End Semester Examination, Dec. 2014
BCA -First Semester
BASIC MATHEMATICAL SKILLS (BCA-1004)

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) Write the type and order of $\begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$ matrix.

b) Construct a 2×2 matrix $A = [a_{ij}]$ whose elements $[a_{ij}]$ is given by $a_{ij} = i - j$

c) If $\begin{bmatrix} a+b & 2 \\ 5 & ab \end{bmatrix} = \begin{bmatrix} 6 & 2 \\ 5 & 8 \end{bmatrix}$, find the values of $a+b$.

d) Evaluate: $\left(x^{-3/4}\right)^8$

e) If $\sin(x+20) = \cos x$, the value of x is _____.

f) Evaluate: $\lim\limits_{x \to 2} \dfrac{4x^2 - 8x}{x - 2}$

g) Compute $(98)^2$, using binomial theorem.

h) If $(17)^{3.5} \times (17)^x = 17^8$, find x.

i) If $\log\left(\dfrac{a}{b}\right) + \log\left(\dfrac{b}{a}\right) = \log(a+b)$, then $a+b = ?$

j) $\dfrac{d}{dx}\left(x^8\right) = ?$ **1½x10**

UNIT-I

Q.2   a) Find X and Y if $X + Y = \begin{bmatrix} 7 & 0 \\ 2 & 5 \end{bmatrix}$ and $X - Y = \begin{bmatrix} 3 & 0 \\ 0 & 3 \end{bmatrix}$.   **5**

b) Find x such that $\begin{bmatrix} 1 & x & 1 \end{bmatrix} \begin{bmatrix} 1 & 3 & 2 \\ 2 & 5 & 1 \\ 15 & 3 & 2 \end{bmatrix} \begin{bmatrix} 1 \\ 2 \\ x \end{bmatrix} = 0$ **5**

c) If $A = \begin{bmatrix} 0 & 3 \\ -7 & 5 \end{bmatrix}$ and $I = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$, then find K so that $KA^2 = 5A - 21I$ **5**

Q.3   a) Prove that $\begin{vmatrix} 1 & 1 & 1 \\ a & b & c \\ a^2 & b^2 & c^2 \end{vmatrix} = (a-b)(b-c)(c-a)$ **7**

b) Verify Calay-Hamilton theorem for the matrix $A = \begin{bmatrix} 1 & 0 & 0 \\ 3 & 3 & 0 \\ 5 & 2 & -1 \end{bmatrix}$ and hence find A^{-1}.

8

UNIT-II

Q.4 a) The product of 3 Nos in G.P is 216. If 2, 8, 6 be added to them, the numbers are in A.P. Find the numbers.   **7**

b) Simplify: $\dfrac{\left(4x^2\right)^3}{\left(2x^3\right)^2}+\dfrac{\left(6x^2\right)^2}{\left(3x^2\right)^3}$ **8**

Q.5 a) Out of 7 consonants and 4 vowels, how many words of 3 consonants and 2 vowel can be formed.   **7**

b) The first 3 terms in the expansion of $(1+ax)^n$ where n is a +ve integer are $1+12x+64x^2$. Find n and a.   **8**

UNIT-III

Q.6 a) Solve for x, $\log(4x-3)=\log(x+1)+\log 3$ **7**

b) Prove that: $\dfrac{\sin(A-B)}{\cos A\cos B}+\dfrac{\sin(B-C)}{\cos B\cos C}+\dfrac{\sin(C-A)}{\cos C\cos A}=0$ **8**

Q.7 a) Solve for x, the equation: $\log(x+4)-\log 7=3\log 2-\log(x+5)$ **7**

b) Prove that $\sin 3A=3\sin A-4\sin^3 A$ **8**

UNIT-IV

Q.8 a) Differentiate $\left(\dfrac{3+4x}{2-x}\right)^2$ w.r.t. x **7**

b) Expand e^x in power of x by Maclaurin's theorem.   **8**

Q.9 a) For what value of k is the following function continuous at $x=2$

$$f(x)=\begin{cases}\dfrac{x^2-4}{x-2} & ;\quad x\neq 2\\[3mm] k & ;\quad x=2\end{cases}$$

    7

b) Differentiate the following w.r.t. x:

  i) $\dfrac{2x+3}{x^2-5}$ ii) $\dfrac{x^2-1}{x^2+1}$ **8**

End Semester Examination, Dec. 2014
BBA (G) IB & B.Sc. (IT) - First Semester
BUSINESS COMMUNICATION (7.102 & 367.104/2.111)

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**. *All questions carry equal marks.*

Q.1   Answer **any two:**
   a) What is business communication? How is it different from general communication?
   b) What is a communication barrier? Explain the various barriers of intercultural communication.
   c) Explain any two business communication goals with the help of suitable examples.

5x2

PART-A

Q.2   How do factors like culture ethnicity, gender roles and age diversity affect communication and culture of an organization?   **10**

Q.3   What do you understand by the term persuasion? How do the factors like body language, pronunciation, gestures and visual aids affect the overall presentation?   **10**

Q.4   Define visual communication. List out any four advantages and disadvantages of visual communication.   **10**

PART-B

Q.5   You are the manager of your organization. Write a memo to all the employees of your organization informing them about the annual performance review meet being organized on 20th December, 2014. Also include the following details:

   Venue :   Hotel Hayat
   Time   :   10:00 am onwards   **10**

Q.6   What is the difference between hearing and listening? Why is it important to have good listening skills especially when communicating in teams?   **10**

Q.7   Write an essay on **any one:**
   a)   Internet
   b)   Books
   c)   Sports   **10**

End Semester Examination, Dec. 2014

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

Time: 3 hrs   Max Marks: **80**

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**.*

Q.1   Write short notes on ***any four:***
   a) Arrays.
   b) Structure chart.
   c) Types of errors.
   d) Use of if ()…else.
   e) Use of foreach () statement.   **5x4**

PART-A

Q.2   a) Explain the integrated development environment of C# in detail.   **10**
       b) Write any five advantages of C#.   **5**

Q.3   a) Which symbols are used in a flowchart?
       b) Draw a flowchart to calculate the average of five marks.
       c) Write a pseudo code to calculate average of five marks.   **5x3**

Q.4   a) What is the use of data types in a programming language?
       b) Draw the diagram to represent the various data types of C#.
       c) Explain integral data type in detail.   **5x3**

PART-B

Q.5   a) Write a short note exception handling.   **5**
       b) Write a program in C# using try and catch statements for implementing exception handling.   **10**

Q.6   a) Define for () loop in C#.   **5**
       b) Explain switch () case with an example.   **10**

Q.7   What do you mean by methods in C#? What is the difference between PASS BY VALUE and PASS BY REFERENCE? Explain with the help of a relevant example.   **15**

End Semester Examination, Dec. 2014
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**. All questions carry equal marks.*

Q.1   Write short notes on **any two:**
a) Role of business in society.
b) International Business Environment.
c) Foreign Direct Investment.   **5x2**

PART-A

Q.2   How internal environment of a business is affected by a organizational culture, structure and strategies? Explain your answer by taking an example.   **10**

Q.3   Differentiate between the following:
a) Industry, commerce and trade.
b) Internal and External environment of a business.   **5x2**

Q.4   What do you mean by environmental analysis? Explain its characteristics, objectives and significance.   **10**

PART-B

Q.5   What are the exceptions to the law of demand? Explain them with examples.   **10**

Q.6   Explain the importance of legal and political elements of a business in context of an Indian Business system.   **10**

Q.7   "Technological Advancements is an important tool for the successful growth of a business". Justify your answer with the help of an example.   **10**

End Semester Examination, Dec. 2014

B. Sc. (Information Technology) - First Semester
MATHEMATICS FOR COMPUTING (7.107/369.107)

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**. All questions carry equal marks.*

Q.1 a) Define a set with the help of an example.
   b) What is an equivalence relation? Explain with an example.
   c) If A and B are two matrices of same order then $A \cdot B = B \cdot A$ **(True/False)**.
   d) Define mean and median.
   e) Give an example of each of the following and explain briefly.
      i) Mutually exclusive events.
      ii) Undirected and directed graphs.   **2x5**

PART-A

Q.2 Find the rank of matrix A:

$$A = \begin{bmatrix} 1 & 2 & 3 & 4 \\ 2 & 3 & 4 & 5 \\ 3 & 4 & 5 & 6 \\ 4 & 5 & 6 & 7 \end{bmatrix}.$$

10

Q.3 Given: U={1,2,------,9}, A={1,2,3,4,5}, B={4,5,6,7}, C={5,6,7,8,9} and D={1,3,5,7,9}
   Find:
   a) A∩(B∪C)
   b) (A∩D)∪B
   c) A⊕B
   d) C⊕D
   e) A^c∩B   **10**

Q.4 If $f, g : R \to R$ are defined respectively by:

$f(x) = x^2 + 3x + 1,$

$g(x) = 2x - 3,$

Find formula for the following:
   i)   fog
   ii) gof
   iii) fof
   iv) gog   **10**

PART-B

Q.5 For the following data find median, mode and standard deviation:

Class interval	0-10	10-20	20-30	30-40	40-50
Frequency	20	34	16	32	28

10

Q.6 A pair of dice is tossed and the two numbers appearing on the top are recorded. Describe the sample space S and find out the number of elements in each of the following events:
a) A= {the two numbers are equal}
b) B= {the sum is 10 or more}
c) C= {5 appears on the first die}
d) D= {5 appears on atleast one die}
e) E= {the sum is 7 or less}   **10**
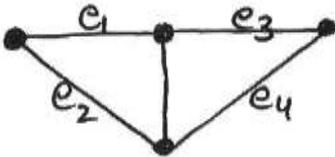
Q.7 a) Write adjacency matrix of the graph:
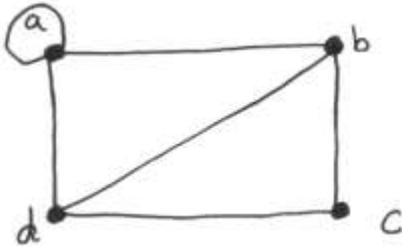
                                                                2

b) How many spanning trees the graph have? Draw all spanning trees of graph:

                                                                8

End Semester Examination, Dec. 2014
B.Sc. (Information Technology) - Third Semester
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 **any two:**
   a) Importance of behavioral modeling
   b) User Interface
   c) Application design   **4x2**

PART-A

Q.2   a) What is object oriented analysis and design?   **4**
      b) Write the advantages of object oriented analysis and design over SDLC.   **4**

Q.3   a) Differentiate between static and dynamic modeling.   **4**
      b) What is behavioral modeling?   **4**

Q.4   a) What is use case diagram?   **3**
      b) Draw 'use case diagram' for restaurant activities.   **5**

PART-B

Q.5   What do you mean by a structure chart? Explain with the help of an example.   **8**

Q.6   What do you mean by database object? Give some examples of database object.   **8**

Q.7   a) What is component reusability?   **4**
      b) Write the advantages of component reusability.   **4**

End Semester Examination, Dec. 2014

B.Sc. (IT) - Third Semester
SYSTEM ANALYSIS AND DESIGN (7.201)
(For visually impaired student only)

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 **any two:**
  a) Importance of behavioral modeling
  b) User Interface
  c) Application design   **4x2**

PART-A

Q.2 a) What is object oriented analysis and design?   **4**
  b) Write the advantages of object oriented analysis and design over SDLC.   **4**

Q.3 a) Differentiate between static and dynamic modeling.   **4**
  b) What is behavioral modeling?   **4**

Q.4 Explain structural modeling in detail.   **8**

PART-B

Q.5 Explain the concept of design modularization in detail.   **8**

Q.6 What do you mean by database object? Give some examples of database object.   **8**

Q.7 a) What is component reusability?   **4**
  b) Write the advantages of component reusability.   **4**

End Semester Examination, Dec. 2014
B. Sc. (Information Technology) - Third Semester
COMPUTER ALGORITHM AND DISCRETE MATHEMATICS (7.203)

Time: 3 hrs   Max Marks: **40**

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

Q.1   a) Differentiate between primary search and sequential search techniques.
      b) Find the Cartesian product of two sets A and B, where $A = \{1,2\}$, $B = \{a,b\}$.
      c) Define simple graph and multi graph.
   d) A die is rolled, find the probability that an even number is obtained.   **2x4**

PART-A

Q.2   Write down the algorithm for sorting. Explain any three types of sorting.   **8**

Q.3   a) Let the universal set $U = \{0,1,2,........9\}$ and $A = \{1,2,3\}$, $B = \{2,3\}$ and $C = \{1,5,9\}$.
        Determine:
        i) $A \cap B$ and $A \cap C$
        ii) $A \cup B$ and $A \cup C$
        iii) A^c and C^c
        iv) Cartesian product AXB.
      b) if $f(x) = x^2 - 1$, $g(x) = 3x + 1$, then describe the following functions:
        i) *gof*   ii) *fog*
        iii) *fof*   iv) *gog*   **4x2**

Q.4   Let $A = \{2,3,5,8\}$, $B = \{4,6,16\}$, $C = \{1,4,5,7\}$. Let $R = \{(a,b) \mid a/b\}$ and $S = \{(b,c) \mid b \leq c\}$ be relations from A to B and B to C. find the adjacency matrix M_R and M_S.   **8**

PART-B

Q.5   A single card is drawn from an ordinary deck of 52 cards. Find the probability that:
      a) The card is a king.
      b) The card is a face card and a heart.   **4x2**

Q.6   a) Define directed and undirected graph with the help of suitable examples.   **2**
      b) Find the shortest path between a and z.

                                                  6
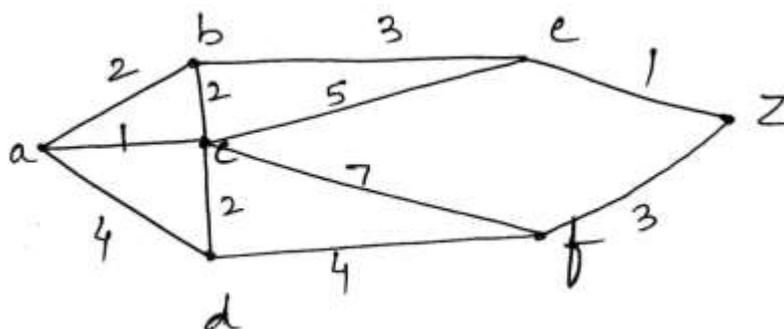
Q.7   Solve the recurrence relation:

$$S_n - 4S_{n-1} - 11S_{n-2} + 30S_{n-3} = 0,$$

Where $S_0 = 0$, $S_1 = -35$, $S_2 = -85$

8

FOR VISUALLY IMPAIRED STUDENT ONLY

End Semester Examination, Dec. 2014
B. Sc. (Information Technology) - Third Semester
COMPUTER ALGORITHM AND DISCRETE MATHEMATICS (7.203)

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**. *All questions carry equal marks.*

Q.1   a) Define union and intersection of two sets.
      b) Define natural numbers, whole numbers.
      c) Define graph and tree.
      d) Define permutation and combination.   **2x4**

PART-A

Q.2   a) Let $A = \{1, 2, 3\}$ and $B = \{a, b\}$. What is AXB?   **4**

      b) If $A = \{1, 2, 3\}$, $B = \{2, 4\}$, find $A \cap B$.   **4**

Q.3   Define reflexive relation, symmetric relation, transitive relation and equivalence relation.   **8**

Q.4   Define function, one-one function, onto function and 1-1 onto function.   **8**

PART-B

Q.5   a) Define sum rule principle, product rule principle.   **4**
      b) Name one method for finding shortest path in the graph and one method for finding spanning tree from given graph.   **4**

Q.6   a) Write the formulae for:
         $P(n, \mu) = ?$
         $C(n, \mu) = ?$ **4**
      b) Define probability, sample space and events.   **4**

Q.7   Define factorial of n i.e. $n!$, recursion, sequence, formula for finding roots of quadratic equation.   **8**

End Semester Examination, Dec. 2014
B. Sc. (Information Technology) - Third Semester
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**. All questions carry equal marks.*

Q.1　Write short notes on ***any two*** of the following:
　　　a) Abstraction
　　　b) Static member
　　　c) Global variable
　　　d) Run time error
　　　e) Virtual function　　　　　　　　　　　　　　　　　　　　**5x2**

PART-A

Q.2　What is function? How functions are helpful in programming? Differentiate between the call by value and call by reference in function.　　　**10**

Q.3　a) Explain the difference between If Else….. Switch case with the help of a suitable example.
　　　b) What is the scope of variable? Explain all types of scopes used in C^{++}.　　**5x2**

Q.4　a) What is operator overloading? Give a suitable example.
　　　b) Array is an important part of any programming language. Give an appropriate example/program to satisfy the above statement.　　**5x2**

PART-B

Q.5　What is inheritance? Explain different types of inheritance in object oriented programming.　　　　　　　　　　　　　　　　**10**

Q.6　a) Differentiate between compile-time polymorphism and run-time polymorphism.
　　　b) Explain exception handling in C^{++}.　　　　　　　　**5x2**

Q.7　Explain the following:
　　　a) Abstract class
　　　b) Object
　　　c) Pointers　　　　　　　　　　　　　　　　　　　　**10**

FOR VISUALLY IMPAIRED STUDENT ONLY

End Semester Examination, Dec. 2014
B. Sc. (IT) - Third Semester
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**. All questions carry equal marks.*

Q.1   Write a short notes on ***any two*** of the following:
a) Abstraction
b) Static member
c) Global variable
d) Run time error
e) Virtual function   **5x2**

PART-A

Q.2   What are the different data types in C++? Explain all in detail with their size.   **10**

Q.3   What is inline function in C++? How it is used to reduce the compiler working?   **10**

Q.4   Explain the difference between variables and constants. Also explain how to declare these identifiers.   **10**

PART-B

Q.5   What is data encapsulation? How is it used for combining the data in C++?   **10**

Q.6   What is an abstract class? How is it different from ordinary class?   **10**

Q.7   What are the different features of Oops? Explain all in detail.   **10**

End Semester Examination, Dec. 2014
B. Sc. (Information Technology) - Third Semester
DATABASE ENGINEERING-II (7.214)

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**. *All questions carry equal marks.*

Q.1   Write short notes on **any two:**
    a) Management studio
    b) Code script
    c) Physical design of a database   **4x2**

PART-A

Q.2   How to restrict data during retrieval from tables? Explain with an example.   **8**

Q.3   Explain DML statements in SQL with a suitable example.   **8**

Q.4   Differentiate between the following **(any two):**
    a) DBMS and RDBMS
    b) PL/SQL and SQL
    c) File system and database system   **4x2**

PART-B

Q.5   a) Explain the PL/SQL block structure with an example.   **5**
    b) Explain the usage of return statement.   **3**

Q.6   Explain functions and cursors in PL/SQL with examples.   **8**

Q.7   a) What do you understand by triggers in PL/SQL? Explain them by giving suitable examples.
    b) How database can be secured? Explain database security life cycle in PL/SQL. **4x2**

FOR VISUALLY IMPAIRED STUDENT ONLY

End Semester Examination, Dec. 2014
B. Sc. (Information Technology) - Third Semester
DATABASE ENGINEERING-II (7.214)

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**. All questions carry equal marks.*

Q.1   Write short note on ***any two***:
   a) Management studio
   b) Code script
   c) Physical design of a database   **4x2**

PART-A

Q.2   How to restrict data during retrieval from tables? Explain with example.   **8**

Q.3   With suitable example explain DML statements in SQL.   **8**

Q.4   Differentiate between the following ***any two***:
   a) DBMS and RDBMS
   b) PL/SQL and SQL
   c) File system and database system   **4x2**

PART-B

Q.5   a) Explain all data types supported by PL/SQL.   **5**
      b) Explain the usage of return statement.   **3**

Q.6   Explain functions and cursors in PL/SQL with examples.   **8**

Q.7   a) What do you understand by triggers in PL/SQL? Explain them by giving suitable examples.
      b) How database can be secured? Explain database security life cycle in PL/SQL.   **4x2**

End Semester Examination, Dec. 2014
BCA -First Semester
COMPUTER FUNDAMENTALS AND PROGRAMMING IN 'C' (BCA-101)

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) ALU is:
   i) Arithmetic logic unit.   ii) Array logic unit.
   iii) Application logic unit.   iv) None of the above.
   b) The brain of any computer system is:
   i) Control unit.   ii) ALU
   iii) CPU.   iv) Storage unit.
   c) The translator program used in assembly language is:
   i) Compiler.   ii) Interpreter.
   iii) Assembler.   iv) Translator.
   d) Which of the following is a secondary memory?
   i) Keyboard.   ii) Disk.
   iii) ALU.   iv) All of the above.
   e) The octal equivalent of 111010 is:
   i) 81.   ii) 72.
   iii) 71.   iv) None of the above.
   f) Structure is a collection of _____ elements.
   g) stdio.h stands for _____.
   h) == is a _____ kind of operator.
   i) Constant can be defined using _____ keyword.
   j) Pointer are used to store the _____ of any variable.   **1½x10**

UNIT-I

Q.2 a) What do you mean by character code? What is its purpose?   **8**
   b) Compute the following:
   $(73.851)_{10}=(?)_2=(?)_8=(?)_{16}$ **7**

Q.3 a) What are various functional units of a computer? Explain them with their advantages and disadvantages.   **10**
   b) Write a short note on hardware and software.   **5**

UNIT-II

Q.4 Write short notes on:
   a) Magnetic Disk.   b) Magnetic tape.   c) Hard disk.   **5x3**

Q.5 a) Differentiate between EPROM and E^2PROM.   **5**
   b) Differentiate between algorithm and flowchart. Which one is better and why? **10**

UNIT-III

Q.6 Differentiate between:

a) Break and continue.
b) Variable and constant.
c) Declaration and definition.
d) Identifiers and keywords.
e) While and do_while loop. **3x5**

Q.7 a) What are various data types in C language? **10**
     b) Write a program to find sum of n numbers. **5**

UNIT-IV

Q.8 a) What are various storage classes available in C language? **8**
     b) Write a program to find sum of all the elements of array. **7**

Q.9 a) What do you mean by subroutine? Write a function to find out the factorial of a number. **8**
     b) What do you mean by dangling pointer? Explain with the help of an example. **7**

End Semester Examination, Dec. 2014
BCA -First Semester
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) If $A = \{1, 2, 3\}$ find power set $P(A)$
      b) Define equivalence relation.
      c) Let f be the function defined by the rule $f(x) = 4x^2 + 2x - 3$. Find $f(-1)$.
      d) $\log 2^8 / \log 2 =$ _____.
      e) The expression $(1 - \sin\theta)(1 + \sin\theta)$ is equivalent to _____.
      f) Differentiate $(1 + x)^3$ w.r.t. x.
      g) If one card is drawn from a standard deck of 52 playing cards. What is the probability of drawing a black card?
      h) Let $U = \{1, 2, 3, \ldots\ldots 9\}$ and $A = \{2, 4, 6, 8\}$. Find A'.
      i) Define equivalent sets with an example.
      j) Two unbiased coins are tossed. What is probability of getting at most one tail?

                                                                    1½x10

UNIT-I

Q.2   a) The 5th term of a G.P. is $\dfrac{1}{3}$ and 9th term is $\dfrac{16}{243}$. Find the 4th term.   **5**

      b) Let $X = \{1, 2, 3, 4, 5\}$ and $Y = \{1, 2, 5, 6, 7, 9, 10, 11, 12, 13, 14\}$. Find the function defined by $f(x) = 2x + 3$. Also find domain and range.   **5**

      c) In a class of 60 boys there are 45 boys who play cards and 30 boys who play carom. Use set operations to show:
          i) How many boys play both the games?
          ii) How many boys play carom only?   **5**

Q.3   a) There are 210 members in a club. 100 of them drink tea and 65 drink tea but not coffee. Find:
          i) How many drink coffee?
          ii) How many drink coffee but not tea?   **5**
      b) If $f : R \to R$ is defined by $f(x) = x^2 - 3x + 2$. Find $f(f(x))$.   **5**
      c) Evaluate: $\displaystyle\sum_{k=1}^{10} \left(3x + 2^k\right)$ **5**

UNIT-II

Q.4   a) Prove that: $\dfrac{\sin\theta}{1 + \cos\theta} + \dfrac{1 + \cos\theta}{\sin\theta} = 2\cos ec\,\theta$ **7**

      b) Find the value of $\dfrac{2\log 6 + 6\log 2}{4\log 2 + \log 27 - \log 9}$ **8**

Q.5   a) Prove that $\sqrt{\dfrac{1 + \cos\theta}{1 - \cos\theta}} = \cos ec\,\theta + \cot\theta$ **7**

b) If $a^2 + b^2 = 7ab$, prove that $2\log(a-b) = \log 5 + \log a + \log b$ **8**

UNIT-III

Q.6   a) Evaluate $\lim\limits_{x \to 2} \dfrac{x^{1/4} - 2^{1/4}}{x^{1/3} - 2^{1/3}}$ **7**

b) If $y = x + \sqrt{x^2 - 1}$. Prove that $(y - x)\dfrac{dy}{dx} - y = 0$ **8**

Q.7   a) Differentiate w.r.t. x: $\dfrac{x^2}{1 + x^2}$ **7**

b) Find the cosine of the acute angle between the vectors $\hat{i} + 2\hat{j} - \hat{k}$ and $\hat{i} - \hat{j} + \hat{k}$.   **8**

UNIT-IV

Q.8   a) Evaluate: $\int \dfrac{x^4 + x^2 + 1}{2(x^2 + 1)} dx$ **8**

b) Solve the differential equation $\dfrac{1}{x} \cdot \dfrac{dy}{dx} = \tan^{-1} x$ **7**

Q.9   Prove that the set N of natural numbers is not a group under the operation of addition of natural numbers.   **15**

End Semester Examination, Dec. 2014

BCA -First Semester
BUSINESS COMMUNICATION-I (BCA-103)

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   ***Write / fill the correct option:***
   a) The plural of thief is _____.
   b) The feminine gender of wizard is _____.
   c) A collection of soldiers is called as _____.
   d) He gave me _____one rupee note.   (a/an)
   e) _____ darkest cloud has silver lining.   (The/A)
   f) We stayed in Mumbai _____ five days.   (for/in)
   g) Everyone laughed _____ him.   (on/at)
   h) Human communication is more non verbal than verbal.   (True/False)
   i) The essential element for the transmission is medium/channel. (True/False)
   j) Interviews are a planned conversation between two people. (True/False)
   k) Full form of ICT is _____.
   l) "I know her address", said Gopi.   (Convert to indirect speech)
   m) Rama helps Hari.   (Convert to passive voice)
   n) When I was a bachelor I lived by myself.   (Put punctuations)
   o) Take this pencil and give _____ (them, it) to Lalita.   **1x15**

UNIT-I

Q.2   **a) In the passage given below, there is an error in each line. Mention the error and write the correct word.**
   i) A certain number of ladies and gentleman
   ii) Of the United States of America
   iii) Came in India on a pleasure trip
   iv) Between the many cities they visited
   v) Kolkata was a one that left an impression
   vi) On their minds which last for a long time
   vii) They arrive in Kolkata, the biggest
   viii) City for the country   **1x8**
   b) **In the passage below, *one* word in missing in each line, put a slash (/) where word is missing and write the correct word.**
   i) A diet rich fruit and vegetable
   ii) Is good health vitamins and
   iii) Minerals present in may
   iv) help to keep diseases and
   v) Show natural ageing process
   vi) They provide adequate fibre helps
   vii) In lowering blood cholesterol level   **1x7**

Q.3 **a) Fill in the blanks with suitable preposition:**
   i) He was trembling _____ fear.
   ii) The enemy appeared _____ great strength.
   iii) Do not speak ill of a person _____ his back.
   iv) It is _____ the power of medicine to cure him.
   v) The President did not appear _____ his plan.
   vi) I have no desire _____ fame.
   vii) I am quite familiar _____ this place.
   viii) What is the time _____ your watch?
   ix) I get up _____ 6 'o' clock in the morning.   **1x9**
   b) **Change the following sentences into passive voice?**
   i) I am reading the book.
   ii) Will you help me?
   iii) Sita did not sing a song.   **2x3**

UNIT-II

Q.4 a) Read the following telephone conversation:
      Between Suman and Sunita.
      (Phone bell rings and Suman picks up the receiver)
      Suman : Hello?
      Sunita : Hello, Suman. Its's Sunita here. Is Bhavana at home?
      Suman : Oh, Hi Sunita, Bhavna has gone to Amita's house. She will be back in an
               hour or so.
      Sunita : All right. When she comes back, would you please inform her that I am
               going to Reema's birthday party this evening. If Bhavana wishes to join
               me, tell her to be ready by 5:30 pm. I will pick her up.
      Suman : Don't worry. I'll convey your message to Bhavna as soon as she returns.
      Sunita : Thanks, Bye.
      Suman also has to go for her coaching classes before Bhavna returns. So she
      writes the message for Bhavna. Write the message as Suman for Bhavna.   **8**
      b) Write a conversation between you and the principal of your college for better
      sports events arrangements. Also discuss the merits for the same.   **7**

Q.5 a) You are highly distressed with the global warming happening in the world. Write a
      speech, motivating your fellow friends how to be an active participant in saving
      mother earth.   **8**
      b) How can social media be used as an effective media to share and communicate
      your views on different socials and economic factors? Elaborate.   **7**

UNIT-III

Q.6 a) How is hearing different form listening?   **8**
      b) Explain the model of listening.   **7**

Q.7 a) Write the key points to consider while talking, so that when we talk, people listen.
                                                                               8
      b) How can good negotiation skills help a person in achieving his targets?   **7**

UNIT-IV

Q.8 a) "Surviving a group discussion is a difficult task". Do you agree? Justify your
      statement.   **8**

b) Mention the different do's and don'ts, while going for an interview. **7**

Q.9 a) Write your resume covering the basic skills required for the post of "Graphic designer" in Adobe Pvt. Ltd. **8**

b) What are the different ways by which we can impress and influence the team conducting interviews? Justify by giving few sample questions and the probable answers for the same. **7**

End Semester Examination, Dec. 2014
BCA -First Semester
PC SOFTWARE (BCA-104)

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) To save the current document, we can press _____keys.
　　 b) MS-Word is designed by the company named _____.
　　 c) Pictures can be inserted in a document using _____ tab.
　　 d) A _____ is used to keep similar files together.
　　 e) We can insert decorative text in a document with the help of _____.
　　 f) All the files in a folder should have the same name.　　*(True/False)*
　　 g) The grammatical errors are displayed by a green wavy line.　　*(True/False)*
　　 h) Setting a column width to zero can hide a column.　　*(True/False)*
　　 i) Define Mail merge.
　　 j) Define operating system.　　**1½x10**

UNIT-I

Q.2 a) Discuss the functions of operating system.　　**5**
　　 b) Write any five internal commands in DOS. Give their purpose and example.　　**10**

Q.3 Explain:
　　 a) Control panel.　　　　b) Recycle bin.　　　　c) Windows explorer.　　**5x3**

UNIT-II

Q.4 a) What is macro? Discuss the process of creating and running of macros.　　**9**
　　 b) What is bookmark? Explain.　　**6**

Q.5 Discuss:
　　 a) Line spacing.　　　　　　　　 b) Header and footer.
　　 c) Tab stop.　　　　　　　　　　 d) Feature of MS-Word.　　**15**

UNIT-III

Q.6 a) Explain step by step to generate various charts on excel sheet.　　**10**
　　 b) What is a spreadsheet? Describe its advantages and disadvantages.　　**5**

Q.7 Explain the following terms:
　　 a) Filters.　　　　　　 b) Goal seek.　　　　c) Sorting.　　**5x3**

UNIT-IV

Q.8 a) Describe hardware and software requirement in PowerPoint.　　**5**
　　 b) How will you insert a graph on new slide? Explain.　　**5**
　　 c) Discuss slide importing.　　**5**

Q.9   a) How date formatting in done in PowerPoint presentation?   **10**
       b) How will you improve your presentation to give an effective look?   **5**

End Semester Examination, Dec. 2014
BCA -Second Semester
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 a) *Fill in the blanks:*
   i) _____ is the address of first element in the array.
   ii) The first node in the linked list is called the _____.
   iii) A parent node is also known as the _____ node.
   iv) The traversal technique in which all nodes of a tree are processed by recursively processing the left sub tree first, then processing the root, and finally the right sub tree is called _____.
   v) _____ is used to convert an infix expression into a postfix expression.
                                                                      1½x5

   b) *Multiple choice questions:*
   i) A linked list is a
       a) random access structure
       b) sequential access structure
       c) queue structure
       d) None of the above
   ii) The depth of root node is
       a) 0   b) 1
       c) 2   d) 3
   iii) Total number of nodes in the nth level of a binary tree can be given as:
       a) $2h$ b) 2^h
       b) 2^{h+1} d) 2^{h-1}
   iv) Stack is a
       a) LIFO   b) FIFO
       c) FILO   d) LILO
   v) In a queue, insertion is done at
       a) rear   b) front
       c) back   d) top   **1½x5**

UNIT-I

Q.2 a) What are linear and non-linear data structures? Give two examples of each.   **8**
   b) Explain time and space complexity related to algorithms and also state their importance.   **7**

Q.3 Write a program to input a matrix NXN and to determine:
   a) The no. of elements in the matrix.
   b) Summation of diagonal elements.
   c) Product of diagonal elements.   **5x3**

UNIT-II

Q.4 a) Describe binary search with the help of an example. Take minimum seven values.
                                                                         10
   b) What are the applications of trees?   **5**

Q.5   Write down the recursive algorithms for tree operations. (You can choose any two operations).   **15**

UNIT-III

Q.6   a) Write a program for bubble sort.   **10**
       b) Give the use of adjacency matrix for graph with a suitable example.   **5**

Q.7   Discuss the concept of heap. Also write the algorithm for heap sort.   **15**

UNIT-IV

Q.8   What do you understand by file organization? Discuss various file organization methods.   **15**

Q.9   Discuss the technique of hashing. What is the need of it? Also discuss the various collision handling methods.   **15**

End Semester Examination, Dec. 2014

BCA -Second Semester

MATHEMATICAL FOUNDATION OF COMPUTER SCIENCE (BCA-202)

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) Symmetric difference of the set $A = \{1,2,3\}$ and $B = \{2,3,4,5\}$ is:

   i) $\{2,3\}$ ii) $\{4,5\}$ iii) $\{1,4,5\}$ iv) $\{1,2,5\}$

   b) State addition principle for three finite sets A, B and C.

   c) Define Poset.

   d) Write down the characteristic equation of the recurrence relation of: $4a_n - 20a_{n-1} + 17a_{n-2} - 4a_{n-3} = 0$.

   e) The centroid of the triangle with vertices $(-4,6),(2,-2)\,and\,(2,5)$ is:

   i) $(0,3)$ ii) $(1,2)$ iii) $(3,0)$ iv) $(2,3)$

   f) Write down equation of state line passing through two points (x_1, y_1) and (x_2, y_2).

   g) Define Boolean algebra.

   h) Is D_8 a lattice? If so what is its Hasse-diagram?

   i) Define spanning tree of a graph.

   j) How many edges are there in a complete graph k_n?   **1½x10**

UNIT-I

Q.2   a) Show by mathematical induction that the sum of the first n odd positive numbers in n^2.   **7½**

   b) Find s and t such that $\gcd(504,396) = s(504) + t(396)$.   **7½**

Q.3   a) Show that the relation: $R = \{(a,b): a \equiv b(\bmod m); a,b \in z\}$ is an equivalence relation.   **7½**

   b) Five friends on a tour of Delhi have a total of 5263 rupees with them. Show that at least one of them has Rs. 1053 with him.   **7½**

UNIT-II

Q.4   a) Solve the recurrence relation of Fibonacci sequence.   **9**

   b) Show that the points $(5,1),(1,-1)\,and\,(11,4)$ lie on a state line. Also find the equation of that line.   **6**

Q.5   a) Find the angle between the state lines $x - 2y + 3 = 0$ and $x + 3y - 5 = 0$.   **7½**

   b) Find the equation of the state line passing through $(3,-5)$ and parallel to the line joining the point $(1,2)$ and $(-3,4)$.   **7½**

## UNIT-III

Q.6   a) Define lattice isomorphism. Show that the lattice D_6 and B_2 (formed by the digits 0 and 1) are isomorphic.   **7½**

   b) Define bonded lattice. Show that L^3 (the lattice of 3-tuples of 0 and 1) is bounded.   **7½**

Q.7   a) Write the truth table for a circuit whose Boolean sum of product expression is
         $xyz + xy'z + x'y$ **7½**
      b) Using Karnaugh map, find the prime implicants and minimal sum-of-products form
         for the Boolean expression: $E = xyz + xyz' + xy'z + x'yz + x'y'z$ **7½**

UNIT-IV

Q.8   a) Does there exist an Euler circuit or Euler path in the following graph? Give details.
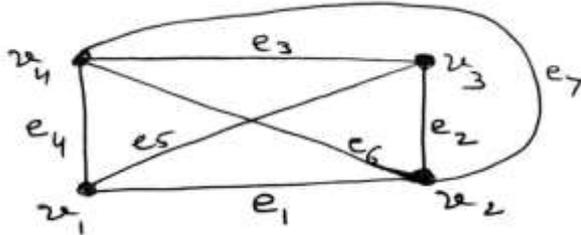
                                                                              7½
      b) Draw the graph that has the adjacency matrix as:
         $$\begin{bmatrix} 1 & 2 & 1 & 2 \\ 2 & 0 & 2 & 1 \\ 1 & 2 & 1 & 0 \\ 2 & 1 & 0 & 0 \end{bmatrix}$$
                                                                              7½

Q.9   a) Draw the rooted tree (V,E), where $V = \{v_1, v_2, v_3, v_4, v_5, v_6, v_7, v_8\}$ and
         $E = \{(v_2, v_1), (v_2, v_3), (v_4, v_2), (v_4, v_5), (v_4, v_6), (v_6, v_7), (v_5, v_8)\}$.   **7½**
      b) Using Kruskal's algorithm, find a minimal spanning tree of the graph given below:
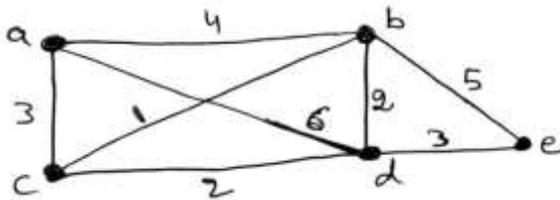
                                                                              7½

End Semester Examination, Dec. 2014
BCA -Second Semester
PROGRAMMING IN VISUAL BASIC (BCA-203)

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) IDE is:
   i) Independent development enterprise.
   ii) Development environment for machine language.
   iii) A software project management tool.
   iv) Integrated development environment.
b) The color of a button is:
   i) One of its properties.
   ii) Not updateable.
   iii) Defined in project.
   iv) Defined in the intermediate window.
c) Visual basic projects are identified by a:
   i) ".vbp" suffix.
   ii) ".mok" suffix.
   iii) ".vbg' suffix.
   iv) All of the above.
d) The reference library of visual basic book is called:
   i) MSDN library.
   ii) Help library.
   iii) contents.
   iv) Topic pane.
e) A GUI:
   i) Uses buttons, menus and icons.
   ii) Should be easy for a user to manipulate.
   iii) Stands for graphic user interaction.
   iv) Both i) and ii).
   v) All of the above.
f) Visual basic is considered to be a
   i) First generation language.
   ii) Package.
   iii) High level language.
   iv) Machine language.
g) Which type of procedure returns a value?
   i) Sub procedure.
   ii) Procedure.
   iii) Function.
   iv) By Val.
h) Which of the following is the correct statement for specifying the words to appears in the little bar of form called form1?
   i) Form1.txt="My Text"

ii) Form1. TitleBar="My Text"
iii) Me.Text="My Text"
iv) Me.Caption="My Text"
i) What type of numeric variable type holds the most data?
   i) Short   ii) Long   iii) Integer   iv) Single   v) Double
j) Which is not a looping structure in Visual Basic?
   i) Do while
   ii) Do until
   iii) For .... till
   iv) For .... next   **1½x10**

UNIT-I

Q.2   What is the difference between procedures oriented programming language and event driven programming language?   **15**

Q.3   Explain the use of following:
      a) Project explorer.
      b) Code window.
      c) Properties window.   **5x3**

UNIT-II

Q.4   Explain different type of data types available in Visual Basic.   **15**

Q.5   a) Write a program in VB to find the Fibonacci series on the click event of command button.   **10**
      b) What is the difference between global, local and static variable?   **5**

UNIT-III

Q.6   a) What is the difference between list box and combo box control?   **5**
      b) Explain drive list box, directory list box, file list box, Msybox, and input box in details.   **10**

Q.7   What do you mean by Control.Array? How can you add and delete controls in a control array at run time?   **15**

UNIT-IV

Q.8   What do you mean by reports? Explain different steps that are required to create reports in VB.   **15**

Q.9   Explain the process required to do the following:
      a) Assigning short cut keys to menus.
      b) Creating menus.
      c) Adding data to data control.   **5x3**

End Semester Examination, Dec. 2014

BCA -Second Semester

DIGITAL DESIGN AND COMPUTER ORGANIZATION (BCA-204)

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 binary equivalent of the derived number 368?
  i)   101110000
  ii) 110110000
  iii) 111010000
  iv) 111100000

b) The simplification of the Boolean expression $(\overline{\overline{A}\,\overline{B}\,\overline{C}})+(\overline{A\,\overline{B}\,C})$ is:
  i) 0   ii) 1   iii) A   iv) BC

c) The output of a logic gate is 1 when all its input are at logic 0, the gate is either.
  i)   a NAND or an XOR
  ii) an OR or an XNOR
  iii) an AND or an XOR
  iv) a NOR or an XNOR

d) The 2's complement of the number 11001101 is:
  i)   0101110
  ii) 0111110
  iii) 0110010
  iv) 0010011

e) The code where all successive numbers differ from their preceding number by single bit is:
  i)   Binary code
  ii) BCD
  iii) Excess-3
  iv) Gray

f) De Morgan's first theorem shows the equivalence of
  i)   OR gates and exclusive or gate.
  ii) NOR gate and bubbled AND gate.
  iii) NOR gate and NANO gate.
  iv) NAND gate and NOT gate.

g) Under relative addressing, a program's memory reference is added to the content of a _____ to calculate the corresponding physical memory address.
  i)   Instruction register
  ii) Program counter
  iii) Instruction pointer
  iv) Offset register

h) A stack organized computer uses instruction of
  i)   Indirect addressing
  ii) Two-addressing
  iii) Zero-addressing
  iv) Index-addressing

i) This technique for data transfer does not involve the processor.
  i)   Direct Memory Access
  ii) Programed I/O

iii) Memory mapped I/O
iv) All the above.
j) Memory mapped I/O involves
   i) Transferring information between memory locations.
   ii) Transferring information between register and memory.
   iii) Transferring information between the CPU and I/O devices in the same way as between the CPU and memory.
   iv) Transferring information between I/O devices and memory. **1½x10**

UNIT-I

Q.2   Perform the 2's complement subtraction of
   i) $(23)_{10}-(52)_{10}$ ii) $(69)_{10}-(47)_{10}$ **7½x2**

Q.3   a) Convert the decimal number 82.67 to its binary, hexadecimal and octal equivalents.   **5**
   b) Perform the following: i) $(110111)_2 \times (111)_2$ ii) $(1110011)_2 /(101)_2$ **5x2**

UNIT-II

Q.4   Simplify the following using K-map
   i) $F(A,B,C) = \sum(0,1,4,5,6)$
   ii) $F(X,Y,Z) = \sum(3,5,6,7)$ **7½x2**

Q.5   Prove the following Boolean identities.
   i) $XY + YZ + \bar{Y}Z = XY + Z$
   ii) $AB + \bar{A}B + \bar{A}\bar{B} = \bar{A} + B$
   iii) $\bar{A}BC + A\bar{B}C + AB\bar{C} + ABC = AB + BC + AC$ **5x3**

UNIT-III

Q.6   What is the purpose of using address mode techniques by a computer? Summarize the various addressing modes.   **15**

Q.7   Write a program to evaluate the arithmetic statement $\times = \dfrac{A - B + C*(D*E - F)}{G + H*K}$.
   a) Using a general register computer with three address instruction.
   b) Using a general register computer with two address instructions.
   c) Using an accumulator type computer with one address instruction.
   d) Using start organized computer with zero address operation instruction.   **15**

UNIT-IV

Q.8   Discuss the need of direct memory access (DMA) interface. Why does DMA have priority over the CPU when request a memory transfer?   **15**

Q.9   a) What is the difference between isolated I/O and memory mapped I/O? What are the advantages and disadvantages of each?   **7**
   b) Explain asynchronous modes of transfer.   **8**

End Semester Examination, Dec. 2014
BCA -Second Semester
ENVIRONMENTAL STUDIES (BCA-206)

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

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) Name same resources obtained from oceans.
     b) What is deforestation?
     c) Name some alternate sources of energy.
     d) What is a food chain?
     e) What is the role of producers in an ecosystem?
     f) 'Earth Day' is celebrated on _____.   **1x6**
     g) Expand the following:
        i) CFC   ii) NGOs   iii) AIDS   iv) MRI   **1x4**

UNIT-I

Q.2 a) What is the role of environmental clearance in town planning?
     b) What are the important uses of forests?   **5x2**

Q.3 "Environment is a highly complicated issue. It should be best tackled by experts". Briefly explain the statement.   **10**

UNIT-II

Q.4 a) Why do the food chains have 3-4 trophic levels? Explain.
     b) What does a pyramid of energy indicate?   **5x2**

Q.5 Give a brief account of protection against earth quakes.   **10**

UNIT-III

Q.6 Write explanatory notes on:
     a) Wasteland reclamation.
     b) Climate change.   **5x2**

Q.7 What is sustainable development? Explain various ways for sustainable development.
     10

UNIT-IV

Q.8 Describe the various general towers of the central government enlisted under the 'Environment Protection Act'.   **10**

Q.9 Enlist the main guideline of 'Forest Conservation Act, 1980'.   **10**

End Semester Examination, Dec. 2014
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.** *All questions carry equal marks.*

Q.1 a) What is the value of a if $B = \begin{bmatrix} 1 & 4 \\ 2 & a \end{bmatrix}$ is singular matrix?

b) if $\begin{bmatrix} a+b & 2 \\ 5 & b \end{bmatrix} = \begin{bmatrix} 6 & 2 \\ 5 & 8 \end{bmatrix}$, find a and b.

c) How many words can be formed out of the letters of word ARTICLE?

d) Expand $(2a + 3b)^2$ by binomial theorem.

e) Define monotonic decreasing function with example.

f) Define limit point of a set.

g) Find the convergence of sequence $<un> = \dfrac{8n+7}{3n+2}$.

h) Define symmetric and skew symmetric matrix with an example.

i) NXN is countable (T/F).

j) Define Cauchy's sequence.   **1½x10**

UNIT-I

Q.2 a) In B.Com examination, a candidate has to pass in each of 5 papers. In how many ways can he fail?   **7**

b) Solve the following system of equations by Cramer's Rule:

$6x + y - 3z = 5$

$x + 3y - 2z = 5$.   **8**

$2x + y + 4z = 8$

Q.3 Find the inverse of matrix:

$A = \begin{bmatrix} 1 & 1 & 3 \\ 1 & 3 & -3 \\ -2 & -4 & -4 \end{bmatrix}$ by using Cayley-Hamilton theorem.   **15**

UNIT-II

Q.4 a) State and prove Bolzano Weierstrass theorem.   **10**

b) Prove that the intersection of an family of closed sets is closed.   **5**

Q.5 Prove that the set of all irrational numbers is uncountable.   **15**

UNIT-III

Q.6 State and prove D-Alembert's ratio test.   **15**

Q.7 a) Test the convergence of the following series.

i) $\displaystyle\sum_{n=3}^{\infty} \frac{1}{n^3 \, 10 \, gn}$ ii) $\displaystyle\sum_{n=1}^{\infty} \frac{1}{3^n + x}$; $x > 0$ **8**

b) Prove that every Cauchy's sequence is bounded. **7**

UNIT-IV

Q.8 a) By L' Hospital rule, evaluate $\displaystyle\lim_{x \to 0} \frac{(\tan^{-1} x)^2}{\log(1+x^2)}$. **7**

b) Expand $\sin x$ and $\cos x$ in power of x by Maclaurin's series. **8**

Q.9 a) If $\displaystyle\lim_{x \to 0} \frac{\sin 2x + a \sin x}{x^3}$ is finite, find a and the limit. **8**

b) Show that if $x > 0$, $\log(1+x) > \dfrac{x}{1+x}$. **7**

End Semester Examination, Dec. 2014

BCA -Third Semester

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) Which type is best suited to represent the logical values?
      i)   Integer   ii) Boolean
      iii) Character   iv) All of the above

     b) Which of the following is not an OOP feature in C++?
      i)   Encapsulation   ii) Abstraction
      iii) Polymorphism   iv) Exceptions

     c) If container classes are carefully constructed, then these tools are available to work with structures that are not _____ *
      i)   Valid without container classes   ii) Programmer-defined
      iii) Type-specific   iv) Public

     d) The phrase "is a" refers to the object-oriented concept of _____ and the phrase "has a" refers to the object-oriented concept of _____.
      i)   Composition: Inheritance   ii) Composition: Polymorphism
      iii) Polymorphism: Inheritance   iv) Inheritance: Composition

     e) An array is a
      i)   Data structure with one, or more, elements of the same type.
      ii) Data structure with LIFO access.
      iii) Data structure, which allows transfer between internal and external storage.
      iv) Data structure with one, or more, elements, called fields, of the same or different data types.

     f) An object
      i)   Is a user-defined data type.
      ii) Combines both data and the methods that act upon the data.
      iii) Is one instance of a more general data type.
      iv) Is both i) and ii)

     g) The _____ objects have values that can be tested for various errors conditions.
      i)   Osstream   ii) Ofstream
      iii) Stream   iv) Ifstream

     h) What will happen when defining the enumerated type?
      i)   It will not allocate memory.
      ii) It will allocate memory.
      iii) It will not allocate memory to its variables.
      iv) None of the above.

     i) Access to private data or private methods is:
      i)   Restricted to methods of the same class.
      ii) Restricted to methods of other classes.
      iii) Available to methods of the same class and other classes.
      iv) Not an issue because the program will not compile.

     j) How to declare operator function?

i) Operator operator sign   ii) Operator
iii) Operator sign   iv) None of the above

k) Which is used to create a pure virtual function?
  i) $ ii) =0
  iii) &   iv) !

l) Where does the abstract class is used?
  i) Base class only   ii) Derived class
  iii) Both i) and ii)   iv) None of the above

m) What is meant by containership?
  i) Class contains objects of other class types as its members.
  ii) Class contains objects of other class types as its objects.
  iii) Both i) and ii)
  iv) None of the above

n) What derived class does not inherit from the base class?
  i) Constructor and destructor   ii) Friends
  iii) Operator = () members   iv) All of the above

o) Which key word is used to check exception in the block of code?
  i) Catch   ii) Throw
  iii) Try   iv) None of the above   **1x15**

UNIT-I

Q.2 a) Differentiate between dynamic binding and message Passing.   **7**
     b) List few areas of application of OOP technology.   **8**

Q.3 What is procedure oriented programming? What are its main characteristics?   **15**

UNIT-II

Q.4 a) Can we use the same function name for a member function of a class and an outside function in the same program file? If yes, how are they distinguished? If no, give reasons?   **10**
     b) Define identifier. What are the rules to be followed for identifiers?   **5**

Q.5 What is function overloading? Write a program in C^{++} to find the maximum of two Integer and two real numbers using function overloading.   **15**

UNIT-III

Q.6 a) Write an interactive C^{++} program to perform the banking system, which includes deposit, withdrawal, interest, balance query, and loan process. The account number and initial amount is initialized using constructor.   **10**
     b) Define default constructor.   **5**

Q.7 What is operator overloading? Develop a C^{++} program to overload unary operator for processing the objects of a class called counter.   **15**

UNIT-IV

Q.8 a) Differentiate between overloading and overriding.
     b) Write the advantages of multiple Inheritances.
     c) Define Polymorphism and also list the types of polymorphism.   **5x3**

Q.9   a) What is class hierarchy? Explain how inheritance helps in building class hierarchies.
                                                                    8

      b) What are the differences between inheriting a class with public and private
         visibility mode?   **7**

End Semester Examination, Dec. 2014
BCA -Third Semester
DATABASE SYSTEMS (BCA-303)

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) Data dictionary is used for:
        i) Accessing database about databases
        ii) The content of file
        iii) Access details
        iv) None
    b) In the Relational model, the number of attributes in a table is termed as:
        i) Cardinality   ii) Degree
        iii) Domain   iv) None
    c) In relational model, rows are referred to as _____ and columns are referred
        to as _____.
        i) tuples, attributes   ii) connectors, nodes
        iii) attributes, tuples   iv) nodes, connectors
    d) A _____ is any key that identifies each entity uniquely. Its functionality
        determines all of the entity's attributes.
        i) Super key   ii) Primary key
        iii) Foreign Key   iv) Both i) and ii)
    e) UPPER function converts:
        i) Character for the decimal equivalent
        ii) Converts string to lowercase
        iii) Converts string to uppercase
        iv) Strips trailing character
    f) DCL is a language that allows:
        i) Granting of privileges   ii) Retrieval of data
        iii) Alter schema objects   iv) Rename schema
    g) _____ normal form is also known as PJNF.
        i) 3 NF   ii) BCNF
        iii) 4 NF   iv) 5 NF
    h) Raymond F. Boyce and Edgar F. Codd jointly launched powerful definition for the
        third normal form called_____.
        i) Boyce-Codd normal form   ii) First normal form
        iii) Second normal form   iv) All of the above
    i) Checkpoints are used for:
        i) Reducing overhead of search process
        ii) Undo the transactions
        iii) Checking databases
        iv) None of the above
    j) A distributed DBMS is characterized by:
        i) Number of fragment
        ii) Replication of fragments
        iii) Presence of global application
        iv) All of the above

1½x10

UNIT-I

Q.2   a) What is DBMS? What are the advantages and disadvantages offered by such systems as compared to file processing system? Explain.   **10**
      b) Explain data dictionary with suitable examples.   **5**

Q.3   Differentiate between the following with an example:
      a) Entity and attributes
      b) Primary and Foreign key
      c) Candidate key and primary key   **5x3**

UNIT-II

Q.4   a) Discuss the concept of domain. How can an attribute define a domain?   **8**
      b) Which of the relational operators are associative in nature and why?   **7**

Q.5   Write SQL expression for the following queries:
      a) Create a table lab_employee with following attributes:
        (Emp_no primary key, emp_name, emp_address, emp_contact, emp_job)
      b) Create a table lab_dept with following attributes:
        (Dept_no primary key, dept_name)
      c) Insert 2 records into in each table.
      d) Insert 2 new columns in table lab_employee: salary and dept_no.
      e) Arrange the data in ascending order in both tables.   **15**

UNIT-III

Q.6   Compare and contrast Full/Partial/Transitive dependencies with the help of suitable examples.   **15**

Q.7   What is normalization? What is the need of normalization? Define and discuss 3NF and BCNF using suitable example.   **15**

UNIT-IV

Q.8   a) Explain authorization and authentication with an example.   **10**
      b) Differentiate between security and recovery of data.   **5**

Q.9   What do you understand by concurrency in a database? Discuss the various concurrency control methods in a database with suitable examples.   **15**

End Semester Examination, Dec. 2014

BCA -Third Semester

BUSINESS ORGANISATION AND PRINCIPLES OF MANAGEMENT (BCA-304)

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.*
(Note: Open Book exam. A student can carry one book only in exam.)

Q.1   Choose the correct option:
a) When we classify managers according to their level in the organisation they are described as?
  i)   Functional, staff and line managers.
  ii) Top managers, middle managers and supervisors.
  iii) High level and lower level managers.
  iv) General managers and administration managers.
b) Authority, discipline, unity of command, and unity of direction are:
  i)   Taylor's 4 POM.
  ii) Principles of human relation movement.
  iii) Elements of Weber's ideal bureaucratic structure.
  iv) 4 of Fayol's fourteen POM.
c) The decision-making model consists of 4 styles, directive, analytic, behavioral and _____.
  i)   Conceptual   ii) Intuitive
  iii) Group interaction   iv) Laggard
d) Because GE is organized into different divisions, one for each business, it is knows as:
  i)   Multidivisional enterprise   ii) Poorly managed firm
  iii) Multi business unit   iv) Multi-corporate concern
e) The most demanding issues that managers encounter in their 1st year on the job all have to do with:
  i)   Financial ratios of their department.
  ii) Interface with the government.
  iii) Scan the environment for things that would influence their business strategy.
f) A successful person in which of the following positions may be promoted to a management position:
  i)   A scientist   ii) An accounting professional
  iii) An engineer   iv) All of the above.
g) Competencies include:
  i)   Skills, IQ and values.
  ii) Skills, IQs and motivational preferences.
  iii) IQ, values and motivation.
  iv) Skills, values and motivational preferences.
h) When call center managers spend much of their time monitoring customer calls and giving employees feedback about how to improve their dialogue with customers in the future, these managers are using _____ skills?

i) Technical ii) Conceptual
  iii) Situational iv) Ethical
 i) Which of the following is not a good reason to set up staff departments?
  i) Through rotation, to give trainee managers a range of experience.
  ii) To make the use of scarce specialist skills.
  iii) To improve upward communication.
  iv) None of the above.
 j) What is the duty to act according to the authority that has been given?
  i) Responsibility ii) Delegation
  iii) Professionalism iv) Power **1½x10**

UNIT-I

Q.2 Dr. Gill is a famous Neuro Surgeon and has recently joined Fortis group of hospitals. He is getting ` 3 lac as salary p.m. and is very happy and satisfied. Is he a professional on a businessman? How is he different from Mr. Shyam who is an entrepreneur? **15**

Q.3 Mr. Mayank is a businessman who is running a chemical industry in residential area. This turnover is ` 10 crore per annum. What do you think he can do as a part of social responsibility of business? **15**

UNIT-II

Q.4 A major fest of MRIU needs to be organized on 31st Dec, 2014. You are the Chief Event Organizer (CEO). Explain how you will organize it to make it a grand success. **15**

Q.5 Give any two examples from real life explaining how decentralization and delegation are implemented. **15**

UNIT-III

Q.6 You along with four of your friends are launching a software company. Explain different levels of management you are going to use and why? **15**

Q.7 Mr. Gaurav as a general manager of production is very efficient and impressive. People under him love to work hard and dedicatedly. What do you think are his managerial skills which are helping him? **15**

UNIT-IV

Q.8 What are the different criteria on which the performance appraisal of a software engineer and service engineer will be done? **15**

Q.9 "HRM plays a very important role in making Reliance Company a big business giant". Explain. **15**

End Semester Examination, Dec. 2014

BCA -Third Semester

BUSINESS ORGANISATION AND PRINCIPLES OF MANAGEMENT
(BCA-304)

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) **Which factor has been the most rapidly changing component in an organization's general environment in the past quarter-century?**
   i) Global.   ii) Economic.
   iii) Social.   iii) Technological.

   b) All of the following are the characteristics of an organization EXCEPT:
   i) People.   ii) Product.
   iii) Purpose.   iv) Structure.

   c) What is the best term to describe the process of attempting to influence other people to attain the organization's objectives?
   i) Planning.   ii) Organizing.
   iii) Leading.   iv) Controlling.

   d) A situation in which an organization is not implementing valuable strategies that are being implemented by competing organization is called:
   i) Competitive disadvantages.   ii) Distinctive competencies.
   iii) Competitive edge.   iv) Competitive parity.

   e) _____is a situation that offers a strong potential for significant organizational gain if appropriate actions are taken.
   i) Crises problem.   ii) Problem.
   iii) None crises problem.   iv) None of above.

   f) GANTT Chart is a tool of:
   i) Select correct option.   ii) Budgeting.
   iii) Linear programming.   iv) Break-even analysis Scheduling.

   g) SWOT analysis divides organizational strength into two categories; Common strength and_____.
   i) Strategic imitation.
   ii) Competitive Parity.
   iii) Distinctive Competencies.

   h) Which ethical approach guided by what will result in the greatest good for the greatest number of People?
   i) Moral Rights Approach.   **ii)** Individual approach.
   iii) Utilitarian Approach.   iv) Justice Approach.

   i) Which of the following management thinker created a role classification system based on how managers spend their time at work to describe a manager's role?
   i) Select correct option: ii) Peter Brabeck-Letmathe.
   iii) Abraham Maslow.   iv) Andrea Jung.
   v) Henry Mintzberg.

   j) Low level management has a complete authority to make decisions in case of:
   i) Select correct option: ii) Centralization.
   iii)Decentralization   iv) Scalar   Chain.
   v) Order.   **1½x10**

UNIT-I

Q.2 a) Differentiate between business and profession.   **7**
     b) How do you classify the objectives of business in present society?   **8**

Q.3 a) What is an Industry? Classify industry on the basis of nature of activity.   **8**
     b) Write a short note on the legal basis of CSR.   **7**

UNIT-II

Q.4 What abilities will managers need to be successful in the 21ˢᵗ century? Which of these
     abilities do you have now? How do you plan to acquire the others?   **15**

Q.5 a) Explain different types of organisational structures. Describe the structure of your
        organisation or any organisation you are familiar with. Suggest suitable measures
        for restructuring and discuss the reasons for it.   **8**
     b) Explain the process of communication. Discuss various communication net works
        being used in your organization. Identify which is the most effective one and Why?
                                                                                           7

UNIT-III

Q.6 a) Is management a science? Give reasons to support your answer.   **8**
     b) Explain the types of managerial attitude towards the operation of multinational
        corporations.   **7**

Q.7 a) What do you understand by operations management? Discuss the steps involved
        in operation management.   **7**
     b) What are the different Managerial skills required to run an organization
        successfully?   **8**

UNIT-IV

Q.8 a) What is Human Resource Information System? Discuss in detail the objectives of
        HR information system.   **8**
     b) State the different types of trainings.   **7**

Q.9 Write short notes on **any three:**
     a) Dismissal.   b) Retention of employees.
     c) Job analysis.   d) Collective bargaining.   **5x3**

End Semester Examination, Dec. 2014
BCA -Fourth Semester
E-COMMERCE (BCA-401)

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 does EDI stands for?
   i) Electronic data interface.
   ii) E-commerce data interface.
   iii) Electronic data interchange.
   iv) Electronic document interaction.
b) _____ is used to pay for micro transaction.
   i) e-cash
   ii) Digital cash
   iii) Bank accounts
   iv) Either i) or ii).
c) Which is not the component of ERP?
   i) Legacy system
   ii) Bolt on applications
   iii) Operational database
   iv) Cybersoft
d) Which factor represents a system's ability to change quickly?
   i) Flexibility
   ii) Performance
   iii) Capacity planning
   iv) Benchmark
e) What type of commerce is enabled by technology?
   i) Path to Profitability
   ii) E-commerce
   iii) e-buy
   iv) Internet
f) What age group was born after the digital revolution?
   i) Digital natives
   ii) Digital immigrants
   iii) Digital boomers
   iv) Web kids
g) Which factor represent how well your system can adapt to increased demands?
   i) Availability
   ii) Accessibility
   iii) Reliability
   iv) Scalability
h) A combination of software and information designed to provide security and information for payment is called what.
   i) Digital wallet
   ii) Pop-up
   iii) Shopping cart
   iv) Encryption
i) A business competing is a commodity like environment must focus on which of the following.
   i) Prices
   ii) Ease of delivery
   iii) Ease of ordering
   iv) All of the above
j) Which of the following refers to creating products tailored to individual customers?
   i) Customization
   ii) Aggregation
   iii) Direct materials
   iv) Reverse auction   **1½x10**

UNIT-I

Q.2
a) Do you agree that customization is one of the role of e-commerce in competitive strategy? Discuss briefly.   **7**
b) Explain the framework of e-commerce.   **8**

Q.3
a) What is e-commerce? Explain four areas of application of e-commerce in detail.   **10**
b) Explain C2C with the help of an example.   **5**

UNIT-II

Q.4   Explain the following:
    a) Role of S/W agents for B2B.
    b) Nuts and bolls of EDI.
    c) Just in time delivery.   **5x3**

Q.5   a) What is ERP? Briefly explain its use in an organization.   **8**
    b) Write a short note on customer relationship management is the current scenario.
            7

UNIT-III

Q.6   Differentiate between following:
    a) Credit card and debut card system.
    b) Stored value cards and e-cash.
    c) Electronic commerce and e-business.   **5x3**

Q.7   What are various protocols and security issues in an electronic payment system? What are the managerial issues related to an electronic payment system?   **15**

UNIT-IV

Q.8   Differentiate:
    a) Internet and intranet.
    b) Bridge and router.
    c) Networks and internetworks   **5x3**

Q.9   What is the future scope of e-commerce? Also explain its limitations.   **15**

End Semester Examination, Dec. 2014
BCA -Fourth Semester
OPERATING SYSTEMS (BCA-402)

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 **Choose the correct answer:**
   a) Multiprocessing is a technique _____.
      i)   Same as multitasking.
      ii) Same as multiprogramming.
      iii) For multiuser programming.
      iv) Which involves use of more than one processor at the same time.
   b) A shell is a _____.
      i)   Hardware component.
      ii) Part of compiler.
      iii) Command interpreter.
      iv) None of these.
   c) A program at the time of execution is called _____.
      i)   Static program
      ii) Dynamic program
      iii) Binded program
      iv) A process
   d) Which of the following resource may cause deadlock _____?
      i)   Read only file   ii) Printer
      iii) Shared program   iv) Keyboard
   e) A major problem with priority scheduling is _____.
      i)   Definite blocking   ii) Starvation
      iii) Low priority   iv) Infinite blocking

Fill in the blanks with appropriate word/words:
   f) Amount of time spen in ready queue but actually not running is called _____.
   g) A directed edge from a process P to resource R is called _____ edge.
   h) Swapping needs _____ to store the swapped out program.
   i) A situation when the required page is not present in the memory is called _____.
   j) The time required to move the read/write head to the desired track is called _____ time.   **1½x10**

UNIT-I

Q.2 Define the essential properties of the following types of operating systems:
   a) Batch operating system.
   b) Real time operating system.
   c) Distributed operating system.   **5x3**

Q.3 Write short notes on the following:
   a) Operating system as extended machine.

b) System calls.   **7½x2**

UNIT-II

Q.4   Consider the following set of processes with the length of the CPU-burst time given in milliseconds:

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 arrived in the order P_1, P_2, P_3, P_4, P_5 all at time 0.
a) Draw the Gantt charts of these processes using FCFS, SJF, Priority and RR with (time quantum=2) scheduling.
b) What is the turnaround time of each process for each of the scheduling algorithms in part a? Calculate the average turnaround time.
c) What is the waiting time of each process of each of the scheduling algorithms in part a? Which algorithms has minimum average waiting time?   **5x3**

Q.5   a) What is the difference between a program and process? Draw and explain the process control block.
      b) Describe the differences among short-term, long-term and medium term schedules.   **7½x2**

UNIT-III

Q.6   Discuss classical synchronization problems. State two such problems using their algorithmic approach.   **15**

Q.7   Describe First-Fit, Best-Fit and Worst-Fit algorithms for memory allocation. Given memory partitions of 100 K^B, 500 K^B, 200 K^B, 300 K^B and 600 K^B (in order). How would each of the first-fit, best-fit and worst-fit algorithms place processes of 212 K^B, 417 K^B, 112 K^B and 426 K^B (in order)? Which algorithm makes the most efficient use of memory?   **15**

UNIT-IV

Q.8   a) Explain any two disk scheduling algorithm with an example.
      b) Explain directory structure in detail.   **7½x2**

Q.9   Explain various file space allocation methods. Differentiate between contiguous and linked allocation methods.   **15**

End Semester Examination, Dec. 2014

BCA -Fourth Semester

WEB DESIGNING AND INTERNET APPLICATIONS (BCA-403)

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) Which of the following tags are related to table in HTML?
    i) <table><head><body>
    ii) <table><row><column>
    iii) <table><tr><td>
    iv) <table><header><footer>
  b) Which tag is used to display large font size?
    i) <large></large>   ii) <size></size>
    iii) <big></big>   iv)
  c) How can you make bulleted list?
    i) <list>   ii)
    iii)   iv) <nl>
  d) Which is the traditional name for homepage of website?
    i) home.html   ii) index.html
    iii) web.html   iv) front.html
  e) Which of the following HTML code is valid?
    i) <font colour="red">   ii) <font color="red">
    iii) <red> <font>   iv) All of above are style tags
  f) Which attribute is used to name element uniquely?
    i) class   ii) id
    iii) dot   iv) All of above.
  g) What should appear at very end of your JavaScript <script language="JavaScript">?
    i) The </script>   ii) The <script>
    iii) The END statement   iv) None of the above.
  h) JavaScript is _____ language.
    i) Scripting   ii) Programming
    iii) Application   iv) None of the above.
  i) JavaScript code contain sequence of _____.
    i) Method calls   ii) Executable statements
    iii) HTML tags   iv) All of the above.
  j) JavaScript is introduced by:
    i) Microsoft   ii) IBM
    iii) Google   iv) Sun Microsystem.   **1½x10**

UNIT-I

Q.2 Briefly explain about World Wide Web and browsers.   **15**

Q.3 Write short note on:
  a) Search engine

b) FTP
c) Usenet   **15**

UNIT-II

Q.4   a) Explain in detail about the frames in HTML with examples.   **10**
       b) What is an ordered list in HTML? Give an example.   **5**

Q.5   What are cascading style sheets? Explain types of stylesheets in detail.   **15**

UNIT-III

Q.6   Create a result card using JavaScript forms.   **15**

Q.7   Discuss:
       a) i)   CODE
          ii) SAMPLE
          iii) STRONG
          iv) SMALL
          v)   STRIKE   **2x5**
       b) How to display images in HTML?   **5**

UNIT-IV

Q.8   What is document object model? Explain in detail.   **15**

Q.9   Differentiate Alert (), Prompt () and confirm_box in JavaScript.   **15**

End Semester Examination, Dec. 2014
BCA -Fourth Semester
BUSINESS COMMUNICATION-II (BCA-404)

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   Choose the correct option:
a) Which of the following is an example of an internal document?
   i) A quotation.
   ii) A job description.
   iii) A claim adjustment.
   iv) A policy bulletin.
b) Which of the following is NOT an example of nonverbal communication?
   i) Pictures.
   ii) Computer graphics.
   iii) Company logos.
   iv) An email message from a CEO to shareholders.
c) All of the following are criteria the effective business writing EXCEPT:
   i) The message is clear.
   ii) The message is accurate.
   iii) The message is what the reader wants to hear.
   iv) The message builds goodwill.
d) A company's annual report is written for all of the following purposes EXCEPT:
   i) To persuade.
   ii) To build goodwill.
   iii) To present information.
   iv) To comply with govt. regulations.
e) Better writing skills help you to do all of the following EXCEPT:
   i) Increase disagreements.
   ii) Make you efforts more effective.
   iii) Communicate your points more clearly.
   iv) Save time.
f) A group leader who is objective, encourages group discussion and decision, and guides when necessary is:
   i) A democratic leader.
   ii) A transformational leader.
   iii) An authoritarian leader.
   iv) None of the above.
g) When a group agrees to support and commit to the decision of the group, they have reached?
   i) A consensus.
   ii) A solution.
   iii) An analysis.
   iv) None of the above.
h) When participating in a group presentation, it is imperative to?
   i) Ensure everyone makes equal contributions.
   ii) Solve the problem or issues as quickly as possible.
   iii) Ensure everyone understands the assignment.
   iv) None of the above.

i) Which of the following term is used to identify, "What the job holder does"? "How it is done"? And "Why it is done"?
   i) Job specification.   ii) Job evalution.
   iii) Job description.   iv) Job title.
j) Terms "Interpersonal skills" and "human skill" are used for:
   i) Two different skills.   ii) Different managerial skills.
   iii) Operational skills.   iv) Same managerial skills.   **1½x10**

UNIT-I

Q.2 a) Analyze the need of developing communication skills in the present day scenario. **8**
     b) How does the group effect the decision making process in an organization? Explain its merit and demerits.   **7**

Q.3 a) Explain different factors and process which influence group effectiveness and dysfunction.   **8**
     b) Define emotional intelligence. What advantages do we reap in when we successfully manage our emotions?   **7**

UNIT-II

Q.4 a) How is an optimist more successful in life as compared to pessimist? Elaborate.   **8**
     b) Every persons achievements in life depends on his attitude that he carries. Explain.   **7**

Q.5 Give correct answer:
     a) Clock : Time :: Thermometer : _____.
     b) Gun : Bullet :: Chimney : _____.
     c) Coconut : shell :: letter : _____.
     d) Life : death :: Hope : _____.
     e) The total of the ages of Amar, Akbar and Anthony is 80 years. What was the total of their ages three years ago?
     f) A pineapple costs Rs. 7 each. A watermelon costs Rs. 5 each. X spends Rs. 38 on these fruits. The no. of pineapples purchased is _____?
     g) A man has Rs. 480 in the denomination of one-rupee notes, five-rupee notes and ten-rupee notes. The no. of notes of each denomination is equal. What is the total no. of notes he has?
     h) A is 3 years older to B and 3 years younger to C. while B and D are twins. How many years' older is C to D?
     i) There are deer and peacocks in a zoo. By counting heads they are 80. The no. of their legs is 200. How many peacocks are there?
     j) A tailor had a no. 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?   **1½x10**

UNIT-III

Q.6 a) Mention basic tips for creating a better power point presentation.   **8**
     b) What is brainstorming? What are its different phases?   **7**

Q.7 a) How does understanding your audience and the speaking occasion play an important role while giving presentation?   **8**
     b) What are the various ways to optimize your percephral quotient?   **7**

UNIT-IV

Q.8 a) Write an application to WIPRO director for the post of "Project-Manager" detailing about your special qualities which makes you fit for the current position. **8**

b) Design your resume for the about mentioned post covering all aspects of personal, educational, professional details etc. **7**

Q.9 a) Differentiate between employment interview and performance appraisal interview. **8**

b) How does practicals on simulated employment interview help in employment? Explain its advantages and disadvantages. **7**

End Semester Examination, Dec. 2014
BCA -Fifth Semester
INFORMATION AND COMMUNICAION 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   a) *State* **true** *or* **false:**
    i)   Plagiarism is used to copy the content of user.
    ii) It is ethical to hack the password of a user and check his account.
    iii) ICI helps in getting employment at good salaries and higher designations.
    iv) EFTPOS and POS are related to manufacturing.
    v)   IRC stands for internet related chat.
    vi) Unsolicited e-mail is called spam.   **1½x6**
    b) What is Data Protection Act, 1998?   **2**
    c) Give four items of data that may be recorded by the network audit software.   **2**
    d) Define digital divide.   **2**

UNIT-I

Q.2   Draw the flowchart to demonstrate the process of e-filing. Explain the role of digital signatures in e-filing.   **15**

Q.3   Discuss the following:
    a) HTTP   b) FTP   c) URL   **5x3**

UNIT-II

Q.4   What do you understand by the term 'www'? Discuss various applications advantages and disadvantages of www.   **15**

Q.5   a) List most popular search engines and companies behind them.   **6**
    b) What do you understand by web 2.0? Discuss the need of web 2.0.   **9**

UNIT-III

Q.6   A bookseller wishes to evaluate a new software package for selling online. Explain why the bookseller might need to establish the following evaluation criteria:
    a) Functionality   b) Usability   c) Performance
    d) Robustness   e) Portability   **15**

Q.7   Good quality information is needed to make informed decisions other than accuracy. Describe three characteristics of good quality information, illustrating each characteristic with an appropriate distinct example.   **15**

UNIT-IV

Q.8   Discuss the following:
    a) Turtle graphics   b) Simulation using ICT   **7½x2**

Q.9   a) Write a note on data handling applications.   **7**
    b) Explain the role of ICT in employment.   **8**

End Semester Examination, Dec. 2014
BCA -Fifth Semester
SOFTWARE ENGINEERING (BCA-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.** *All questions carry equal marks.*

Q.1   Multiple choice questions:
   a) Functional testing is also known as:
   i) Structural   ii) Behaviour
   iii) Regression   iv) None of the above
   b) If requirements are easily understandable and defined, which model is best suited.
   i) Waterfall model   ii) Prototyping model
   iii) Spiral model   iv) None of the above
   c) To produce a good quality product, process should be:
   i) Complex   ii) Efficient
   iii) Rigorous   iv) None of the above
   d) Which one is not a size measure for software?
   i) LOC   ii) function count
   iii) Automatic complexity   iv) Halstead's program length
   e) Risk management activities are divided in:
   i) 3 categories   ii) 2 categories
   iii) 5 categories   iv) 10 categories
   f) The most desirable form of coupling is:
   i) Control coupling   ii) Data coupling
   iii) Common coupling   iv) Content coupling
   g) A system that does not interact with external environment is called.
   i) Closed system   ii) Logical system
   iii) Open system   iv) Hierarchical system
   h) Validation is:
   i) Checking the product with respect to customer's expectation.
   ii) Checking the product with respect to specification.
   iii) Checking the product with respect to the constraints of the project.
   iv) All of the above.
   i) Which is not a functional testing technique?
   i) Boundary value analysis   ii) Derision table
   iii) Regression testing   iv) None of the above
   j) Testing the software is basically:
   i) Verification   ii) Validation
   iii) Verification and validation   iv) None of the above   **1½x10**

UNIT-I

Q.2   Explain the spiral model of software development. What are the limitations of such a model?   **15**

Q.3   a) Illustrate with a diagram that software does not wear out.   **8**
       b) List the reasons for software crisis.   **7**

Q.4 a) An application has the following 10 low external inputs, 12 high external outputs, 20 low internal logical files, 15 high external interface files, 12 average external enquiries and a value of complexity adjustment factor of $1 \cdot 10$. What are the unadjusted and adjusted function point counts? **8**

b) Write short note on CPM. **7**

Q.5 Consider the sorting program. List out the operators and operands and also calculate the values of software science measures like η, N, V.

Program:
```
int sort (int x [], int n )
{
int i, j, save, inl;
/*This function sorts array*/
if (n <2) return l;
for (i=2; i<=n; i++)
{
inl=i-l;
for (j=1; j<=in; j++)
if (x[i]< x [j])
{
Save = x [i];
x [i] = x [j];
x [j] = save;
}
}
Return 0;
}
```
15

Q.6 What is cohesion? Discuss types of cohesion. Also, explain the effect of cohesion as effective modular design. **15**

Q.7 Write short notes on the following:
a) Software design strategy.
b) Objectives of design. **7½x2**

Q.8 a) What is software testing? Discuss the role of software testing during software life cycle and why is it so difficult. **8**

b) What is the difference between alpha and beta testing? **7**

Q.9 a) Explain boundary value analysis technique with the help of an example. **8**

b) What is the difference between white-box and black-box testing? **7**

End Semester Examination, Dec. 2014

BCA -Fifth Semester
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   a) The interactive computer graphics involves _____ way communication between computer and the user.
  i) One   ii) Two   iii) Three   iv) Four
  b) The basic interactive picture construction technique are:
  i) Positioning and pointing
  ii) Rubber band method
  iii) Sketching, dragging
  iv) All of the above
  c) A display controller serves to pass the contents of:
  i) Frame buffer to monitor
  ii) Monitor to frame buffer
  iii) Both of the above
  iv) None of the above
  d) Basic geometric transformation includes:
  i) Translation   ii) Scaling   iii) Rotation   iv) All of the above
  e) A many sided figure is termed as:
  i) Square   ii) Polygon   iii) Rectangle   iv) None of the above
  f) The process of extracting a portion of a picture is known as:
  i) Shearing   ii) Clipping   iii) Translation   iv) None of the above
  g) A three dimensional graphics has:
  i) Two axes
  ii) Three axes
  iii) Both i) and ii)
  iv) None of the above
  h) The types of projection are:
  i) Parallel and perspective
  ii) Perpendicular and perspective
  iii) Parallel and orthographic
  iv) None of the above
  i) _____ is used to set the filling style in an image.
  i) Set fill style ()
  ii) Flood fill ()
  iii) Set color ()
  iv) None of the above
  j) The name of the graphics driver used with turbo C compiler is:
  i) BGAVGA.BGI
  ii) BGAVGA.EGI
  iii) Graphics.h
  iv) None of the above   **1½x10**

UNIT-I

Q.2   a) Explain the working of CRT in details.   **10**

b) What do you mean by frame buffer? What is it purpose in graphics?   **5**

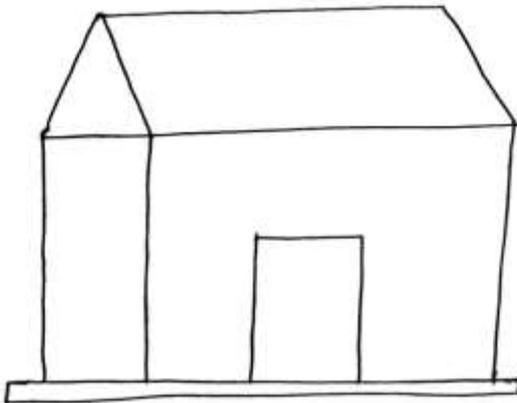Q.3   Explain flat panel devices in details.   **15**

UNIT-II

Q.4   What do you mean by transformation? What would be the new co-ordinate of the triangle A (3, 2), B (9, 2) and C (7, 4) if it is rotated by an angle of 90^0 towards clock-wise direction?   **15**

Q.5   Explain Bresenhem's line drawing algorithm in details. What would be the intermediated point of a line if it's drawn between A (2, 2) and (9, 7).   **15**

UNIT-III

Q.6   What do you mean by projection? Explain in details.   **15**

Q.7   a) Explain viewing pipeline in details.   **5**
      b) What would be the matrix to represent scaling, translation and reflection in 3-dimensional geometry?   **6**
      c) Whether a cube is 3D image. Justify your answer by specifying the matrix of a cube.   **4**

UNIT-IV

Q.8   Write a programme in C language to draw a hut as shown below:

                                                                          15

Q.9   Write a program to draw a chess board.   **15**

End Semester Examination, Dec. 2014
BCA -Fifth Semester
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) Name all types of error involved in a numerical computation.
       b) Define order of an iteration method.
       c) What is the order of convergence of Newton-Raphson method for solving non-linear equations?
       d) What is the relation between the operators Δ and ∇ ?
       e) Write Newton's backward difference formula for interpolation.
       f) Write down Runge-kutta formula for the solution of initial value problem $\dfrac{dy}{dx} = f(x, y),\ y(x_0) = y_0$.
       g) What is differential of Newton's forward difference formula?
       h) What is composite trapezoidal rule for numerical integration?
       i) What is Poisson distribution for a given variate?
       j) Calculate $p(-2 \le z \le 2)$ for standard normal variate z.   **1½x10**

UNIT-I

Q.2   a) Find the root, lying between 0 and 1, of the equation $x^3 - 5x + 3 = 0$ using Newton-Raphson method.   **8**
       b) Fid square root of 13 using iteration method.   **7**

Q.3   a) Using Runge-Kutta method, solve:
$$\frac{dy}{dx} = x + y,\ \ y(0) = 1$$
for $x = 0.1$.   **7**
       b) Solve by Taylor series method:
$$\frac{dy}{dx} = y - \frac{2x}{y},\ \ y(0) = 1,$$
for $x = 0.1$ and $x = -0.1$.   **8**

UNIT-II

Q.4   a) Find cubic polynomial $f(x)$ which takes on the values: $f(0) = -4, f(1) = -1, f(2) = 2, f(3) = 11, f(4) = 32, f(5) = 71$.   **8**
       b) Establish Newton's divided difference formula.   **7**

Q.5   a) Using Lagrange's interpolation formula, find the value of y for $x = 5$ if the following values of x and y are given:

x	1	2	3	4	7
y	2	4	8	16	128

       9

b) Construct central difference table for the following data:

x_{-2}	x_{-1}	x_0	x_1	x_2
f_{-2}	f_{-1}	f_0	f_1	f_2

6

UNIT-III

Q.6 a) Approximate the points (2, 2), (5, 4), (6, 6), (9, 9) and (11, 10) by a least square line. **7**

b) Find $f^1(1.6)$ for the data:

x	1.0	1.1	1.2	1.3	1.4	1.5	1.6
$f(x)$	7.989	8.403	8.781	9.129	9.451	9.750	10.031

8

Q.7 a) Evaluate $\int_0^1 \dfrac{dx}{1+x^2}$ using both Trapezoidal rule and Simpson's one-third rule taking $h = \dfrac{1}{4}$. **8**

b) Using Newton's forward difference formula, derive Trapezoidal rule for numerical integration. **7**

UNIT-IV

Q.8 a) Fit a binomial distribution to the following data and compare the expected frequencies with the observed frequencies:

x	0	1	2	3	4	5
f	2	14	20	34	22	8

8

b) The mortality rate for a certain disease is 6 per 1000. What is the probability for just 4 deaths from that disease in a group of 400? **7**

Q.9 a) For a normally distributed variate X with mean 1 and standard deviation 3, find out probability that $-1.43 \le x \le 6.19$. **6**

b) Fit a normal curve to the following data:

Class	1-3	3-5	5-7	7-9	9-11
Frequency	1	4	6	4	1

Also obtain the expected normal frequencies. **9**

End Semester Examination, Dec. 2014
BCA -Sixth Semester
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) Class equals
```
{
Public static void main (string args[])
{
Int x=100;
Double y=100.1;
Boolean b=(x=y);
System.out.println(b);
}
}
```
What will be output of the above program?

b) Public class Test{}

What is the prototype of the default constructor?

   i) Test()   ii) Test(void)

   iii) Public Test()   iv) Public Test(void)

c) Method of interface are _____ in nature.

d) Is it possible to write nested try? (Yes/No)

e) What is jdb?

f) What is the value of "d" after then line of code has been executed?

   double d=Math.round(2.5+Math.random());

g) What will be the output of the following program?
```
Class Test
{
Public static void main (String[] args)
{
Int x=20;
String sup=(x<15)? "Small":(x<22)?"tiny":"Huge";
System.out.println(sup);
}
}
```

h) What is garbage collection in the context of Java?

i) Private constructors neither be accessed from any derived classes nor form another classes.   *(True/False)*

j) Why to use array as a parameter in main method?   **1½x10**

UNIT-I

Q.2 a) Briefly explain the salient features of Java language.   **10**

b) What is stand alone application? **5**

Q.3 a) What are Java development tools? Explain the purpose of every tool in Java. **7**

b) What is type casting? Why is it required in programming? When dealing with very small or very large numbers, what steps would you take to improve the accuracy of the calculations? **8**

UNIT-II

Q.4 a) Write a program to check whether the given number is palindrome. **7**

b) What is an array? Explain types of array. Why are arrays easier to use compared to a bunch of related variable? **8**

Q.5 a) Write a program to print the following outputs using for loops.

```
        1
      2   2
    3   3   3
  4   4   4   4
5   5   5   5   5
```
10

b) Write all the advantages of using arrays. How many different data types can the element of an array have? **5**

UNIT-III

Q.6 Define a class called named department as shown below:

Data members: a) Department name   b) HOD name
Methods: a) Constructor   b) ShowDepartmentDetail()

Create an object of the class department and display the detail of 4 departments FCA, FCH, FET, and FMS. **15**

Q.7 Define a class named triangle as described below:

Data members:

a) Side1   b) Side2
c) Side3   d) angle1, angle2, angle3

Methods:

a) Constructors   b) Triangle_perimeter()
c) Trangle_area()   d) Isoceles()
e) Equilateral()   f) Right_angled()

Test this class by creating an object for the class triangle. **15**

UNIT-IV

Q.8 a) What is 'method overriding'? How can we access an overridden method? How do we pass arguments to the constructor of a base a class? **7**

b) How is an interface defined? Give an example. How is the concept of interface used to indirectly represent the multiple inheritance? **8**

Q.9 a) What is a package? Give an example. Explain the import statement. **8**

b) Briefly explain the life cycle of the applet. **7**

End Semester Examination, Dec. 2014
BCA -Sixth Semester
DATA COMMUNICATION AND NETWORKING (BCA-602)

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) _____ layer decides which physical pathway the data should take.
  i) Application layer   ii) Physical layer
  iii) Network layer   iv) Data link layer
  b) Which of the following encoding methods does not provide synchronization?
  i) Unipolar   ii) RZ   iii) NRZ-I   iv) B8ZS
  c) Telnet stands for:
  i) Terminal Network   ii) Termination Network
  iii) Telecommunication Network   iv) None of these
  d) The wavelength of a signal depends on the _____.
  i) Frequency of the signal   ii) Medium
  iii) Phase of the signal   iv) Both i) and ii)
  e) A _____ is a data communication system spanning states, countries or whole world.
  i) LAN   ii) MAN   iii) WAN   iv) None of these
  f) DNS is the abbreviation of
  i) Dynamic name system   ii) Dynamic network system
  iii) Domain name system   iv) Domain network service
  g) What is the use of bridge in network?
  i) To connect LANs   ii) To separate LANs
  iii) To control network speed   iv) All of these
  h) Which of the following layer is not in OSI model?
  i) Physical layer   ii) Internet layer
  iii) Network layer   iv) Transport layer
  i) MAN refers to
  i) Mega area network   ii) Metropolitan area network
  iii) Mini area network   iv) Medium area network
  j) How many layers are in the TCP/IP model?
  i) 4   ii) 5   iii) 6   iv) 7   **1½x10**

UNIT-I

Q.2 Explain the following:
  a) Bit rate   b) Band rate   c) Carrier Signal
  d) Frequency spectrum   e) Bandwidth   **3x5**

Q.3   What do you mean by transmission media? Explain any two types of transmission media in detail.   **15**

UNIT-II

Q.4   a) Explain the responsibilities of data link layer and presentation layer.
       b) Differentiate between physical, logical and service-point addressing.
       c) How UDP is different from TCP? Discuss.   **5x3**

Q.5   What is multiplexing? What is the need of it and also explain how synchronous TDM is different from asynchronous TDM?   **15**

UNIT-III

Q.6   Discuss the following terms:
       a) Repeaters   b) Bridges   c) Routers   **5x3**

Q.7   What do you mean by flame relay protocol? Explain in detail.   **15**

UNIT-IV

Q.8   Explain:
       a) Firewall   b) CSMA/CD   c) SVC and PVC   **5x3**

Q.9   What do you mean by cryptography? Discuss substitution cipher and transposition cipher with an example.   **15**

End Semester Examination, Dec. 2014
BCA -Sixth Semester
MULTIMEDIA AND ANIMATION (BCA-603)

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) _____ is a popular effect in which one image transforms into another.
     i) Inverse kinematics   ii) Morphing
     iii) Tweening   iv) Tweaking
  b) _____ is a communication system that spans great distances.
     i) LAN   ii) MAN
     iii) Single user PCs   iv) WAN
  c) In a multimedia project with a _____ structure, user navigate sequentially from one frame to another:
     i) Composite   ii) Hierarchical
     iii) Linear   iv) Non linear
  d) Which release of a product is typically for internal circulation only?
     i) Alpha   ii) Beta
     iii) Gamma   iv) Mega
  e) _____ protection applies to the original works of authorship fixed in any tangible medium of expression.
     i) Copyright   ii) Governmental
     iii) Police   iv) Public domain
  f) Bitmapped images can be converted into vector-based outlines in a drawing or painting package with the _____ feature.
     i) Autotrace   ii) Eyedropper tool
     iii) Lathe and Extrude   iv) Thesaurus.
  g) The process of removing blank spaces from the front of the recording is:
     i) Digital signal processing   ii) Resampling
     iii) Splicing   iv) Trimming
  h) Which of the following is not a stage in M/M project?
     i) Designing   ii) Forecasting
     iii) Planning   iv) Trimming
  i) The process of drawing a series of frames between keyframes is called _____.
     i) Morphing   ii) storyboarding
     iii) Tweening   iv) Tweaking
  j) A 24-bit image is capable of representing how many different colors:
     i) 2   ii) 16   iii) 256
     iv) 65536   v) 16772216   **1½x10**

UNIT-I

Q.2 Define common multimedia terms such as multimedia, integration, interactive, HTML and authoring and qualify various characteristics of multimedia: nonlinear versus linear content. **15**

Q.3 Briefly discuss the history and future of multimedia. How might multimedia be used to improve the lives of its users? How might it influence user in a negative ways? What might be its short comings? **15**

UNIT-II

Q.4 a) Discuss the importance text and ways text can be leveraged in multimedia presentation. **8**
b) Discuss the problems encountered using text across computer platforms and in different languages. **7**

Q.5 Write short notes on *any three:*
a) Object linking and embedding.
b) RTF and HTML texts.
c) Conversion to-and-from various text formats.
d) Difference between plain and formatted text. **5x3**

UNIT-III

Q.6 a) Differentiate among bitmap, vector and 3-D images. **8**
b) Describe the capabilities and limitations of bimap, vector and 3-D-images. **7**

Q.7 a) Describe the use of colors and palettes in multimedia. **8**
b) Cite the various file types used in multimedia. **7**

UNIT-IV

Q.8 a) Define animation and describe how it can be used in multimedia. **7**
b) Discuss the principles of animation. **8**

Q.9 a) Discuss the animation techniques of cell and computer animation and choose the correct file types for animations. **8**
b) Differentiate between 2-D and 3-D animations. Give two examples each of the software used for 2-D and 3-D animations. **7**

End Semester Examination, Dec. 2014

BCA -First Semester

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 ***Multiple choice questions:***

a) Where would you find the letters QWERTY?
   i) Mouse   ii) Keyboard
   iii) Numeric keypad   iv) None of the above

b) What does a light pen contain?
   i) Refillable ink   ii) Pencil lead
   iii) LED's   iv) All of the above

c) What are the individual dots which make up a picture on the monitor screen called?
   i) Coloured spots   ii) Pixels
   iii) Pixies   iv) None of the above

d) Which storage device cannot be erased?
   i) CD-Rom   ii) Floppy-disk
   iii) Magnetic tape   iv) CD-drive

State whether the following statements are true or false:

e) CPU is known as the brain of the computer.
f) Decision tables are tabular representation of condition and action.
g) Algorithm and flowcharts are used to prepare results.
h) Printer is a secondary storage device.
i) Syntax error are detected by compilers.
j) A computer can only understand machine language and no other language.

                                                              1½x10

UNIT-I

Q.2 What are the basic differences between input devices and output devices? Explain any two input devices and any two output devices with suitable diagrams.   **15**

Q.3 Classify the computers on the basis of following criterias:
a) According to size
b) According to nature   **7½x2**

UNIT-II

Q.4 Write short notes on:
a) RAM
b) ROM
c) Flash memory   **5x3**

Q.5   Differentiate between the following:
       a) System software and application software.
       b) Compiler and interpreter.
       c) Linker and loader.   **5x3**

UNIT-III

Q.6   Write down the algorithm and also draw the flowchart for reversing the digits of a
       number.   **15**

Q.7   a) What do you understand by program designing approach? Explain its relative
           advantages and disadvantages.
       b) Mention various types of errors found in a program.   **15**

UNIT-IV

Q.8   Explain top down approach. State its advantages and disadvantages. Compare top
       down approach with bottom up approach. Which approach is better? **15**

Q.9   Draw a flowchart to print the factorial of a number entered by the user. Also prepare
       the documentation for a flow chart.   **15**

End Semester Examination, Dec. 2014
BCA -First Semester
PROGRAMMING IN 'C' (BCA-1002)

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) C was developed in year _____.
      i) 1971   ii) 1972
      iii) 1981   iv) 1982
    b) The _____ operator is used to convert one data type to another forcefully.
      i) Cast   ii) Conversion
      iii) Type   iv) None of the above
    c) The case keyword is followed by:
      i) Float   ii) Character
      iii) Integer   iv) Both ii) and iii)
    d) Which symbol is used as a statement terminator?
      i) Semicolon   ii) Hash
      iii) Tilde   iv) None of the above
    e) Which of the following is a unconditional control structure?
      i) Go to statement   ii) For   iii) If statement
    f) If a function does not return any value, the return type must be declared ____.
    g) _____ is an ordered set of homogeneous elements.
    h) Recursion is sometimes called _____.
    State whether True or False:
    i) Every C program must have one function called main.
    j) C is HLL with some low level features.   **1½x10**

UNIT-I

Q.2   a) Discuss the structure of C program.   **9**
    b) What is a variable? Discuss the various rules for naming a variable.   **6**

Q.3   a) What do you mean by preprocessor directives? Why do we include header files in C program?   **5**
    b) Discuss the following:
      i)   printf()
      ii) scanf()
      iii) putchar()
      iv) getchar()   **2½x4**

UNIT-II

Q.4   a) Write a program in C to find the factorial of n numbers.   **8**
    b) Define array. How arrays are declared and initialized? Give an example.   **7**

Q.5 Write the format, purpose and an example of following:
a) nested-if statement
b) do-while loop
c) switch statement **5x3**

UNIT-III

Q.6 a) What is a structure? Why are they needed? Explain with an example.
b) Write a short note on recursion.
c) Distinguish between local and global variables. **5x3**

Q.7 a) How is call by value method of function calling different from call by reference method?
b) Discuss the advantages of using functions in C language. Also mention some built-in-functions in C. **7½x2**

UNIT-IV

Q.8 a) What are the main advantages of using data files? **5**
b) Differentiate:
i) fread() and fscanf()
ii) fwrite() and fprintf() **5x2**

Q.9 a) Discuss various storage classes in C with giving suitable examples. **8**
b) What do you understand by opening a data file? How is this performed? **7**

End Semester Examination, Dec. 2014
BCA -First Semester
ENVIRONMENTAL STUDIES (BCA-1003)

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 with appropriate words:
   a) The term "ecology" has been coined by German biologist _____ in 1869.
   b) Environment day is celebrated on _____.
   c) Environment education is a process of indentifying value and _____ concept.
   d) The earth planet is also called _____ as 2/3 of it is covered with water.
   e) Soil erosion can be prevented by _____.
   f) The organisms who feed on the dead or partially decomposed matter are called _____.
   g) Energy level of a food chain is called _____.
   h) Pyramid of _____ is always upright.
   i) Quinine is obtained from the bark of _____ tree.
   j) There are 25 biodiversity hotspots in the world, of which _____ exist in India.
   k) Bhopal tragedy was caused by _____.
   l) The atmosphere in urban areas is polluted by _____.
   m) Improved personal hygiene, sanitation and modern medicines have reduced the _____ rate.
   n) Copper T is placed in the uterus to prevent _____.
   o) Full form of AIDS is _____. **1x15**

UNIT-I

Q.2 a) State the objectives and mention the guiding principles of environmental education. **8**
   b) Discuss the difference between renewable and non renewable resources with suitable examples. **7**

Q.3 a) Give a brief description of the abiotic (non living) and biotic (living) components of environment. **9**
   b) What do you mean by?
      i) Eutrophication.   ii) Water logging. **6**

UNIT-II

Q.4 a) What are ecological pyramids? How are they different from each other? **8**
   b) What is meant by primary productivity? Which kind of ecological pyramid is always upright and why? **7**

Q.5 What do you mean by biodiversity? Explain genetic diversity, species diversity and ecosystem diversity. **15**

UNIT-III

Q.6   a) What do you understand by the term pollution? Name different sources of pollutants. **8**

      b) Suggest different measures to control soil pollution. **7**

Q.7   a) Give a detailed account of environmental disasters and their management. **8**

      b) What is acid rain? What are its causes? **7**

UNIT-IV

Q.8   a) What are house hold tips that can be adopted to conserve water? **8**

      b) Explain the major implication of global warming. **7**

Q.9   a) What are the basic modes of transmission of HIV? Enumerate the clinical symptoms/sign of AIDS. Also name the two tests that are carried out for AIDS diagnosis. **8**

      b) Discuss the strategy adopted by government of India for the development of women and children. **7**

End Semester Examination, Dec. 2014
B. Sc. (Information Technology) - First Semester
THE INFORMATION TECHNOLOGY SYSTEM (7.101)

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***. All questions carry equal marks.*

Q.1   Write short notes on **any two:**
a) System unit
b) RAM
c) Hacking
d) LAN   **5x2**

PART-A

Q.2   Explain the block diagram of computer with the detail of all components.   **10**

Q.3   Differentiate between the following **(any two):**
a) System software and application software.
b) Viruses and worms.
c) Internet and intranet.   **5x2**

Q.4   a) Explain all application areas of computer.
b) What do you mean by output device? Explain any two output devices in detail.
                                                                5x2

PART-B

Q.5   Explain all networking components along with its architecture.   **10**

Q.6   a) What do you mean by mobile networking? What is its importance? Explain in brief.
b) List out the important features of MS-Word.   **5x2**

Q.7   a) How functions are performed in Excel? Write functions for the following tasks in Excel:
i)   Addition of 5 numbers.
ii) Average of 5 numbers.
iii) Greatest of 5 numbers.
iv) Smallest of 5 numbers.
b) Explain all steps to create a relational database in MS-Access.   **5x2**