	6	9

                                                                                              10

End Semester Examination, Dec. 2016
MCA – ThirdSemester
LINEAR ALGEBRA AND STATISTICAL TECHNIQUES (MCA-3005)

Time: 3 hrs   Max Marks:75
                                                                                   No. of pages:2

Note: Attempt FIVE questions in all;taking at least ONE question from each UNIT.
      Q.1 is compulsory. All questions carry equal marks.

Q.1   a) Define a 'non-singular matrix'.
       b) Does the vector (2, -1, 1) is in the span of the set $S = \{(1,0,2),(-1,1,1)\}$?
       c) Define a 'vector space over the field F'.
       d) State caylaey-Hamilton theorem.
       e) Define 'consistent system of linear equation'.
       f) Compute determinant of the matrix:
           $$A = \begin{bmatrix} 0 & -1 \\ 1 & 3 \end{bmatrix}$$
       g) What do you mean by 'significance level'?
       h) Define 'regression in statistics'.
       i) Linear transformation is _____.
       j) Find the rank of the matrix:
           $$A = \begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 1 \end{bmatrix}$$ $1\frac{1}{2} \times 10$

UNIT-I

Q.2   a) Show that the system of linear equations is not consistent:
           $x + y +z = -3$
           $3x + y\text{-}2z = -2$
           $2x + 4y+7z = 7$ 8
       b) For what value of λ and $\mu$the system of equations:
           $x +y +z = 6$
           $x + 2y + 3z = 10$
           $x + 2y + \lambda z = \mu$
           Has i) No solution
             ii)A Unique solution   7

Q.3   a) Prove that T is linear transformation where T has been defined as:
           $T:V_2 \to V_2$ by
           $T(a_1,a_2)=(a_1,0)$ 8
       b) Explain the linear transformation.   7

UNIT-II

Q.4 Show that the matrix:
$$A = \begin{bmatrix} 1 & 0 & -1 \\ 1 & 2 & 1 \\ 2 & 2 & 3 \end{bmatrix}$$
is diagonalizable. Hence find the transforming matrix and the diagonal matrix.　　　15

Q.5 a) Verify Cayley-Hamilton theorem for the matrix:
$$A = \begin{bmatrix} 2 & 5 & -1 \\ 0 & 3 & 2 \\ 0 & 0 & 4 \end{bmatrix}$$
　　　10

b) Find the rank of the matrix:
$$A = \begin{bmatrix} 1 & 1 & 2 \\ 1 & 2 & 3 \\ 0 & -1 & -1 \end{bmatrix}$$
　　　5

UNIT-III

Q.6 a) Calculate the regression equations of (X and Y) and (Y on X) from the following data:

x :	1	2	3	4	5
y :	2	5	3	8	7

　　　8

b) Calculate the covariance and the coefficient of correlation between x and y if
$n = 10, \Sigma x = 60, \Sigma y = 60, \Sigma x^2 = 400, \Sigma y^2 = 580$ and $\Sigma xy = 305$　　　7

Q.7 a) Explain the relative merits of the standard deviation over mean deviation as measure of deviation. Also define standard deviation.　　　7

b) Find the sample mean, the sample variance and the standard deviation for the given grouped data:

Class:	30-40	40-50	50-60	60-70	70-80
Frequency:	3	5	9	14	9

　　　8

UNIT-IV

Q.8 a) Discuss the simplex method.　　　8
b) Discuss the steps to formulate the linear programming problems.　　　7

Q.9 Using graphical method, find the maximum value of
$z = 8x + 5y$
Subject to the constraints.
$2x + y \leq 250$
$x + y \leq 200$
$x \leq 25$
$x, y \geq 0$　　　15

Note: Attempt **FIVE** questions in all; taking at least ONE question from each Unit. Q.1 is compulsory. All questions carry equal marks.

Q.1   Multiple choice questions:
Choose the best alternative:
a) The command Java is used to:
   i)   Debug a java program.
   ii) Compile a java program.
   iii) Interpret a java program.
   iv) Execute a java program.
b) Which of the following is true about java?
   i)   Java does not support overloading.
   ii) Java has support for multiple inheritance.

State whether TRUE or FALSE:
c) A class can only be public in java.
d) Final variables cannot change value of being initiated:
e) Loop cannot be rested in Java.
f) There can only be a single constructor in a java class.
g) Static variables are shared among objects;
h) This keyword is used to refer to the object itself.
i) AWT stands for Abstract Window Toolkit.
j) Servlets do not have a main method.   1½x10

UNIT-I

Q.2   Write short notes on:
a) Method overloading.
b) Static.
c) If-else.   5x3

Q.3   a) Explain the concept of JVM in detail.   8
      b) Explain the concept of package using a suitable example.   7

UNIT-II

Q.4   Write short notes on the following:
a) Thread   b) Notify   c) Protected   15

Q.5   a) Give differences between final, finally and finalize.   8
      b) What is an exception and how it is handled in java?   7

UNIT-III

Q.6   Write short notes on the following:
a) File class.
b) Buffered reader.
c) Input stream.   5x3

Q.7   What is an Applet? Explain the life cycle of an Applet using a program.   15

UNIT-IV

Q.8   What is JDBC? What is the importance of resultnet class in JDBC? Write a simple program to execute a select query.   15

Q.9   Write sort notes on:
a) XML.   b) JSP.   c) GET and POST.   5x3

End Semester Examination, Dec. 2016
MCA-Fourth Semester
SOFTWARE ENGINEERING AND TESTING (MCA-4002)

Time: 3 hrs

Max Marks: 75
No. of pages: 2

Note: AttemptFIVEquestions in all; taking at least ONE question from each Unit. Q.1 is compulsory. All questions carry equal marks.

Q.1 Answer the following:
a) _____ serves as a mechanism for identifying software requirements.
b) In software context _____ could not be a component.
c) _____ indicates how the system behaves as a consequence of external events.
d) White box testing is also called _____.
e) The final form of testing COTS software is _____ testing.
f) In the maintenance phase the product must be tested against previous test cases. This is known as _____ testing.
g) Product engineering is a system engineering approach. (True/False)
h) Comparison testing is also called back to back testing. (True/ False)
i) The individual or organization who wants a product to be developed is known as the:
   i) Developer   ii) User   iii) Contractor
   iv) Initiator   v) Client
j) Checking quality of software in both simulated and live environments is known as:
   i) Checking   ii) Usability
   iii) Validity   iv) Validation   1½x10

UNIT-I

Q.2 What is the importance of models in software engineering? Explain with examples of any three process models which are commonly used.   15

Q.3 Write short notes on:
a) Software myths.
b) Principles of software engineering.
c) Software process.   5x3

UNIT-II

Q.4 Differentiate between:
a) Project planning and control.
b) PERT chart and GANTT chart.
c) FP and LOC   5x3

Q.5 Describe the important principles and steps of user interface analysis and design.
                                                                  15

UNIT-III

Q.6 a) Explain all phases/steps of testing life cycle in detail.   8
b) What do you understand by models for software testing? Which one is better and why? Justify your answer with suitable example.   7
Q.7 Explain the depth first and breadth first integration testing strategies with a suitable diagram.   15

UNIT-IV

Q.8 Explain the various steps involved in the software configuration management process.
                                                                  15

Q.9 a) State and explain the various roles of the SOA group.   10
b) Write a short note on software quality control.   5