End Semester Examination, Dec. 2019

B. Sc. (Information Technology) -First Semester
THE INFORMATION TECHNOLOGY SYSTEM(7.101)

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

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 the following:
   a) Troubleshooting.
   b) Network Components.
   c) Classification of Computers.   **5x3**

PART-A

Q.2   a) Define 'Digital Computer'. Describe its anatomy and working of the same through block diagram.   **8**
   b) What is Computer Memory? Differentiate Primary and Secondary Memory. Explain any one type of Computer Memory.   **7**

Q.3   a) Discuss the major applications of computer in medical field.   **7**
   b) Compare the following:
      i) Application software and System software.
      ii) Internet, Intranet and Extranet.   **8**

Q.4   a) Discuss the emerging technologies in Mobile Computing.   **7**
   b) Write short note on Hackers and Threats for IT System.   **8**

PART-B

Q.5   a) What is MS-WORD? Explain various features of MS-WORD.   **7**
   b) What do you understand by Formatting? Explain various methods of formatting available in MS-WORD.   **8**

Q.6   a) Explain various types of functions used in EXCEL in detail.   **7**
   b) Write the steps to create a table, sort the columns of a table, resizing rows of a table and inserting rows in an existing table.   **8**

Q.7   a) Explain various steps to apply animation effects to objects.   **5**
   b) Describe various features of power-point.   **5**
   c) Write short note on Relational databases.   **5**

End Semester Examination, Dec. 2019
B. Sc. (Information Technology) -First Semester
THE INFORMATION TECHNOLOGY SYSTEM(7.101)

Time: 3 hrs.

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End Semester Examination, Dec. 2019

B.Sc. (Information Technology)—First Semester

BUSINESS COMMUNICATION (7.102 / COMP-502)

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

No. of pages: 2

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

Q.1 Choose the correct option:

a) Which of the following statements are true with respect to "Communication"?
   i) It forms the foundation for planning.
   ii) Controlling is not possible without written and oral communication.
   iii) Bothi) and ii).
   iv) None of the above. **1**

b) In formal letters to have a desired effect on the reader, it should be:
   i) Free of any grammatical or spelling errors.
   ii) Polite, even if you are complaining.
   iii) Short and to the point.
   iv) All of the above. **1**

c) The goal of a negotiation process should always be:
   i) We should be able to judge and use the vulnerability of the other party.
   ii) We should be able to sell the products at our specified price.
   iii) A win-win situation wherein both the parties are satisfied.
   iv) There may/may not be any future business relationship. **1**

d) Disruptive behavior in a team means:
   i) Being overly aggressive.
   ii) Withdrawing and refusing to co-operate.
   iii) Raising irrelevant matters.
   iv) All of the above. **1**

e) The non-verbal communication displayed by attitude towards time, through punctuality and late arrival is called:
   i) Haptics.
   ii) Chronemics.
   iii) Vocalics.
   iv) Proxemics. **1**

f) State whether the following statements are **TRUE** or **FALSE:**
   i) Only 7% of what we communicate is through body language.
   ii) The entering of sound waves into our ears and striking the eardrums is called hearing.
   iii) The tone of our voice conveys our mood, interest, anger etc. to the audience.
   iv) An agenda has to be circulated in advance for meetings.
   v) While listening to a song, we do the "Empathetic" type of listening. **1×5**

PART-A

Q.2 a) "Communication is an interdisciplinary subject". Argue against or in favor with evidence. **10**

b) What is the impact of using too much or too little information in one's communication? **10**

Q.3 a) How does the use of concrete words make communication more effective? Explain with an example. **10**

b) Elaborate on the 7C's and 4S's of communication. **10**

Q.4 a) Good listening results in development of a comprehensive approach and open vistas to new ideasand newer avenues". Elaborate. **10**
   b) Write short notes on *(any two)* of the following:
      i)   Different types of listening.
      ii) Role of persuasion skills.
      iii) Effective negotiation skills. **5×2**

PART-B

Q.5 What is non-verbal communication? Illustrate with suitable examples. Explain the various components of non-verbal communication in detail. **10**

Q.6 a) Why does formal letter writing still hold its relevance in the age of telecommunication? Explain the steps in the formal letter writing process in detail.
   b) Suppose you are V. Sharma. Write a cover letter to Mr. GauravGupta, Manager HR of ABC Ltd., submitting yourcandidature for an opening in his organization, about which an advertisement was published in anewspaper. **10**

Q.7 Discuss the 'advantages and disadvantages of internet usage for the youth'in 200 words. **10**

End Semester Examination, Dec. 2019
B. Sc. (Information Technology)- First Semester
BUSINESS COMMUNICATION (7.102 / COMP-502)

Time: 3 hrs.

Max Marks: **100**

No. of pages: 1

Note: *Attempt* **FIVE** *questions in all;* **Q.1 is compulsory.** *Attempt any* **TWO** *questions from* **PART-A** *and* **TWO** *questions from* **PART-B***.Marks are indicated against each question.*

Q.1 Answer the following questions in short:
   a) Define rapport and its relevance in communication.
   b) What is Extrinsic and Intrinsic personality?
   c) What are the visual aids used to make an effective presentation?
   d) What do you understand by Persuasion? What are the barriers to successful Persuasion?
   e) Define hepatics in non-verbal communication. **4x5**

PART-A

Q.2 Describe all types of communication styles. Mention the barriers to communication. **20**

Q.3 Explain all the steps for making an effective presentation. **20**

Q.4 Explain all the components of Non Verbal Communication. **20**

PART-B

Q.5 What is Active Listening? What is the importance of listening? Discuss the different barriers to active listening. **20**

Q.6 Describe the process of Negotiation. **20**

Q.7 Explain 7Cs of Communication with example. **20**

End Semester Examination, Dec. 2019
B. Sc. (Information Technology) – First Semester
FUNDAMENTALS OF COMPUTER PROGRAMMING (7.103)

Time: 3 hrs.   Max Marks: **100**

No. of pages: 1

Note: *Attempt* **FIVE** *questions in all;* **Q.1 is compulsory**. *Attempt any* **TWO** *questions from* **Part-A** *and* **TWO** *questions from* **Part-B**. *Marks are indicated against each question.*

Q.1   Write short notes on **(any two):**
   a) System development life cycle.
   b) Pseudo code and hierarchy chart.
   c) Server explorer windows.   **10x2**

PART-A

Q.2   a) What do you mean by Visual programming, non-visual programming and procedural programming? Explain in detail.   **10**
   b) What do you mean by VB environment? Explain Tool Box, solution windows, property windows in detail.   **10**

Q.3   a) Define Error. Discuss various types of errors with suitable example.   **10**
   b) What is Flowchart? Describe their types. Draw a flowchart to find the largest of three numbers.   **10**

Q.4   a) Explain the need of built-in functions in Visual Studio 2005. List out the various built-in functions that are available in the latest version.   **8**
   b) Write short note on Data Types.   **6**
   c) What do you mean by variables? What is its scope? Explain different variables used in Visual Studio.   **6**

PART-B

Q.5   Write the syntax, purpose, flowchart and example of the following:
   a) For next loop.
   b) Do loop.
   c) If Block.
   d) Select case block.   **5x4**

Q.6   a) What do you understand by arrays? Give difference between static and dynamic arrays. How can they be created? Give syntax and example.   **10**
   b) Develop a program to sort the list in ascending order.   **10**

Q.7   Write short notes on the following:
   a) Error handling mechanism.
   b) Keyboard events and Data Validation.   **10x2**

End Semester Examination, Dec. 2019
B. Sc. (Information Technology) – First Semester
FUNDAMENTALS OF COMPUTER PROGRAMMING (7.103)

Time: 3 hrs.   Max Marks: **100**

No. of pages: 1

Note: *Attempt **FIVE** questions in all;* **Q.1 is compulsory**. *Attempt any **TWO** questions from **Part-A** and **TWO** questions from **Part-B**. Marks are indicated against each question.*

Q.1   Explain/Define the following:
   a) Program.
   b) Flowchart.
   c) Sorting.
   d) Searching.
   e) Modularization.
   f) User-defined Function.
   g) Runtime error.
   h) OOP.
   i) Logical error.
   j) Pseudo Code.   **2x10**

PART-A

Q.2   What do you understand by System Development Life Cycle?   Explain it with a diagram. Also give various math functions available in Python with examples.   **20**

Q.3   Develop a program in Python to find the factorial of n number. Also draw the flowchart for the same problem.   **20**

Q.4   Discuss various built-in functions available in Python. Give an example of each. Also describe how strings are declared and accessed in Python with suitable examples.   **20**

PART-B

Q.5   Write short notes on the following:
   a) Do Loop.
   b) For Next Loop.
   c) If Block.   **20**

Q.6   Define 'array'. Give the advantages of 'arrays'. Discuss how arrays are created and accessed in Python. Give an example of its each type.   **20**

Q.7   Define 'error'. Discuss the error handling mechanism in Python with a suitable example. What is the use of finally? Give an example.   **20**

End Semester Examination, Dec. 2019
B. Sc. (Information Technology) -Second Semester
DATABASE ENGINEERING-I(7.104)

Time: 3 hrs.
Max Marks: **75**
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 the following:
   a) Define data dictionary.
   b) Discuss multivalued dependency.
   c) Differentiate file-oriented system with database system.
   d) What is transitive dependency? Discuss.
   e) Explain any two E.F. Codd rules.
   f) Define logical data independence.
   g) Discuss the objectives of three schema architecture.
   h) What is cardinality ratio? Discuss.
   i) Explain the advantages of subprograms.
   j) Discuss the importance of return statement in functions.   **1½x10**

PART-A

Q.2 What is meant by normalization? Discuss its objectives and also explain why 5th normal form is known as PJNF, explain with example.   **15**

Q.3 Differentiate between hierarchical, network and relational model with their merits and demerits.   **15**

Q.4 a) Explain E.F. Codd rules with example.   **8**
   b) Discuss the role of database administrator.   **7**

PART-B

Q.5 Differentiate between function andprocedure.What is the syntax to create store procedure? Illustrate it with suitable example.   **15**

Q.6 Explain the following with example:
   a) Union Clause.
   b) Views.
   c) Group by clause.   **15**

Q.7 What are joins? Explain all the joins with example.   **15**

End Semester Examination, Dec. 2019
B. Sc. (Information Technology) – Second Semester
COMPUTER NETWORKS-I (7.105)

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**. *Marks are indicated against each question.*

Q.1   Answer in short:
   a) Define high speed LANs.
   b) What is network standardization?
   c) Define 'computer networks.
   d) Write down the application areas of Internet.   **2½4**

PART-A

Q.2   OSI model is the pillar of communication and transmission in computer networks. Name the layers of OSI model and explain how they participate in the process of communication and transmission.   **10**

Q.3   Explain the concept of switching and discuss how does routing take place in a switched network?   **10**

Q.4   Write the role of internet protocols in computer Networks.   **10**

PART-B

Q.5   Write short notes on:
   a) Internet transport protocols.
   b) Domain name system.   **5x2**

Q.6   Justify with the help of a certain examples how do the networks face the security risks and which preventive measures can be taken to ensure network security.   **10**

Q.7   What are the Performance Issues in computer networks? Discuss in detail. **10**

End Semester Examination, Dec. 2019

B. Sc. (Information Technology) — Second Semester

FUNDAMENTALS OF COMPUTER NETWORKING (7.105A)

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**. *Marks are indicated against each question.*

Q.1 Answer in short:
   a) Define 'switching'.
   b) ISDN stands for _____ and ATM stands for _____.
   c) Wireless network security is dependent on a certain factors. Pen down the same in brief?
   d) Define 'troubleshooting'. **2x4**

PART-A

Q.2 OSI model is the pillar of communication and transmission in computer networks. Name the layers of OSI model and explain how they participate in the process of communication and transmission. **8**

Q.3 Explain the network hardware devices: Switches, Routers, and Gateways and Hub **8**

Q.4 How do X.25 and Frame Relay contribute in wireless networking? **8**

PART-B

Q.5 Write short notes on:
   a) TCP/IP Mail services.
   b) TCP/IP utilities. **4x2**

Q.6 Justify with the help of a certain examples how do the networks face the security risks and which preventive measures can be taken to ensure network security. **8**

Q.7 Discuss the role of network protocols in network management. **8**

End Semester Examination, Dec. 2019
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   Discuss the following:
   a) The business as a system.
   b) Role of Govt. agencies.
   c) Nature of legal system.
   d) Social responsibilities of business.
   e) International business environment.   **2x5**

PART-A

Q.2   Analyze the role played by the business in the society.   **10**

Q.3   What do you mean by environmental analysis? Explain its characteristics, objectives and significance.   **10**

Q.4   It is said that the internal environment of a business is affected by organizational culture, structure and strategies? Explain your answer with an example.   **10**

PART-B

Q.5   Compare and contrast between the internal and external environment of business.   **10**

Q.6   How are demand and supply related to each other?   **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**

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**. *Marks are indicated against each question.*

Q.1   a) Define an Equivalent Set.

b) Find $|A|$ if $A = \begin{bmatrix} 1 & 3 \\ 4 & 3 \end{bmatrix}$.

c) Give one example of one-one function.
d) Define central tendency.
e) What is addition law of Probability?
f) Define Directed Groups.

g) If $A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$ & $B = \begin{bmatrix} -1 & -2 \\ 3 & -4 \end{bmatrix}$ find $3A + B$.

h) What is Cartesian product?
i)   Define difference of Two Set.
j)   Define Identity Matrix.   **1x10**

PART-A

Q.2   For a certain test a candidate could offer English or Hindi or both the subjects. Total no. of student was 500, out of them, 350 appeared in English and 90 in both subjects. Find:
i)   How may appeared in english only?
ii) How many have appeared in hindi?   **5x2**

Q.3   Let $f : X \to Y$ such that

$X = \{1,3,5,7\}$ & $Y = \{0,1,2,3,4,5,6,7,8,9,10,11,12,13\}$

Find the elements if: $Y = f(x) = 2x - 1$ **10**

Q.4   Find the Inverse of the Matrix:

$A = \begin{bmatrix} 6 & 3 & -2 \\ 1 & 3 & 4 \\ 3 & 5 & 2 \end{bmatrix}$ **10**

PART-B

Q.5   Calculate the Arithmetic Mean and Median of the frequency distribution table.

Heigh (cms)	130-134	135-139	140-144	145-149	150-154
No. of Student	5	15	28	24	17

10

Q.6   A die was thrown 9,000 times and a throw of 3 or 4 was observed 3,240 times. Show that the die can't be regarded as an unbiased one.   **10**

Q.7   Write short notes on the following:
a) Minimum Spanning Tree.
b) Bipartite Graph.   **5x2**

End Semester Examination, Dec. 2019
B. Sc. (Information Technology) – Third Semester
SYSTEM ANALYSIS AND DESIGN (7.201A)

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**. *Marks are indicated against each question.*

Q.1   Answer the following in short:
    a) Define any two characteristics of a good system.
    b) Define the most creative phase of SDLC.
    c) What is fact finding?
    d) Describe behavioral Modeling.
    e) Write down the importance of data flow diagram.
    f) Name the various approaches of modular design.
    g) Identify the type of testing done with actual data and in the actual environment.
    h) Draw the structure of a testing team.   **1x8**

PART-A

Q.2   Define System. Illustrate with the help of a suitable example the various phases of SDLC.   **8**

Q.3   Differentiate between Fact finding and Fact Analysis. Explain any two information gathering tools with its advantages and disadvantages.   **8**

Q.4   What is OOAD and Object oriented analysis? Explain using good examples the paradigms of Object Oriented Modeling.   **8**

PART-B

Q.5   What are structured walkthrough? Outline the various steps required to carry out structure walk through.   **8**

Q.6   What is a DFD? Explain using a suitable example the various levels of DFD.   **8**

Q.7   Distinguish between testing and debugging. Classify the various methods of functional testing & structural testing and also compare these testing techniques.   **8**

End Semester Examination, Dec. 2019
B. Sc. (IT) – Second Semester
SYSTEM TESTING (7.202)

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**. *Marks are indicated against each question.*

Q.1   Answer the following in brief:
  a) Why should we test software?
  b) Give an overview for testing process of a software.
  c) Distinguish between 'software quality control' and 'quality assurance'.
  d) Discuss the environment where alpha and beta testing are conducted.   **2x4**

PART-A

Q.2   What are objectives of a software testing? Can this objective be 100% achieved? Justify your answer.   **8**

Q.3   Explain the relevance of V-model for software development as well as software testing. Also explain all the phases of V model with suitable diagrams.   **8**

Q.4   In BlackBoxtesting the equivalence partitioning and boundary value analysis are complementary to each other. Give relevant examples to prove this fact.   **8**

PART-B

Q.5   Differentiate between the following:
  a) Regression testing and Re-test.
  b) Manual testing and automated testing.
  c) Software testing and quality assurance.
  d) Verification and validation.   **2x4**

Q.6   Describe the methodology to measure the completeness in software testing. Explain the need of a test certification to a company for successful software implementation.   **8**

Q.7   What is the concept of continuous testing and how does this method help inimproving the software quality? Why ISO certified organizations are preferred by clients for software development?   **8**

End Semester Examination, Dec. 2019
B. Sc. (Information Technology) – Third Semester
COMPUTER ALGORITHM AND DISCRETE MATHEMATICS (7.203)

Time: 3 hrs.   Max Marks: **60**

No. of pages: 1

Note: *Attempt **FIVE** questions in all;* ***Q.1 is compulsory****. Attempt any **TWO** questions from **Part-A** and **TWO** questions from **Part-B**. Marks are indicated against each question.*

Q.1   Explain the following:
    a) Types of data.
    b) Searching.
    c) Complete tree.   **4x3**

PART-A

Q.2   Describe the different structures of data in detail.   **12**

Q.3   Discuss any two algorithms of sorting and searching in detail.   **12**

Q.4   a) A survey shows that 63% of the Indian like cheese, whereas 76% like apples. If X% of the Indian like both cheese and apples, find the value of (x).   **6**

    b) If $f : R \to R$ is defined by $f(x) = \dfrac{x}{x^2 + 1}$, find $f(f(2))$.   **6**

PART-B

Q.5   Elaborate the concept and techniques of cryptography along with suitable examples. **12**

Q.6   a) How many people atleast in a group of 85 people have the same last initials?   **6**
    b) Discuss discrete probability in detail.   **6**

Q.7   a) Write short notes on following:
      i)   Directed graphs.
      ii) Spanning tree.   **3x2**
    b) Find the solution of the following 'Recurrence Relation':
      $a_r + 5a_{r-1} + 6a_{r-2} = 0$ with initial conditions $\left((a_0 = 0),(a_1 = 1)\right)$ **6**

End Semester Examination, Dec. 2019
B.Sc. (Information Technology)—Third Semester
COMPUTER ALGORITHMS AND DISCRETE MATHEMATICS
(7.203A)

Time: 3 hrs.   Max Marks: **60**

No. of pages: 1

Note: *Attempt* **FIVE** *questions in all;* **Q.1 is compulsory.** *Attempt any* **TWO** *questions from* **PART-A** *and* **TWO** *questions from* **PART-B**. *Marks are indicated against each question.*

Q.1   Define the following:
     a) Data and its usage.
     b) Sorting.
     c) Binary Tree.   **4x3**

PART-A

Q.2   a) Briefly describe different structures of data.   **6**
       b) Explain how can we analyze an algorithm?   **6**

Q.3   Using the principle of Mathematical induction, prove that:

$$1^2 + 2^2 + 3^2 + \ldots\ldots\ldots + n^2 = \frac{n(n+1)(2n+1)}{6}$$ **12**

Q.4   a) In a class of 1000 students, 625 student pass in Mathematics and 525 pass in English. How many students pass in Mathematics only and how many pass in English only?   **6**
       b) Discuss types of Relation along with their properties.   **6**

PART-B

Q.5   Elaborate algorithm suitable examples, the concept and techniques of cryptography.   **12**

Q.6   a) How many people at least in a group of 70 people have the same last initials?   **6**
       b) Discuss Discrete Probability.   **6**

Q.7   Write short notes on the following:
     a) Types of Graphs.
     b) Properties of Trees.   **6x2**

End Semester Examination, Dec. 2019

B.Sc. (Information Technology) — Third Semester
OBJECT ORIENTED PROGRAMMING (7.205)

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

No. of pages: 2

Note: *Attempt* **FIVE** *questions in all;* **Q.1 is compulsory.** *Attempt any* **TWO** *questions from* **PART-A** *and* **TWO** *questions from* **PART-B**. *Marks are indicated against each question.*

Q.1   Multiple choice questions:
a)   Which is private member functions access scope?
i)   Member functions which can only be used within the class
ii)   Member functions which can used outside the class
iii)   Member functions which are accessible in derived class
iv)   Member functions which can't be accessed inside the class

b)   Which among the following is true?
i)   The private members can't be accessed by public members of the class
ii)   The private members can be accessed by public members of the class
iii)   The private members can be accessed only by the private members of the class
iv)   The private members can't be accessed by the protected members of the class

c)   Which member can never be accessed by inherited classes?
i)   Private member function
ii)   Public member function
iii)   Protected member function
iv)   All can be accessed

d)   Which syntax among the following shows that a member is private in a class?
i)   private: function Name(parameters)
ii)   private(function Name(parameters))
iii)   private function Name(parameters)
iv)   private::function Name(parameters)

e)   If private member functions are to be declared in C++ then _____
i)   private:
ii)   private
iii)   private(private member list)
iv)   private :- <private members>

f)   In java, which rule must be followed?
i)   Keyword private preceding list of private member's
ii)   Keyword private with a colon before list of private member's
iii)   Keyword private with arrow before each private member
iv)   Keyword private preceding each private member

g)   How many private member functions are allowed in a class?
i)   Only 1
ii)   Only 7
iii)   Only 225
iv)   As many as required

h)   How to access a private member function of a class?
i)   Using object of class
ii)   Using object pointer
iii)   Using address of member function
iv)   Using class address

i)   Private member functions _____

i) Can't be called from enclosing class
ii) Can be accessed from enclosing class
iii) Can be accessed only if nested class is private
iv) Can be accessed only if nested class is public

j) Which function among the following can't be accessed outside the class in java in same package?
i) public void show()
ii) void show()
iii) protected show()
iv) static void show()   **1½x10**

PART-A

Q.2 a) Explain any three features of object oriented programming language.
     7
     b) What are inline functions? Illustrate inline functions with an example.
     8

Q.3 Write a program to three overloaded functions to find the sum of two integers, sum of two floating point numbers and sum of three integers.
     15

Q.4 What are constructors? Explain different types of constructors with the help of suitable examples.
     15

PART-B

Q.5 What do you understand by the term inheritance in C++. How many types of inheritance supported by C++? Explain.
     15

Q.6 Explain the visibility of class members for the access specifiers:
     a) Public.
     b) Private.
     c) Protected.
     Illustrate the same with a program.
     15

Q.7 What do you mean by an Exception? How it is different from an error? Write a program that illustrates exception handling in C++ with the help of keywords: try, throw and catch.
     15

End Semester Examination, Dec. 2019
B.Sc. (Information Technology) — Third Semester
OBJECT ORIENTED PROGRAMMING (7.205A)

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

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**. Marks are indicated against each question

Q.1   a) What is bytecode?
      b) What is the size of character data type in java?
      c) Define 'stream'.
      d) Define 'array'. Write the syntax for declaring one dimensional array with example.
      e) What is constructor? Give example.
      f) Write any two applications of using package.
      g) List any two built in exceptions in java.
      h) Define 'classpath'.
      i) When do we protect access specifier?
      j) Write the structure of a java program.   **1½x10**

PART-A

Q.2   Discuss the salient features of java programming language. How java is differ from C and C++. Explain.   **15**

Q.3   What are various operators available in java? Discuss each with suitable example.   **15**

Q.4   a) What is Interface in Java? How is interface implemented? Explain it with the help of an example.   **8**
      b) What is an abstract class? Write down its uses in Java.   **7**

PART-B

Q.5   What is an Exception? How it is different from an error?Discuss in detail exception handling in java.   **15**

Q.6   Create an applet that will receive three numeric values as input from the user and then displays the largest of these on the screen. Write a simple HTML page to include this applet.   **15**

Q.7   Explain with examples the various methods supported by the Graphics class.   **15**

End Semester Examination, Dec. 2019
B.Sc. (Information Technology)—Fourth Semester
DESKTOP APPLICATIONS DEVELOPMENT(7.206)

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

No. of pages: 1

Note: *Attempt* **FIVE** *questions in all;* **Q.1 is compulsory.** *Attempt any***TWO** *questions from* **PART-A** *and* **TWO** *questions from* **PART-B**. *Marks are indicated against each question.*

Q.1   Explain following terms:
   a) Assemblies
   b) Metadata
   c) Microsoft Intermediate Language
   d) Catch
   e) Dim   **2x5**

PART-A

Q.2   What do you understand the term IDE? How it is helpful in developing application software?   **10**

Q.3

Whatarethedifferentfeaturesofobjectorientedprogrammingsystemsincontextto. NET? 'Implementing the OOPS concepts gives more security to application software'.Discuss in detail.   **10**

Q.4   Illustrate the concept of inheritance in .NET? How is runtime polymorphism implemented? Write a program to create a class Base and another class Child that inherits the class Base.   **10**

PART-B

Q.5   Differentiate between the following:
   a) DDL and DML.
   b) Data Grid view and List Box.   **10**

Q.6   Explain the ADO.NET architecture in detail. Explain the function of each component in detail. Give example.   **10**

Q.7   Write a program to execute a select query using ADO.NET and display the records in a DataGridView   **10**

End Semester Examination, Dec. 2019
B.Sc. (Information Technology)—Fourth Semester
DESKTOP APPLICATIONS DEVELOPMENT(7.206A)

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**. *Marks are indicated against each question.*

Q.1   Write short notes on the following:
  a) Inheritance
  b) DDL
  c) Encapsulation
  d) Interface   **2½x4**

PART-A

Q.2   Differentiate between the following:
  a) List Box and Combo Box.
  b) Label and Text Box.   **5x2**

Q.3   How .Net platform is more industry friendly in comparison to other programming approaches? Explain with the help of a suitable real life example.   **10**

Q.4   What is data type? What are the different data types available in VB .NET? Explain at least five with the help of example.   **10**

PART-B

Q.5   Differentiate between the following:
  a) Procedure and Function.
  b) Data Gridview and ListBox   **5x2**

Q.6   Illustrate the importance of ADO.NET using a relevant example. Explain the function of each component in detail. Give example.   **10**

Q.7   Write a program to execute a update using ADO.NET and display confirmation message using a messagebox.   **10**

End Semester Examination, Dec. 2019
B. Sc. (Information Technology) – Fourth Semester
INFORMATION SYSTEMS SECURITY (7.209A)

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**. *Marks are indicated against each question.*

Q.1   Write short notes on the following:
   a) Security
   b) Vulnerability
   c) Attacks
   d) Threats   **2x4**

PART-A

Q.2   List six phases of **SecSDLC (security SDLC)** and describe at least the four phases of the security systems development life cycle.   **8**

Q.3   Analyze the importance of information system security in today's computer era? Listfour infamous cases which force us to enhance information system security.   **8**

Q.4   Describe system security ethics which must be practiced by each employee so that data integrity is not compromised. List four cyber-crimes which are prohibited by law. **8**

PART-B

Q.5   What is contingency planning? How is it different from routine management planning? What are components of contingency planning?   **8**

Q.6   Differentiate between the working of honeypots and honey nets.   **8**

Q.7   Demonstrate the roles of an organization's IT, security, and general management with regard to physical security and how can they overcome security risks.   **8**

End Semester Examination, Dec. 2019
B. Sc. (Information Technology) – Second Semester
DATABASE ENGINEERING-II (7.214)

Time: 3 hrs.

Max Marks: **60**

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**. *Marks are indicated against each question.*

Q.1   Multiple choice questions:
   a) Data is a:
      i)   Raw fact and figure
      ii) Metadata
      iii) Information only
      iv) None of the above
   b) GRANT and REVOKE are
      i)   DDL
      ii) DML
      iii) DCL
      iv) None of the above
   c) The number of tuples in a relation is known as
      i)   Cardinality
      ii) Degree
      iii) Modality
      iv) None of the above
   d) % and _ (underscore) are
      i)   Relational Operators
      ii) Arithmetic Operators
      iii) Like Operators
      iv) None of the above
   e) Groups of procedures, functions, variables statements are put in a single unit called as
      i)   Class
      ii) PL/SQL
      iii) Package
      iv) None of the above
   f) Which of the following is true about PL/SQL index-by tables?
      i)   It is a set of key-value pairs.
      ii) Each key is unique and is used to locate the corresponding value
      iii) The key can be either an integer or a string.
      iv) All of the above.
   g) Which of following is database object?
      i)   Tables
      ii) Triggers
      iii) Functions
      iv) All of the mentioned
   h) When a transaction never progresses then we say that it is
      i)   Aborted
      ii) Starved
      iii) Shared
      iv) Locked

   i) Which of the reasons will force you to use XML data model in SQL Server?

i) Your data is sparse or you do not know the structure of the data
ii) Your data represents containment hierarchy
iii) Order is inherent in your data
iv) All of the Mentioned

j) The full form of KDD is _____.
i) Knowledge Database
ii) Knowledge Discovery Database
iii) Knowledge Data House
iv) Knowledge Data Definition

k) Which of the following part of the XML data stored in an XML column is very important for locking?
i) Granularity
ii) Degree of Structure
iii) Hierarchy
iv) None of the mentioned

l) Those candidate keys which are not selected as the primary key are called as
i) Super Keys ii) Candidate keys
iii) Alternate Keys iv) None of the above

1x12

PART-A

Q.2 a) Outline the advantages of implementing relational database management system in an organization
       6
     b) Explain the steps required to use the Management Studio.
       6

Q.3 Consider the following employee database. Primary keys are underlined. Write SQL queries to perform the following:
     Employee (Employee_id,Employee_ Name, street, city)
     Works (Employee_id, city)
     Company (Company_name, city)
     Manages (Employee_id, Manager_name)
     a) Find the names of all employee for works for ICICI Bank.
     b) Find all employees in the database who live in the same cities as the companies for which they work.
     c) Find all employees in the database who live in the same cities and on the same streets as do their managers.
     d) Find all employees who earn more than the average salary of all the employees of their company.
       12

Q.4 Write the syntax purpose and example of the following SQL command.
     a) Insert
     b) Delete
     c) Alter
     d) Update   **3x4**

PART-B

Q.5 Elaborate the usage of Management Studio for database design. Write the steps required to create views in Management Studio.
       12

Q.6 What are sub programs? Discuss the advantages of a sub program. Differentiate between procedure and functions. Give suitable example of each.
       12

Q.7   Write short notes on:
       a) BLOB
       b) CLR
          6x2

End Semester Examination, Dec. 2019

B. Sc. (Information Technology) – Second Semester
DATABASE ENGINEERING-II (7.214A)

Time: 3 hrs.   Max Marks: **60**

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**. *Marks are indicated against each question.*

Q.1   Multiple choice questions:
   a) Data is a:
      i)   Raw fact and figure
      ii) Metadata
      iii) Information only
      iv) None of the above
   b) GRANT and REVOKE are
      i)   DDL
      ii) DML
      iii) DCL
      iv) None of the above
   c) The number of tuples in a relation is known as
      i)   Cardinality
      ii) Degree
      iii) Modality
      iv) None of the above
   d) % and _ (underscore) are
      i)   Relational Operators
      ii) Arithmetic Operators
      iii) Like Operators
      iv) None of the above
   e) BCNF stands for
      i)   Babbage –codd Normal Form
      ii) Boyce codd Normal Form
      iii) Bakuscodd Normal Form
      iv) None of the above
   f) The process of normalization is
      i)   Reversible
      ii) Non reversible
      iii) Iterative
      iv) Recursive
   g) When a transaction never progresses then we say that it is
      i)   Aborted
      ii) Starved
      iii) Shared
      iv) Locked
   h) The major factor for concurrency control is
      i)   Granularity
      ii) Locking
      iii) Time Stamping
      iv) None of the above

i) Oracle provides a special table that can be used to test any function. This table is
   i) DUAL table
   ii) EMPLOYEE table
   iii) SALARY table
   iv) None of the above
j) The full form of KDD is_____
   i) Knowledge Database
   ii) Knowledge Discovery Database
   iii) Knowledge Data House
   iv) Knowledge Data Definition
k) The need of EER diagram arises depending upon the
   i) Nature of problem
   ii) Nature of entities
   iii) Preferences and database designer
   iv) All of the above
l) Those candidate keys which are not selected as the primary key are called as
   i) Super Keys
   ii) Candidate keys
   iii) Alternate Keys
   iv) None of the above
   1x12

PART-A

Q.2 a) Explain the various characteristics of Database approach.
     6
     b) Explain the three level architecture of databases with the help of a diagram
     6

Q.3 a) Draw an ER –diagram for a garment manufacturing company. The entities include warehouses, production units, marketing wing, vendor and product types. Define the relationship between each of these entities **6**
     b) Compare and contrast the features of Hierarchical, Network and Relational model? What business needs lead to the development of each of them? **6**

Q.4 a) How do we create table, views and index using SQL commands? **6**
     b) "NULL value concept is useful one but a large use of NULL VALUE in implemented database is not desirable". Comment. **6**

PART-B

Q.5 a) Explain BCNF and 4NF with appropriate examples. Prove BCNF is stronger than 3NF.
     6
     b) Describe how a database designer typically identifies the set of Functional Dependencies associated with a relation by taking suitable example. **6**

Q.6 a) Explain the purpose and scope of database security? **6**
     b) Who is a DBA? What are the responsibilities of a DBA? **6**

Q.7 a) What is a transaction? What are its properties? Why are transactions important units of operation in a DBMS?
     6
     b) What do you mean by deadlock? What are the various conditions under which a deadlock occurs? Discuss the wait die and wound wait in detail?
     6

End Semester Examination, Dec. 2019
B. Sc. (Information Technology) – Fourth Semester
OPERATING SYSTEM (7.221A)

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**. Marks are indicated against each question.*

Q.1 **Answer the following in brief:**
   a) Define operating system.
   b) Define a file.
   c) What is the difference between page and a page frame?
   d) Define race condition.
   e) Differentiate hard real system and soft real system.
   f) What is dispatcher?
   g) Name the 2 solutions for the fragmentation problem?
   h) Define FAT.

                                                                                        1x8

PART-A

Q.2 Draw Layered architecture of an operating system. Discuss in detail the various services provided by the OS.   **8**

Q.3 What is a scheduler? Explain the primary objective of scheduling. Compare various CPU scheduling algorithms with the help of suitable example.   **8**

Q.4 Compare and contrast Batch Processing, Multiprogramming, Multitasking and Multiprocessing operating system   **8**

PART-B

Q.5 What are the four necessary conditions of deadlock prevention? Explain Banker's algorithm for deadlock avoidance with suitable example.   **8**

Q.6 Distinguish between internal fragmentation and external fragmentation. Which of the two is prevalent in paging system? Illustrate paging with suitable diagram.   **8**

Q.7 Explain in detail how the file system is implemented?   **8**

End Semester Examination, Dec. 2019
B. Sc. (Information Technology) – Fourth Semester
WEB APPLICATION DEVELOPMENT (7.303)

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**. Marks are indicated against each question.*

Q.1 Multiple choice questions:
a) Which of the following web server is developed by Microsoft?
   i)   Apache Tomcat
   ii) Caudium
   iii) Internet Information Services (IIS)
   iv) HypertextMark Language
b) Which of the following is not an ASP.NET page event?
   i)   Init
   ii) Load
   iii) Import
   iv) None of the above
c) Which of the following protocol is used to transfer files from local-host to remote host?
   i)   HTTP
   ii) FTP
   iii) TOP
   iv) UDP
d) The method applied to change the styles of the elements in an ASP.NET webpage is called as _____.
   i)   Master Page
   ii) Child Page
   iii) UTF-8
   iv) CascadingStyle Sheets
e) All HTML tags require _____ for enclosing.
   i)   <>
   ii) {}
   iii) []
   iv) ? !
f) Which of the following server control shows data in a tabular format and allows sorting, paging, edit and delete each record?
   i)   List box
   ii) Grid view
   iii) Repeaters
   iv) None of the above
g) The file extension of an ASP.NET web form is:
   i)   .docx
   ii) .aspx
   iii) .jpeg
   iv) .java
h) Which of the following is the default authentication mode for IIS?
   i)   Anonymous   ii) Windows
   iii) Basic Authentication   iv) None of the above
i) Which is of the following languages can be used to write server side scripting in ASP.NET?
   i)   C - sharp
   ii) VB
   iii) C++
   iv) Bothi) and ii)
j) Which tag will be used to create a combo-box?
   i)   <SELECT>
   ii) <LIST>
   iii) <INUPT input="dropdown">
   iv) None of the above   **1x10**

PART-A

Q.2   What is ASP.NET? Explain various advantages of ASP.NET. Compare ASP.NET MVC
       framework with ASP.NET Web API framework.   **10**

Q.3   What are the different validators available in ASP.NET? Examine the use of master
       page during application development.   **10**

Q.4   Write HTML code to create the 'Railway Reservation' table with atleast 10 records
       using all attributes.   **10**

PART-B

Q.5   What is the frame in HTML? Explain the use of color codes, Vlink and Alink HTML file
       in detail.   **10**

Q.6   What is the view control in ASP.NET? Compare Grid View, Detail View, Form View and
       Tree View available in ASP.NET with suitable examples.   **10**

Q.7   What is a 3-layer application in ASP.NET? Examine the importance of business logic
       layer in construction a web application using ASP.NET.   **10**

Time: 3 hrs.

Max Marks: **75**

No. of pages: 2

Note: *Attempt* **FIVE** *questions in all;* **Q.1 is compulsory**. *Attempt any* **TWO** *questions from* **Part-A** *and* **TWO** *questions from* **Part-B**. *Marks are indicated against each question.*

Q.1 Multiple choice questions:

a) Which of the following is not an ASP.NET page event?
   i) Init
   ii) Load
   iii) Import
   iv) All of the above

b) The .NET framework provides a runtime environment, which is known as _____.
   i) RMT
   ii) CLR
   iii) RCT
   iv) DLL

c) The .Net framework which provides a automatic memory management is known as _____
   i) Serialization
   ii) Assemblies
   iii) Overriding
   iv) Garbage Collection

d) What is the base class from which all Web form inherits?
   i) Master Page
   ii) Page Class
   iii) Session Class
   iv) None of the above

e) WSDL stands for _____.
   i) Web Server Description Language
   ii) Web Server Descriptor Language
   iii) Web Services Description Language
   iv) Web Services Detection Language

f) All HTML documents will be basically _____.
   i) Graphs
   ii) Text
   iii) Picture
   iv) None of the above

g) What is the correct HTML for adding a background color?
   i) <BODY style = "background-color: yellow">
   ii) <BODY background = "yellow" >
   iii) <BACKGROUND> yellow <BACKGROUND>
   iv) None of the above

h) Which of the following is faster and consumes lesser memory?
   i) SQLDataReader
   ii) Data Set
   iii) Both i) and ii)
   iv) None of the above

i) Which of the following allow writing formatted output?

i) Response.Write()
ii) Response.Output.Write()
iii) Both i) and ii)
iv) None of the above

j) When an .aspx page is requested from the web server, the output will be rendered tobrowser in which format?
i) HTML
ii) XML
iii) WML
iv) JSP   **1½x10**

PART-A

Q.2   What is ASP.NET? Explain the advantages and disadvantages of ASP.NET in detail.   **15**

Q.3   Explain the AJAX in ASP.NET. Analyze different types of validators available in ASP.NET.   **15**

Q.4   How can one apply site navigation and themes on an ASP.NET page? Explain with suitable examples.   **15**

PART-B

Q.5   Use HTML code to construct a table of 3X3 with each cell having images IMG1.jpeg, IMG2.jpeg, …., IMG9.jpeg.   **15**

Q.6   Compare Detail View, Form View, Tree View and Data Page View available in ASP.NET.   **15**

Q.7   What is a Web Service? Explain different kinds of Web Services available in ASP.NET. **15**

End Semester Examination, Dec. 2019
B. Sc. (Information Technology) — Second Semester
REQUIREMENT MODELLING (7.217)

Time: 3 hrs.   Max Marks:**60**

No. of pages:1

Note: *Attempt* **FIVE** *questions in all;* **Q.1 is compulsory.** *Attempt any* **TWO** *questions from* **PART-A** *and* **TWO** *questions from* **PART-B**. *Marks are indicated against each question.*

Q.1   Define the following:
   a) Requirement process.
   b) Business problem.
   c) Requirement reuse.
   d) Functional requirement.
   e) Stakeholder analysis.
   f) Business analysis.   **2x6**

PART-A

Q.2   Discuss waterfall and prototype methodology. Give their advantages and disadvantages in detail.   **12**

Q.3   Differentiate between management information system, Decision support system and transaction processing system.   **12**

Q.4   What do you understand by requirement gathering and requirement classification? Discuss the various techniques of requirement gathering in detail.   **12**

PART-B

Q.5   Draw and explain the use case of student examination system.   **12**

Q.6   What do you mean by DFD? Explain context level DFD and one level DFD with example.   **12**

Q.7   Give your views on SAP NETWEAVER. Explain Netweaver application server. Also, describe the SAP services in detail.   **12**

End Semester Examination, Dec. 2019
BCA — Third Semester
PRINCIPLES OF MANAGEMENT (BCA-001CB)

Time: 3 hrs. Max Marks: **100**

No. of pages: 2

Note: *Attempt* **FIVE** *questions in all;* **Q.1 is compulsory.** *Attempt any* **TWO** *questions from* **PART-A** *and* **TWO** *questions from* **PART-B**. *Marks are indicated against each question.*

Q.1 **Multiple choice questions:**
   a) In management process, the most misinterpreted word is
      i) Organizing   ii) Delegating   iii) Controlling   iv) Planning
   b) When the strength provides superior and unique customer value and is difficult to imitate then the distinctive competence creates a sustainable
      i) Competitive advantage   ii) Scope
      iii) Resource deployment   iv) Effective strategy
   c) Management as a discipline is the function of_____.
      i) Science   ii) Art   iii) Creativity   iv) All of these
   d) The department(s) that an event management company will have is (are)
      i) Creative   ii) Production
      iii) Client servicing   iv) All of the above

Fill in the Blanks:
   e) The term manager refers to anyone who _____.
   f) _____ are important at all levels of the management, and a lack of these skills will usually limit managerial advancement, even when other skills exist.

State whether the following statements are TRUE or FALSE:
   g) There are many models that describe the behavior and roles of successful managers but no one model can be applied to all types of managers and situations.
   h) To be effective, an organization must have clearly defined sets of goals and objectives.
   i) There is a universally accepted model of a successful manager.
   j) Middle managers set goals and objectives and make decisions about the direction of the organization that affect everyone in the organization.
      2x10

PART-A

Q.2 a) Explain the various functions of Managementin briefly. Explain the three levels of management.
      10
   b) Write short notes on the following:
      i) Objectives of Planning.
      ii) Management as a Social Process.
      10

Q.3 a) Discuss the role and limitations of planning in a modern business organization.
      10
   b) Explain the various decision making techniques and the factors influencing it.
      10

Q.4 What are the different bases of departmentation? Compare departmentation by function and product.
   20

PART-B

Q.5 Benchmarking is the process of comparing business processes and performance metrics to industry bests and for best practices from other industries". Explain this statement.
   20

Q.6 a) Define 'motivation'. Explain important characteristics of motivation and the motivational process.
   10
   b) What are the leadership qualities that you would look for a manager?
   10

Q.7 a) Explain in detail the important characteristics of an effective team.
   10
   b) Write short notes on *(anytwo):*
      i) Management Information System.
      ii) PERT
      iii) HRM
      iv) Gantt chart
      v) Team building   **5x2**

End Semester Examination, Dec. 2019
BCA — Third Semester
PRINCIPLES OF MANAGEMENT (BCA-001A-CB)

Time: 3 hrs. Max Marks: **100**

No. of pages: 1

Note: *Attempt* **FIVE** *questions in all;* **Q.1 is compulsory.** *Attempt any* **TWO** *questions from* **PART-A** *and* **TWO** *questions from* **PART-B**. *Marks are indicated against each question.*

Q.1 **Multiple choice questions:**
 a) In management process, the most misinterpreted word is
   i) Organizing ii) Delegating iii) Controlling iv) Planning
 b) When the strengthprovides superior and unique customer value and is difficult to imitate then the distinctive competence creates a sustainable
   i) Competitive advantage ii) Scope
   iii) Resource deployment iv) Effective strategy
 c) The department(s) that an event management company will have is (are)
   i) Creative ii) Production iii) Client servicing iv) All of these
 Fill in the Blanks:
 d) Staffing Management, co-operations can perform good result and _____ performance.
 e) _____ identifies gaps in existing manpower.
 f) _____ refers to the process of estimating the manpower requirements of an organization.
 g) Control is a _____ function of management
 State whether the following statements are TRUE or FALSE:
 h) Delegation and Decentralization are closely related.
 i) It is important to link Human Resource with Strategic Planning.
 j) Motivation can be only monetary.
   2x10

PART-A

Q.2 a) Discuss the ten principles of management as identified by Henry Fayol.
   10
 b) Define the term management. Is management art or science? Justify your statement with suitable examples.
   10

Q.3 a) What do you meant by delegation of authority? Explain the advantages of delegation and difficulties in delegation of authority.
   10
 b) Describe the following:
   i) Objectives of Planning.
   ii) Formal and Informal Organization.
   10

Q.4 a) "Setting objectives in an organization is the most critical aspect". Justify the statement.
   10
 b) Differentiate between individual and group decision making.
   10

PART-B

Q.5 Leadership is a process by which an executive directs, guides and influences the work of others. Amplify the statement and discuss the importance of leadership in

management and also determine the significance of leadership in modern business.
20

Q.6 "Control is a process that guides activity towards some predetermined goals". Explain its importance and analyze it and also discuss the different steps in the process of control.
20

Q.7 Discuss in brief:
a) Recruitment and Selection Techniques.
10
b) Performance Appraisal and its methods.
10

End Semester Examination, Dec. 2019
BCA–ThirdSemester
LEADERSHIP AND ORGANIZATIONAL BEHAVIOR(BCA-002CB)

Time: 3 hrs.   Max Marks: **100**

No. of pages: 2

Note: *Attempt* **FIVE** *questions in all;* **Q.1is compulsory.** *Attempt any***TWO** *questions from* **PART-A** *and* **TWO** *questions from* **PART-B***. Marks are indicated against each question.*

Q.1   Multiple choice questions:
- a) Leadership is _____.
    - i) The process of influencing a group toward the achievement of goals.
    - ii) A group that achieves goals..
    - iii) The function of influencing a group towards the achievement of goals.
    - iv) Directing a group towards the achievement of goals.
- b) Reward power could be considered as:
    - i) Leader can exercise power as a result of their position in the organization.
    - ii) Leader has power because of their expert knowledge.
    - iii) Leader is able to exercise power because of their charisma and reputation.
    - iv) Leader can reward staffs who comply with instructions.
- c) **Which leadership style tends to centralize authority and make unilateral decisions?**
    - i) Cultural style.
    - ii) Autocratic style.
    - iii) Democratic style.
    - iv) Laissez-faire.
- d) Pick out the 'odd one out'?
    - i) Management science.
    - ii) Management accounting.
    - iii) Operations management.
    - iv) Systems management.
- e) **Maslow's need hierarchy theory emphasize on:**
    - i) Theory of human motives.
    - ii) Classifies basic human needs in a hierarchy.
    - iii) Theory of human motivation.
    - iv) All of the above.
- f) **A democratic leadership style has which of the following characteristics?**
    - i) Split power.
    - ii) A dictatorial leader.
    - iii) Genuine.
    - iv) Answers (i) and (ii)
    - v) Answers (ii) and (iii)
- g) The _____ theory states a manager's choice of organizational structures and control systems depends on characteristics of the external environment.
    - i) Mechanistic.
    - ii) Management science.
    - iii) Organic.
    - iv) Contingency.
- h) **Jared's** boss **encourages employees to**participate**in the**decision-**making process but does not give them complete freedom to do as they like. She has this of leadership style.**
    - i) Monarchial.
    - ii) Autocratic.

iii) Laissez-faire.
iv) Democratic
i) Which of the following theory is most fit for organizations as per current trend?
    i)   Mechanistic.
    ii) Management science.
    iii) Organic.
    iv) Contingency.
j) Research on leadership made it increasingly clear that predicting leadership success involved _____.
    i)   Proper analysis of leader consideration for people and concern for production.
    ii) Hiring managers that could demonstrate and develop trust with workers.
    iii) Something more complex than isolating a few leader traits or preferable behaviors.
    iv) was more complex than a few leader styles.
    2x10

PART-A

Q.2 a) "An individual growth in an organization can be affected by leadership and integrity". Elaborate this statement.
     10
     b) Define perception. Explain all managerial implications of perception.
     10

Q.3 a) How is management different from leadership? Explain it.
     10
     b) What is your leadership style? What are the basic traits a leader should have?
     10

Q.4 a) "Delegation of authority is a successful tool for responsibility and accountability". Justify this statement
     10
     b) Write short notes on *(any two):*
     i)   Student Leadership.
     ii) Perceptual Selectivity.
     iii) Team Building.   **5x2**

PART-B

Q.5 What is the basic process of organizational behavior? Explain all modern approaches in this context.
     20

Q.6 What do you understand by the term conflict? How many types of conflicts can arise during organizational change process? Explain their effects also.
     20

Q.7 How effective is organizational culture as a control mechanism upon which managers can rely? Explain in detail.
     20

End Semester Examination, Dec. 2019
BCA – Third Semester
LEADERSHIP AND ORGANISATIONAL BEHAVIOUR (BCA-002A (CB))

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

Note: *Attempt* **FIVE** *questions in all;* **Q.1 is compulsory.** *Attempt any* **TWO** *questions from* **PART-A** *and* **TWO** *questions from* **PART-B***. Marks are indicated against each question.*

Q.1   Multiple choice questions:
a) _____ is increasing leadership rapidly:
   i) Strategy
   ii) Command
   iii) Control
   iv) Getting others to follow
b) Regarding leadership, which of the following statement is false.
   i) Leadership does not necessarily take place within a hierarchical structure of an organization.
   ii) When people operate as leaders their role is always clearly established and defined.
   iii) Not every leader is a manager.
   iv) All of the above.
c) _____ are the approaches to the study of leadership which emphasise the personality of the leader:
   i) Contingency theories
   ii) Group theories
   iii) Trait theories
   iv) Inspirational theories
d) The effectiveness of a leader is dependent upon meeting _____ areas of need within the workgroup:
   i) One   ii) Three   iii) Five   iv) None of these
e) **An individual's motivation is dependent on:**
   i) Whether path-goal relationships are clarified
   ii) Expectations that increased effort to achieve an improved level of performance will be successful
   iii) Their effective performance
   iv) The necessary direction, guidance, training and support is provided
f) Work attitude can be reflected in an organization through
   i) Energizing   ii) Initiating Structure   iii) Deliberate   iv) Commanding
g) The model(s) of organization behavior are:
   i) Autocratic   ii) Custodial   iii) Supportive   iv) All of the above
h) The philosophy that guides an organization's policies towards its employees and customers is an important part of
   i) Management strategy
   ii) Organization behavior
   iii) Organizational culture
   iv) Organization development
i) What is play to some people may be to others?
   i) Responsibility   ii) Duty   iii) Work   iv) None of these
j) Feature(s) of Maslow's need hierarchy theory is (are):
   i) Theory of human motive
   ii) Classifies basic human needs in a hierarchy
   iii) Theory of human motivation
   iv) All of the above
   2x10

PART-A

Q.2   a) How will you encourage your team by sharing the other team member's success?
   10

b) Define leadership style. Brief any two.
    10

Q.3   a) List out similarities and differences between great man theory and trait theory.
    10
    b) Explain the following:
      i) Effective Leadership
      ii) Behavioral Theory
      10

Q.4   a) Why is it important for a leader to be in his/her ethical boundaries? How could it affect his/her leadership?
    10
    b) Write short notes on:
      i) Integrated leader
      ii) Authentic self.
      10

PART-B

Q.5   Give an example of at least one positive and at least one negative behavior in an organization. How motivation can be influenced by behavior of people? Discuss any three key elements of motivation.
    20

Q.6   a) What is the keyword in organization structure? Discuss.
    10
    b) How do group norms and status affect the behavior of an individual? Explain.
    10

Q.7   "Positive self-esteem is significant to overcome the stress". Justify this statement with the help of a real life example.
    20

Time: 3 hrs. Max Marks: **100**

No. of pages: 2

Note: *Attempt* **FIVE** *questions in all;* **Q.1 is compulsory.** *Attempt any* **TWO** *questions from* **PART-A** *and* **TWO** *questions from* **PART-B**. *Marks are indicated against each question.*

Q.1 **Multiple choice questions:**

a) The dimension of e commerce that enables commerce across national boundaries is called:
i) Interactivity   ii) Global reach   iii) Richness   iv) Ubiquity

b) Social network sites such as Facebook and Twitter have become increasingly popular for sell-side e-commerce and would normally be considered to be in which category?
i) Transactional e-commerce sites
ii) Portal, publisher or media sites
iii) Services-oriented relationship-building websitesd. Brand-building sites

c) Digital marketing (also known as e-marketing or Internet marketing) is closely related to e-commerce. It is a term increasingly used by specialist e-marketing agencies to:
i) Measure website hits
ii) Recruit specialist staff
iii) Promote their websites
iv) None of the above

d) Reach is a key characteristic achieved by e-business which refers to:
i) The potential number of customers a business can interact with
ii) The depth of information about content or products available
iii) The effectiveness of links with partners
iv) None of the above

e) Which of the following is not one of the major types of e-commerce?
i) C2B   ii) B2C   iii) B2B   iv) C2C

f) Which of the following is the largest community in classification of e-commerce?
i) Business to Business (B to B)
ii) Business to Consumer (B to C)
iii) Business to Government (B to G)
iv) Government to Government (G to G)

g) Which of the following are the benefits of E-marketing?
i) Speed   ii) Reach and Penetration   iii) Ease and Efficiency   iv) Low Cost
v) Targeted audience
i) i, ii, iii and iv only
ii) ii, iii, iv and v only
iii) i, iii, iv and v only
iv) All i, ii, iii, iv and v

h) Which of the following is an advantage of an e-book?
i) Reduced transaction costs for the user
ii) Requirement of expensive devices to use
iii) Portability compared to print books
iv) Copyright management

i) _____ is simply the use of electronic means to transfer funds directly from one account to another, rather than by cheque or cash

i) M-Banking
ii) O-Banking
iii) E-Banking
iv) D-Banking

j) Cookies are used to do which of the following
i) Store your ID and password for subsequent logons to the site
ii) Store contents of electronic shopping carts
iii) To track web activity
iv) All of the above and more

2x10

PART-A

Q.2 a) Define E-Commerce. How has E-commerce impacted on the functioning of different markets in the world?
10

b) Elaborate on the 4 C's of Ecommerce (Convergence, Collaborative Computing, and Content Management & Call Center).
10

Q.3 a) Elaborate on Digital payment systems with block diagram.
10

b) Why EFT(Electronic Fund Transfer) has become so common these days? Explain by giving its benefits.
10

Q.4 Where do we use Stored-Valued Cards and E-Cash? Elaborate on Security Schemes in Electronic Payment Systems.
20

PART-B

Q.5 Write short notes on *any two* of the following:
a) The Role of Software Agents for B2B EC.
b) Electronic Data Interchange (EDI).
c) EDI & Business.
10x2

Q.6 Where do we find the real usage of Knowledge engineering and data warehouse?
20

Q.7 How can we survive the Competition in Market space by using Ecommerce effectively?

20

End Semester Examination, Dec. 2019
BCA – Fifth Semester
PROJECT MANAGEMENT (BCA-005 (CB))

Time: 3 hrs.

Max Marks: **100**

No. of pages: 1

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

Q.1   Answer the following questions:
   a) Write the advantage of Gantt chart.
   b) Define 'project management'.
   c) List the activities of project control.
   d) List down the reason for project termination.
   e) What is crashing?
   f) Explain the technique of simulation in project management.
   g) Give names of three tools for project quality management.
   h) What is project closure analysis?
   i) What is risk management?
   j) Write any two challenges faced by the project manager.
      2x10

PART-A

Q.2   a) List the responsibilities of project manager.
         5
       b) Distinguish between software & other types of development projects.
            10
       c) Explain the structured approach of project planning.   **5**

Q.3   a) Describe the life cycle stages in project management including selection, goal setting.
            10
       b) Explain the importance of planning? How planning can help us to overcome failure?
               10

Q.4   a) Describe the concept of work break down structure in project planning.
         7
       b) Discuss the guideline for the construction of project network and enumerate the difference between PERT and CPM networks.   **7**
       c) How resource loading and leveling are done in project resource allocation?
         6

PART-B

Q.5   a) Explain the role of Simulation in making the project successful.   **10**
       b) What is Gantt chart? How Gantt chart helps in project scheduling? Give a suitable example to support your answer.   **10**

Q.6   a) Write short note on:
          i) Project Evaluation
          ii) Auditing   **5x2**
       b) In which situation the project is terminated? Justify your answer with a suitable example.
            10

Q.7   a) Describe the methods of resolving conflicts in project management.
      10

    b) Describe the various types of organizations and identify its suitability for the different project.
      10

End Semester Examination, Dec. 2019
BCA– First Semester
INTRODUCTION TO INFORMATION TECHNOLOGY AND PROGRAMMING TECHNIQUE (BCA-101(CB))

Time: 3 hrs.   Max Marks:**100**

No. of pages: 2

Note: *Attempt* **FIVE** *questions in all;* **Q.1is compulsory.** *Attempt any* **TWO** *questions from* **PART-A** *and* **TWO** *questions from* **PART-B***. Marks are indicated against each question.*

Q.1   Multiple choice questions:
   a) C language is available for which of the following Operating Systems?
      i) DOS   ii) Windows   iii) Unix   iv) All of these
   b) Binary equivalent of the decimal number 25 is _____
      i) 11001   ii) 10011   iii) 1001   iv) None of these.
   c) Find the odd one
      i) Keyboard   ii) Mouse   iii) Scanner   iv) Printer
   d) Which of the following is an Impact printer?
      i) Dotmatrix printer   ii) Laser Printer.
      iii) Inkjet printer   iv) None of these.
   e) Flash memory is a type of _____ chip.
      i) ROM   ii) PROM   iii) EEPROM   iv) EPROM
   f) The software used to translate assembly language program into a machine language program is called _____.
      i) Assembler   ii) Compiler   iii) Interpreter   iv) Linker.
   g) Who is the father of Computer?
      i) Allen Turing   ii) Charles Babbage.
      ii) Simur Cray   iv) Augusta Adaming.
   h) What is a light pen?
      i) A Mechanical Input device   ii) Electronic input device
      iii) Optical input device   iv) Optical output device
   i) Which of the following is a part of the Central Processing Unit?
      i) Printer   ii) Keyboard   iii) Moused   iv) Arithmetic   and   Logic unit.
   j) What type of computers are client computers (most of the time) in a client-server system?
      i) Mainframe   ii) Mini-computer   iii) Microcomputer   iv) PDA
      2x10

PART-A

Q.2   a) What is digital computer? Draw block diagram of digital computer and explain each components of it.
      10
      b) What is the difference between an impact printer and a non-impact printer? Which one is capable of higher speed?
      10

Q.3   a) What is the purpose of the main memory in a computer? What is the difference between a Primary memory and Secondary memory?
      10

b) What is software? Explain System and Application software. Enlist System and Application software.
10

Q.4 a) List and explain any 5 application areas of computers with relevant examples
10

b) State at least 5 differences between RAM and ROM.
10

PART-B

Q.5 a) Design an algorithm as well as flowchart for finding out largest number out of three given numbers.
10

b) What is pseudo code? How it is used as a problem-solving tool?
10

Q.6 a) What is Structured programming approach? Highlight the advantages and disadvantages of structured programming.
10

b) Define the concept of Modular programming approach?
10

Q.7 Write short notes on:
a) Compliers.
b) Interpreters.
c) Assemblers.
d) Debugging.   **5x4**

End Semester Examination, Dec. 2019

BCA - First Semester

ELEMENTS OF MATHEMATICS (BCA-102 (CB))

Time: 3 hrs.   Max Marks: **100**

No. of pages: 2

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

Q.1   a) Evaluate:

$$C(19,3)$$

b) Evaluate:

$$\frac{n! \times (n-2)}{(n-1)!}.$$

c) Define Identity Matrix.

d) Simplify:

$$\sqrt[5]{a^3} \div \sqrt[5]{a^2}$$

e) If $A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$ & $B = \begin{bmatrix} 5 & 6 \\ 7 & -1 \end{bmatrix}$ find $4A + 2B$.

f) Differentiate w.r.t. x

$$2x^4 + 3x^3 + 6x + 3$$

g) If $\begin{bmatrix} x+y & 2 \\ 5 & 7x+y \end{bmatrix} = \begin{bmatrix} -1 & 3 \\ 2 & 1 \end{bmatrix}$ find $x \& y$.

h) Change the base into common logarithm $\log_5 31 = \_\_\_\_$?

i) $\sqrt[m]{\sqrt[n]{a}} = ?$

j) State Taylor's theorem.

2x10

PART-A

Q.2   a) Find the inverse:

$$A = \begin{bmatrix} 5 & 3 & 2 \\ 1 & 4 & 3 \\ 2 & 1 & -2 \end{bmatrix}$$

10

b) Find the rank of matrix:

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

10

Q.3   a) Simplify:

$$\frac{9\left(4^x\right)^2}{16^{x+1} - 2^{x+1}.8^x}$$

10

b) Show that:
$$\log 2 + 16\log\frac{16}{15} + 12\log\frac{25}{24} + 7\log\frac{81}{80} = 1$$

10

Q.4 a) Find the 7th term in the expansion of $\left[\dfrac{3x^2}{2} - \dfrac{1}{3x}\right]^8$

10

b) How many different words can be made out of the letters of the word ALLAHABAD? In how many of these will the vowels occupy even places?

10

PART-B

Q.5 a) Evaluate:
$$\frac{\tan 66^0 + \tan 69^0}{1 - \tan 66^0.\tan 69^0}$$

10

b) Evaluate:
$$\sin 50^0 \cos 10^0 + \cos 50^0 \sin 10^0$$

10

Q.6 a) Differentiate w.r.t x:
$$\sqrt{\frac{\cos\theta - \sin\theta}{\cos\theta + \sin\theta}}$$

10

b) Discuss the continuity at x = 0
$$f(x) = \begin{cases} \dfrac{1 - \cos x}{x^2}, & x \neq 0 \\ \dfrac{1}{2}, & x = 0 \end{cases}$$

10

Q.7 a) Expand $\log(1+x)$ in the power of (x) by Maclaurin's Theorem.

10

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

10

End Semester Examination, Dec. 2019
BCA—FirstSemester
HARDWARE INTERFACES(BCA-103(CB))

Time: 3 hrs. Max Marks: **100**

No. of pages: 1

Note: *Attempt **FIVE** questions in all; **Q.1is compulsory.** Attempt any**TWO** questions from **PART-A** and **TWO** questions from **PART-B**. Marks are indicated against each question.*

Q.1 Answer the following:
a) MBR stands for _____.
b) DPI stands for _____.
c) BIOS stands for _____.
d) AGP stands for _____.
e) PCI stands for _____.
f) BRD stands for _____.
g) UART stands for _____.
h) CMOS stands for _____.
i) POST stands for _____.
j) Laserjet is a type of _____ printer. **2×10**

PART-A

Q.2 a) What is difference between intel Pentium IV and Celeron processor? **10**
b) What is DMP printer? Write the advantages and limitations of DMP printer. **10**

Q.3 a) What is the role of keyboard controller? **5**
b) What do you mean by super-controller? **5**
c) State 10 unique features of intel i9 processor. **10**

Q.4 Write short notes on the following:
a) Cache memory.
b) Errors of printers.
c) Laser printer.
d) Processor overclocking. **5×4**

PART-B

Q.5 a) What is bootstrap loader? Write the complete booting sequence. **10**
b) Explain the concept of north and south bridge. **10**

Q.6 a) What are plug-and-play devices? Why these devices are preferred over other types of devices? **10**
b) Name five types of security threats to computer data. **5**
c) List 5 ways by which the security of data can be enhanced. **5**

Q.7 a) How SMPS helps in protecting the hardware devices? **10**
b) Explain the USB architecture. **10**

End Semester Examination, Dec. 2019
BCA– First Semester
HARDWARE INTERFACES(BCA-103A (CB))

Time: 3 hrs.   Max Marks:**100**

No. of pages: 1

Note: *Attempt* **FIVE** *questions in all;* **Q.1is compulsory.** *Attempt any* **TWO** *questions from* **PART-A** *and* **TWO** *questions from* **PART-B***. Marks are indicated against each question.*

Q.1   Define the following:
a) Draft quality printing.
b) Over-clocking in processor.
c) Limitations of DMP printer.
d) DIMM.
e) Bad sectors in hard disk.
f) EPROM.
g) Interrupt in computer.
h) Use of Anti-Virus.
i) Role of bridge on motherboard?
j) Use of captcha.
2x10

PART-A

Q.2   a) Compare the features of Intel i3, i5 and i7. Explain each feature in detail.
10
b) Write a short note on the latest operating system of Microsoft.
10

Q.3   a) Explain the working of keyboard controller with the help of Keyboard matrix diagram.
10
b) Write the steps to connect a wireless printer with your mobile.
10

Q.4   a) Explain the working of Cache Memory, RAM, and Hard disk.
10
b) Write a short note on SIMM.
10

PART-B

Q.5   a) "USB is one of the most widely used techniques of today's time".USB drive works on plug and play approach. Defend the usefulnessof plug and play in detail.
10
b) Explain the role of North Bridge and South Bridge in detail.
10

Q.6   Explain the working of ISA, EISA, PCI and USB in detail.
20

Q.7   a) Compare the working of ransom ware and spyware.
10

b) List 5 techniques which must be adopted by an aware internet user so that financial as well as digital frauds canbe avoided.
10

End Semester Examination, Dec. 2019
BCA– First Semester
FUNDAMENTALS OF 'C' PROGRAMMING (BCA-104(CB))

Time: 3 hrs.   Max Marks:**100**

No. of pages: 2

Note: *Attempt **FIVE** questions in all; **Q.1is compulsory.** Attempt any **TWO** questions from **PART-A** and **TWO** questions from **PART-B**. Marks are indicated against each question.*

Q.1   Multiple choice questions:
   a) C was primary developed as:
      i)   System programming language.
      ii) General purpose language
      iii) Data processing language
      iv) None of above
   b) A C variable cannot start with:
      i)   A number.
      ii) A special symbol other than underscore.
      iii) Both of above.
      iv) An alphabet.
   c) Use of functions:
      i)   Helps to avoid repeating a set of statements many times.
      ii) Enhances the logical clarity of program.
      iii) Helps to avoid repeated programming across programs.
      iv) Makes the debugging task easier.
      v)   All of the above.
   d) Any C program:
      i)   Must contain at least one function.
      ii) Need not contain any function.
      iii) Need input data.
      iv) None of the above.
   e) Which is the only function all C programs must contain?
      i)   start()
      ii) system()
      iii) main()
      iv) printf()
      v)   getch()
   f) What will be the output of the following program.
      ```c
      #include<stdio.h>
      int main()
      {
            enum{orange=5, mango, banana=4,peach};
            printf("peach=%d\n",peach);
      }
      ```
      i)   peach=3
      ii) peach=4
      iii) peach=5
      iv) peach=6
   g) Which of the following is not a valid variable name declaration?
      i)   int _a3;
      ii) int a_3;
      iii) int 3_a;
      iv) int _3a;
   h) All keywords in C are in:

i) lower case letter
ii) upper case letter
iii) camel case letter
iv) none of the above mentioned
i) In the following code snippet character pointer str holds a reference to the string
_____ char *str = "manavrachna\0""training classes";
i) manavrachna
ii) manavrachna\0training classes
iii) manavrachnatrainingclasses
iv) invalid declaration.
j) Who is the father of C language?
i) Bjarne Stroustrup
ii) James.A.Gosling
iii) Dennis Ritche
iv) Dr E F Codd
    2x10

PART-A

Q.2 a) Describe the concept of variable and explain the need/purpose of global variables and their scope and lifetime.
    10

b) Chart the various types of operators in tabular form with example.
    10

Q.3 Briefly describe the following:
a) #define
b) #under
c) #if
d) Printf()
e) Scanf()
f) Getch()
g) Getche()
h) Getchar()
i) Putch()
j) Putchar()
    2x10

Q.4 a) What are arrays?How many types of array do C support? Give the advantages and disadvantages of arrays.
    10

b) Create a program in C to find number of vowels, constants, digits in a given string.**10**

PART-B

Q.5 a) Differentiate between * and ** by explaining the concept of pointers.
    10

b) Briefly explain pointer to a function. Write a program to explain the same.
    10

Q.6 a) Discuss about structures and their need. Differentiate between Array of structure and array of union?
    10

b) Differentiate the following:
i) Call by value and Call by reference.
ii) Actual arguments and formal arguments.   **5x2**

Q.7 a) Explain the following functions to access files randomly:
i) fseek()

ii) ftell()
iii) rewind()
iv) fflush()   **2½x4**

b) Define the input and output functions of file handling given below:
   i)   fopen()
   ii) fprinif()
   iii) fclose()
   iv) putc()
   v)   getc()   **2x5**

End Semester Examination, Dec. 2019

BCA – First Semester

LOGICAL ORGANIZATION OF COMPUTERS (BCA-105 CB)

Time: 3 Hours   Max   Marks: **100**

Note: *Attempt* **FIVE** *questions in all.* **Q.1 is compulsory**. *Attempt Any* **TWO** *questions from* **PART-A** *and two questions from* **PART-B**. *Marks are indicated against each question.*

Q.1   Multiple choice questions:

a) Maximum number of bits required to represent any character from ASCII code set is:
   i) 10   ii) 8   iii) 7   iv) 3

b) The number of flip flops needed to construct a binary module N counter is:
   i) N   ii) 2^N iii) N^2 iv) $\log_2 N$

c) Instruction cycle is defined as:
   i)   Time required to complete the execution of an instruction.
   ii) Time required to complete data transfer from memory.
   iii) Time taken to complete a CPU reference.
   iv) None of these.

d) Binary equivalent of hexadecimal number (F4B7) is:
   i)   1111 0100 1011 0111.
   ii) 1001 0100 1111 0000.
   iii) 1011 1100 1100 1010.
   iv) None of the above.

e) EBCDIC code is an abbreviation of:
   i)   Example Binary Computer Decimal Information Code.
   ii) Extended Binary Coded Decimal Information Code.
   iii) EXOR bits Coded Information Code.
   iv) None of the above.

f) In signed magnitude representation +ve and –Ve numbers are represented in?
   i)   +ve by 0 and –ve by value of sign bit.
   ii) +ve by 1 and –ve by value of sign bit.
   iii) Depends on the magnitude of a number
   iv) None of the above.

g) Which gate is inverted OR gate?
   i)   NAND.
   ii) NOR.
   iii) AND.
   iv) XOR gate.

h) Parity bit is:
   i) It is an extra bit included with a binary message to make the number '1' either even or odd.
   ii) It is bit named parity.
   iii) It is a bit having a level other than 0 or 1.
   iv) None of the above.

i) A Multiplexer is also known as:
   i)   Encoder.
   ii) Decoder.
   iii) Data Selector.

iv) None of the above.
j) In Virtual memory system the address space specified by address lines of CPU must be _____ then physical memory size and _____ secondary storage size.
   i) Smaller, larger
   ii) Smaller, smaller
   iii) Larger, smaller
   iv) Larger, larger
      2x10

PART-A

Q.2 a) Explain the importance of binary number system in computers. **6**
     b) Convert the following:
        i) $($ _____ $)_2 = ($ _____ $)_8 = ($ _____ $)_{16} = (449.6)_{10}$
        ii) $($ _____ $)_2 = ($ _____ $)_8 = (AA1.D)_{16} = ($ _____ $)_{10}$
           14

Q.3 a) Design a circuit for the following Boolean expression using NAND gates.
        i) $Y = A + B'C + AC$
        ii) $Y = AB + ABC + A'B + AB'$
           10
     b) Explain NAND and NOR as universal gates in detail.
        10

Q.4 a) Simplify the following using KMap.
        $F(A,B,C) = \pi (1,3,4,6)$
        $F(X,Y,Z) = \Sigma(3,4,5,7)$
        10
     b) Convert the following expression to its other canonical form.
        $F(A,B,C) = \pi (1,3,4,6)$
        10

PART-B

Q.5 a) Explain multiplexer with a diagram. Construct a 16 to 1 line multiplexer with two 8 to 1 line multiplexer and one 2 to 1 line multiplexer. Use block diagram for the three multiplexers.
        10
     b) Explain the working of full subtractor circuit
        10

Q.6 Differentiate between synchronous and asynchronous counters. Design a 4bits binary synchronous counter.
     20

Q.7 Explain the following *(any two):*
     a) Classification of memory.
     b) Pipelining.
     c) Microprocessor.
        10x2

End Semester Examination, Dec. 2019
BCA – First Semester
LOGICAL ORGANIZATION OF COMPUTERS (BCA-105A CB)

Time: 3 Hours   Max   Marks: **100**

No. of pages: 2

Note: *Attempt **FIVE** questions in all. **Q.1 is compulsory**. Attempt Any **TWO** questions from **PART-A** and Two questions from **PART-B**. Marks are indicated against each question.*

Q.1   **Answer the following questions:**
   a) One byte is a group of _____bits.
   b) A half adder is a _____ circuit.
   c) **In Boolean algebra, invert operation is.**
      i) **OR operation**
      ii) **AND operation**
      iii) **NOT operation**
      iv) **None of the above**
   d) Binary codes are classified as_____ codes and _____codes.
   e) In 4-to-1 multiplexer, how many select lines are required?
      i) 2
      ii) 3
      iii) 4
      iv) 5
   f) The Hamming code is a method of
      i) Error detection
      ii) Error correction
      iii) Error encapsulation
      iv) (a) and (b)
   g) **What is Encoder?**
   h) The output of a full adder is
      i) Sum ,Carry(in), Carry(out)
      ii) Sum and Carry
      iii) Carry
      iv) None of these
   i) There are _____ cells in a 3-variable K-map.
      i) 12
      ii) 16
      iii) 18
      iv) 8
   j) The basic storage element in a digital system is
      i) Flip flop
      ii) Counter
      iii) Multiplexer
      iv) Encoder

         2x10

PART-A

Q.2   Determine the following:
   a) $(A2F.BF)_{16} = (\qquad)_8 = (\qquad)_{10}$
   b) $(163.875)_{10} = (\qquad)_{16} = (\qquad)_2$

c) $(100101.101010)_2 = ($ $)_8 = ($ $)_{10}$

d) $(457.3)_8 = ($ $)_{10} = ($ $)_{16}$ **5x4**

Q.3   Simplify the following using K-Map

a) Σ m (5,6,7,9,10,11,12,13,15)

b) Σ m (1,2,3,5,6,8,13,14,15)

      10x2

Q.4   a) Define various logic gates? Describe each type of Gate with its truth table and logic diagram

      10

b) Explain why NAND and NOR gates are known as universal gates. Design all basic gates with the help of universal gates.

      10

PART-B

Q.5   a) Compare and contrast combinational and sequential circuit?

      10

b) With the help of a logic diagram and a truth table, explain a 2:4 Line decoder.

      10

Q.6   a) Explain various types of Flip-flops with suitable example.

                                        10

b) Write short note on

    i)   Multiplexers.

    ii)   Half Adders.   **5x2**

Q.7   Compare and contrast the following:

a) Synchronous and Asynchronous counter.

b) Combinational Vs Sequential circuit.

      10x2

End Semester Examination, Dec. 2019
BCA – Second Semester
DATA STRUCTURE USING "C" (BCA-203CB)

Time: 3 hrs.

Max Marks: **100**

No. of pages: 1

Note: *Attempt **FIVE** questions in all; **Q.1 is compulsory.** Attempt any **TWO** questions from **PART-A** and **TWO** questions from **PART-B**. Marks are indicated against each question.*

Q.1   Define the following:
   a) Information.
   b) Stack.
   c) Sparse Array.
   d) Traversing.
   e) Hashing.
   f) Binary Tree.
   g) Merging.
   h) File.
   i) Deque.
   j) Space Complexity.   **2x10**

PART-A

Q.2   What do you understand by arrays? Develop a program in C language to insert a new element in the middle of the list.Explain, how address are calculated in arrays. Give example.   **20**

Q.3   Develop a program in C language to perform all operations of the queue using the concept of functions.   **20**

Q.4   Differentiate linked list and double linked list. Write an algorithm to insert and delete an element from the Double Linked List. Also, discuss the applications of Double Linked list.   **20**

PART-B

Q.5   Write short notes on the following:
   a) Binary search trees.
   b) Threaded tree.   **10x2**

Q.6   Explain with an example:
   a) Shortest path problem.
   b) Traversing a graph.   **10x2**

Q.7   What do you understand by searching? Discuss the various techniques available in Searching. Write the algorithm and example for each.   **20**

End Semester Examination, Dec. 2019
BCA – Second Semester
DATA STRUCTURE USING "C" (BCA-203A(CB))

Time: 3 hrs.   Max Marks: **100**

No. of pages: 1

Note: *Attempt* **FIVE** *questions in all;* **Q.1 is compulsory.** *Attempt any* **TWO** *questions from* **PART-A** *and* **TWO** *questions from* **PART-B**. *Marks are indicated against each question.*

Q.1   Define the following:
a) Data.
b) Searching.
c) Sorting.
d) Traversing.
e) Recursion.
f) Tree.
g) Graph.
h) File.
i) Time Complexity.
j) Space Complexity.   **2x10**

PART-A

Q.2   What do you understand by data structures? Discuss various types of data structure.Why it is required? Develop a program in C language to sort the list in ascending order.   **20**

Q.3   Develop a program in C language to perform all operations of the stack using the concept of functions.   **20**

Q.4   Differentiate 'linked list' and 'circular linked list'. Write an algorithm to insert and delete an element from the circular linked list. Also, discuss the applications of circular linked list.   **20**

PART-B

Q.5   Write short notes on the following:
a) AVL trees.
b) B tree.   **10x2**

Q.6   Define with an example:Directed graph, minimum spanning tree, linked representation of graph, shortest path problem, traversing a graph.   **20**

Q.7   What do you understand by hashing? Discuss the various techniques in hashing with a suitable example of each. Also, mention various collision resolution techniques.   **20**

End Semester Examination, Dec. 2019
BCA – Second Semester
DATABASE MANAGEMENT SYSTEM (BCA-204(CB))

Time: 3 hrs.   Max Marks:**100**

No. of pages:2

Note: *Attempt* **FIVE** *questions in all;* **Q.1is compulsory.** *Attempt any* **TWO** *questions from* **PART-A** *and* **TWO** *questions from* **PART-B**. *Marks are indicated against each question.*

Q.1   Multiple choice questions:
  a) The physical storage structures or devices could be changed without affecting the conceptual schema. This is known as
     i)   Physical Data Independence
     ii) Logical Data Independence
     iii) External Data Independence
     iv) None of the above
  b) GRANT and REVOKE are:
     i)   DDL
     ii) DML
     iii) DCL
     iv) None of the above
  c) The restrictions placed on the data:
     i)   Relation
     ii) Attribute
     iii) Parameter
     iv) Constraint
  d) The view of total database content is:
     i)   Conceptual view.
     ii) Internal view.
     iii) External view.
     iv) Physical view.
  e) A locked file can be _____.
     i)   Accessed by only one user.
     ii) Modified by users with correct password.
     iii) Is used to hide sensitive information.
     iv) Both ii) and iii).
     v) None of the above.
  f) An unnormalized relation contains values:
     i)   Atomic
     ii) Non-atomic
     iii) Classified
     iv) None of the above
  g) When a transaction never progresses then we say that it is
     i)   Aborted
     ii) Starved
     iii) Shared
     iv) Locked
  h) The major factor for concurrency control is
     i)   Granularity
     ii) Locking
     iii) Time Stamping
     iv) None of the above
  i) Oracle provides a special table that can be used to test any function. This table is

i) DUAL table
ii) EMPLOYEE table
iii) SALARY table
iv) None of the above
j) Transaction processing is associated with everything below except
i) Producing detail, summary, or exception reports.
ii) Recording a business activity.
iii) Confirming an action or triggering a response.
iv) Maintaining data.

2x10

PART-A

Q.2 a) Define: Data, DBMS, Record, File, Field in brief.

10

b) Explain three level architecture of DBMS.

10

Q.3 a) Draw an ER –diagram for a garment manufacturing company. The entities include warehouses, production units, marketing wing, vendor and product types. Define the relationship between each of these entities.

10

b) Differentiate between hierarchical, network and relational database models with their relative merits and demerits of each.

10

Q.4 a) Write the following queries using following schema.
Student (student-Id, student-Name, Address, Gender, Course, Percentage)
i) Insert five records in student table.
ii) List all the students who are enrolled in course "BSc".
iii) Update the record of student whose roll no is 3 from BCA to MCA.
iv) Add column "Age" to table.
v) List the order of students from higher percentage to lower percentage.

10

b) Write any two DML commands in SQL with format and example

10

PART-B

Q.5 a) Explain BCNF and 3NF with appropriate examples. Prove BCNF is stronger than 3NF.

10

b) What is functional dependency? Write down the rules for finding Functional Dependency from a set of Functional Dependency.

10

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

20

Q.7 What is distributed database? What are the advantages and disadvantages of using distributed databases? Explain the architecture of distributed databases with suitable diagram.

20

End Semester Examination, Dec. 2019
BCA – Second Semester
INTERNET TECHNOLOGIES (BCA-205 (CB))

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

Note: *Attempt* **FIVE** *questions in all;* **Q.1 is compulsory**. *Attempt any* **TWO** *questions from* **Part-A** *and* **TWO** *questions from* **Part-B**. *Marks are indicated against each question.*

Q.1   Answer the following:
   a) A web browser is:
      i)   A program that can display a web page.
      ii) A program used to view html document.
      iii) A program that is used for searching a topic.
      iv) All of the above.
   b) The DHCP server can provide the _____ of the IP addresses:
      i)   Dynamic allocation.
      ii) Automatic allocation.
      iii) Static allocation.
      iv) All of the above.
   c) Internet and Intranet are one and the same thing:
      i)   True   ii) False
   d) Protocol is the term that define rules and regulations over Internet.
      i)   True   ii) False
   e) An attempt to make a computer resource unavailable to its intended users is called
      _____.
   f) Key Logger is a _____.
   g) DNS is _____.
   h) Domain name ending with .org is _____.
   i) Verification of a login name and password is called:
      i)   Configuration.   ii) Accessibility.
      iii) Authentication.   iv) Logging in.
   j) Html program can be read and rendered by:
      i)   Compiler.   ii) Web browser.
      iii) Server.   iv) Interpreter.
      2x10

PART-A

Q.2   a) Differentiate between:
         i)   Internet, Extranet and Intranet.
         ii) LAN, WAN and MAN.   **5x2**
      b) Define Web Browsers. Explain the features of few web browsers.
         10

Q.3   a) Illustrate the steps of creating an E-mail account.
         10
      b) Explain various Meta Search Engines and their working.
         10

Q.4   Write short notes on the following:
      a) DHCP protocol.
      b) DNS and its working.
      c) FTP.

d) Hierarchal routing and routing protocols. **5x4**

PART-B

Q.5 a) Explain Copyright laws and why they are important.
10
b) Explain Ethical rules need to be followed on Internet.
10

Q.6 a) Explain Cross Site Scripting and how it can be fixed.
10
b) Differentiate between active and passive scanning techniques.
10

Q.7 a) What is identity theft? Explain with example.
10
b) Give the different methods to protect ourselves from Cybercrime? Explain in detail.

10

End Semester Examination, Dec. 2019

BCA – Second Semester

INTERNET TECHNOLOGIES (BCA-205A (CB))

Time: 3 hrs.

Max Marks: **100**

No. of pages: 1

Note: *Attempt* **FIVE** *questions in all;* **Q.1 is compulsory**. *Attempt any* **TWO** *questions from* **Part-A** *and* **TWO** *questions from* **Part-B**. *Marks are indicated against each question.*

Q.1   Fill in the blanks:
  a) _____is Global system of interconnected computer network.
  b) HTTP works on _____ architecture.
  c) The full form of URL is _____.
  d) _____ is considered as the father of the Web.
  e) A _____ is software that is used to access the internet.
  f) MIME stands for_____.
  g) A _____is a piece of software gives the browser additional functionality.
  h) _____ and _____ is known as internet protocol.
  i) A Computer Program that is used to retrieve information as per user requirement is known as _____.
      2x10

PART-A

Q.2   a) What is the role of web browser in accessing internet? List down the mandatory steps required to access internet
      10
  b) Explain the architecture of internet in detail.
      10

Q.3   a) Explain the working of DNS.
      10
  b) Is DHCPbased on client server architecture? Explain.
      10

Q.4   a) Can communication be unlawful? Justify your answer with some example.
      10
  b) Explain copyright laws by taking some real life example.
      10

PART-B

Q.5   a) What is the difference between active and passive scanning technique.
      10
  b) How can Cross site scripting be fixed? State in brief.
      10

Q.6   Why there is a need of legal protection from cyber-crimes? Explain data security threat techniques.
      20

Q.7   What do you understand by the term IoT? Explain the difference between device to device (D2D) and machine to machine (M2M) integration.
      20

End Semester Examination, Dec. 2019
Bachelor of Computer Application – Third Semester
NUMERICAL ANALYSIS AND STATISTICAL TECHNIQUES
(BCA-301 (CB))

Time: 3 hrs. Max Marks: **100**

No. of pages: 2

Note: *Attempt* **FIVE** *questions in all;* **Q.1 is compulsory**. *Attempt any* **TWO** *questions from* **Part-A** *and* **TWO** *questions from* **Part-B**. *Marks are indicated against each question.*

Q.1 Answer the following questions:
  a) Discuss Newton's backward difference table.
  b) Define 'Mean'
  c) Number of significant digits in the number 301.024190 is _____.
  d) Least square method is also known as _____.
  e) Order of convergence of false position method is _____.
  f) Define 'Regression'.
  g) What is Bisection Method?
  h) Define Interpolation.
  i) Mean value of Binomial Distribution is _____.
  j) Iteration method is a self-correcting method. **(True/False)**
      2x10

PART-A

Q.2 a) Evaluate: $\int\limits_{0}^{1} e^{3x}dx$ by Simpson's $\dfrac{1}{3}^{rd}$ rule.
      10
  b) By Newton-Raphson method, the real root of equation $3x = \cos x + 1$ correct to four decimal place.
      10

Q.3 a) Find a real root of the equation $x^3 - 2x - 5 = 0$ by the method of false position correct to three decimal places.
      10
  b) Discuss the steps to make forward difference table.
      10

Q.4 For the following table, find $y(2.5)$ and $y(3.9)$ using suitable interpolation formula.

X	1	2	3	4
Y	1	8	27	64

      20

PART-B

Q.5 a) Calculate the arithmetic mean, median and mode for the following given data:

Salary (Rs) (Thousand)	5-10	10-15	15-20	20-25	25-30
No. of employees	20	18	11	14	9

10

b) Discuss about Regression Lines.
    10

Q.6   The following data relate to the age of (10) employees and number of days which they reported sick in a month:

Age	20	30	32	35	40	46	52
Sick days	11	12	10	13	14	16	15

Calculate Karl Pearson's coefficient of correlation and interpret its value.
    20

Q.7   a) Compare and analyze Type-I and Type-II errors in statistics.
        10
    b) Write short notes on the following:
        i) Non-random sampling.
        ii) Sampling errors.
        5x2

End Semester Examination, Dec. 2019
BCA – Fourth Semester
NUMERICAL ANALYSIS AND STATISTICAL TECHNIQUES
(BCA-301A (CB))

Time: 3 hrs.   Max Marks: **100**

No. of pages: 1

Note: *Attempt* **FIVE** *questions in all;* **Q.1 is compulsory**. *Attempt any* **TWO** *questions from* **Part-A** *and* **TWO** *questions from* **Part-B**. *Marks are indicated against each question.*

Q.1   Answer the following questions:
    a) Define Transcendental Equation.
    b) Define Correlation.
    c) Write relationship between Mean, Median and Mode.
    d) What is Bisection Method?
    e) Mean value of normal distribution is _____.
    f) The significant digits in the number 301.032410 is _____.
    g) Rule (1) of Absolute error because of Truncation.
    h) What is Absolute Error?
    i) Iteration method is a self-correcting method. **(True/False)**
    j) Name Best Fit method.
       2x10

PART-A

Q.2   Use Newton-Raphson method to find a root of the equation $x^2 - 2x - 5 = 0$
    20

Q.3   Find Y(.1) correct to four decimal places from Taylor's series for y(x) if y(x) satisfies.
$$\frac{dy}{dx} = x - y^2, \quad y(0) = 1$$
    20

Q.4   Evaluate $\int_{0}^{3} \frac{1}{1+x^2} .dx$ by
    a) Trapezoidal Rule
    b) Simpson's $\frac{1}{3}^{rd}$ Rule
      20

PART-B

Q.5   a) What do you mean central Tendency of a data?
      5
    b) Calculate Karl Pearson's coefficient from the following data and interpret its value:

Marks in Account:	38	25	16	22	46
Marks in Statistics:	35	30	39	24	44

      15

Q.6   a) Find the normal distribution to which mean is 3 and variance is 2.
      10

b) In a single throw of two distinct dice, what is the probability of obtaining?
   i) A total of 7.
   ii) A total as even umber.
   10

Q.7   Write short notes on the following:
   a) Random sampling.
   b) Stratified sampling.
       10x2

End Semester Examination, Dec. 2019
BCA – Third Semester
OBJECT ORIENTED PROGRAMING USING C++ (BCA-302 (CB))

Time: 3 hrs.

Max Marks: **100**

No. of pages: 1

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

Q.1
a) Two access specifiers used in a class in C++ are _____ and _____.
b) Two numeric data types available in C++ are _____and _____.
c) An array is a _____data type in C++.
d) Two looping statements available in C++ are _____and _____.
e) Constructor overloading is a special type of _____.
f) Give one advantage of Inheritance.
g) Exception Handling deals with errors which occur during _____.
h) Order of execution of destructors is _____.
i) Give syntax of If Else statement in C++.
j) Friend function is used to_____.

PART-A

Q.2   Define the following terms:
a) Object.
b) Class.
c) Encapsulation.
d) Abstraction.   **5x4**

Q.3   Explain with suitable examples all the conditional statements available in C++.   **10**

Q.4   Describe the advantages and disadvantages of the following:
a) Friend function.
b) Static data member.
c) Inline function.
d) Static member function.   **5x4**

PART-B

Q.5   Demonstrate the use of the following using suitable examples:
a) Function Overloading.
b) Inheritance.
c) Dynamic memory management.
d) Virtual function.   **5x4**

Q.6   Differentiate the following:
a) Single and Multiple inheritance.
b) Virtual and Pure virtual function.
c) Constructor and Destructor.
d) Early and Late binding.   **5x4**

Q.7   Analyze the performance of a program written in C++ by including and excluding the concept of Exception handling.   **20**

End Semester Examination, Dec. 2019

BCA – Third Semester

OBJECT ORIENTED PROGRAMMING USING C++(BCA-302(CB))

Time: 3 hrs.   Max   Marks: **100**

No. of pages: 1

Note: *Attempt **FIVE** questions in all; **Q.1 is compulsory**. Attempt any **TWO** questions from **Part-A** and **TWO** questions from **Part-B**. Marks are indicated against each question.*

Q.1   Answer the following:
   a) Define 'inheritance'.
   b) What are various data types used in C++?
   c) What is syntax of inline function?
   d) Define 'friend function'.
   e) Write various types of constructor?
   f) What do you mean by polymorphism?
   g) Give syntax for multi-dimensional array.
   h) What do you mean by pure virtual function?
   i) Give the use of get() and put() function.
   j) Write down various unary operators in C++.   **2x10**

PART-A

Q.2   a) State the important features of object oriented programming. Compare the issues of procedure oriented systems with respect to object oriented systems?   **10**
   b) Describe the following characteristics of OOP.
      i)   Encapsulation.
      ii) Polymorphism.
      iii) Inheritance.   **5x2**

Q.3   a) Discuss function prototyping, with an example. Also write its advantage.   **10**
   b) Define function overloading. Write a C++ program to define three overloaded functions to swap two integers, swap two floats and swap two doubles.   **10**

Q.4   a) Write a program to create class student and implement concept of array of object. **10**
   b) Explain the visibility of base class members for the access specifiers: private, protected and public while creating the derived class and also explain the syntax for creating derived class.   **10**

PART-B

Q.5   a) List the characteristics of a constructor. Write a C++ program to define a suitable parameterized constructor with default values for the class distance with data members feet and inches.   **10**

   b) What do you mean by method overloading? Explain concept of constructor overloading with example.   **10**

Q.6   Write a program to create a class STUDENT having data member roll numbercreateclasses TEST and SPORTS from class student having data member marks of two test and sports score respectively. All three classes contain functions. i) to set values of data members ii) to display values of data members. Create class RESULT from Class test and sport having data member total & member function to

calculate total, display all information of student. Create one object of class result and call proper functions.**20**

Q.7 a) Define 'exception handling'. Explain the use of try, catch and throw for exception handling in C++.   **10**

  b) Explain the use of ifstream and ofstream classes for file input and output.   **10**

End Semester Examination, Dec. 2019
BCA – Third Semester
OBJECT ORIENTED PROGRAMING USING C++ (BCA-302A (CB))

Time: 3 hrs.   Max Marks: **100**

No. of pages: 2

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

Q.1   **Multiple choice questions:**
a) Elements in an array are identified by a unique _____.
   i)   Data type
   ii) Order
   iii) Subscript
   iv) Symbol
b) The body of a C++ function is surrounded by _____.
   i)   Parentheses
   ii) Angle brackets
   iii) Curly brackets
   iv) Square brackets
c) A _____ is a special method used to initialize the instance variable of a class
   i)   Member function
   ii) Destructor
   iii) Constructor
   iv) Structure
d) Which of the following is user defined data type?
   i)   Public
   ii) Private
   iii) Class
   iv) A & B both
e) Which of the following statements are correct for a static member function?
   1. It can access only other static members of its class.
   2. It can be called using the class name, instead of objects.
   i)   Only 1 is correct
   ii) Only 2 is correct
   iii) Both 1 and 2 are correct.
   iv) Both 1 and 2 are incorrect.
f) You must provide a constructor for a derived class
   i)   Always
   ii) If the base class constructor required arguments
   iii) If the base class constructor does not required arguments
   iv) Never
g) Which of the following is true?
   i)   iostream is derived from istream
   ii) iostream is derived from ostream
   iii) ostream is derived from iostream
   iv) ostream is derived from istream
h) When an object-oriented program detects an error within a function, the function _____.
   i)   Throws an exception
   ii) Throws a fit
   iii) Catches a message
   iv) Catches an exception
i) The statement int num[2][3]={ {1,2}, {3,4}, {5, 6} };

i)   Assigns a value 2 to num[1][2]
ii) Assigns a value 4 to num[1][2]
iii) Gives an error message
iv) Assigns a value 3 to num[1][2]
j) Which of the following statement is correct with respect to the use of friend keyword inside a class?
i)   A private data member can be declared as a friend.
ii) A class may be declared as a friend.
iii) An object may be declared as a friend.
iv) We can use friend keyword as a class name.

2x10

PART-A

Q.2   What are the basic principles of Object Oriented Programming? Explain with examples, how they are implemented in C++?

20

Q.3   a) Explain C++ data types. Why an array is called a derived data type?

10

b) Illustrate the advantage of passing arguments by reference.

10

Q.4   a) What are friend functions? Elaborate the demerits and merits of using friend functions?

10

b) Discuss the characteristics of static data members and member function?

10

PART-B

Q.5   Implement a program to demonstrate the use of constructor, copy constructor and destructor.

20

Q.6   a) What are the different forms of Inheritance supported by C++?

10

b) Give the difference between virtual function and pure virtual functions.

10

Q.7   a) Define manipulators and also mention the manipulators that used in C++.

10

b) Describe the role of keywords try, catch and throw in exception handling.

10

End Semester Examination, Dec. 2019
BCA– Third Semester
INTRODUCTION TO OPERATING SYSTEM (BCA-303(CB))

Time: 3 hrs.   Max Marks:**100**

No. of pages: 1

Note: *Attempt **FIVE** questions in all;* **Q.1is compulsory.** *Attempt any **TWO** questions from **PART-A** and **TWO** questions from **PART-B**. Marks are indicated against each question.*

Q.1 Fill in the Blanks:
  a) Process scheduling is often known as _____ scheduling.
  b) A program in execution is called a _____.
  c) _____ OS pays more attention on the meeting of the time limits.
  d) The mean time from submission to completion of a process is called_____.
  e) The Bankers algorithm deals with _____.
  f) Compaction is one of the solutions to _____.
  g) The very high page fault activity is known as _____.
  h) _____ is a technique that reduces information to a smaller size.
  i) Password is an approach for providing _____to file.
  j) A _____ is an immediate transfer of control caused by an event in the system.

PART-A

Q.2 What is an operating system? Explain its layered architecture. List and discuss the typical functions of operating systems. **20**

Q.3 Draw Gantt chart for the CPU schedule under FCFS, SJF, Priority, Round robin algorithms (Time Quantum = 3) for the following ready queue:

Processes:	P1	P2	P3	P4	P5
CPU bursts:	12	3	11	6	9
Priority:	1	3	5	2	4

Also compute average turnaround time and average waiting time. **20**

Q.4 Relate process and program with each other. Organize the various states of a process with the help of suitable diagram. Discuss the role of PCB during context switch activity. **20**

PART-B

Q.5 a) Differentiate between logical address and physical address in detail. **10**
  b) What is a page fault? When do page faults occur? Describe the actions taken by the O.S. when the page fault occurs with the help of neat diagram. **10**

Q.6 Given memory partitions of 100k, 500k, 200k, 300k, and 600k (in order), apply first fit, worst fit and best fit algorithms to place processes with the space requirement of 212k, 417k,112k and 426k (in order)? Which algorithm makes the most effective use of memory? **20**

Q.7 Explain the various directory structures used in operating system for storing files. Givemerits & demerits of all directory structures. **20**

End Semester Examination, Dec. 2019
BCA– Third Semester

INTRODUCTION TO OPERATING SYSTEM (BCA-303A(CB))

Time: 3 hrs.   Max Marks:**100**

No. of pages: 2

Note: *Attempt* **FIVE** *questions in all;* **Q.1is compulsory.** *Attempt any* **TWO** *questions from* **PART-A** *and* **TWO** *questions from* **PART-B**. *Marks are indicated against each question.*

Q.1   **Answer the following questions:**
   a) Define turn-around time?
   b) State the three main purposes of an OS.
   c) When do you say that a process is in safe state?
   d) Describe Swapping.
   e) Name the two algorithms used for contiguous memory allocation technique.
   Fill in the blanks
   f) _____is a non-preemptive scheduling algorithm.
   g) The Bankers algorithm deals with _____.
   h) The very high page fault activity is known as _____.
   i) A device controller is a _____ unit.
   j) Two types of Fragmentations are_____ and _____.
        2x10

PART-A

Q.2   What is an operating system? Explain the layered approach of O.S. and also list the typical functions of operating systems.
        20

Q.3   Draw Gantt chart for the CPU schedule under FCFS, SJF, Priority, Round robin algorithms (Time Quantum = 10) for the following ready queue:
   ProcessBurst TimePriority

Process	Burst Time	Priority
P1	10	2
P2	29	3
P3	3	1
P4	7	4
P5	12	5

   Also compute average turnaround time and average waiting time.
        20

Q.4   What is Banker algorithm for deadlock avoidance? Consider the following snapshot of a system.

	Allocation A B C D	Max A B C D	available A B C D
Po	0 0 1 2	0 0 1 2	1 5 2 0
P1	1 0 0 0	1 7 5 0	
P2	1 3 5 4	2 3 5 6	
P3	0 6 3 2	0 6 5 2	
P4	0 0 1 4	0 6 5 6	

   Answer the following using Banker's algorithm:
   a) What will be need matrix?
        10
   b) Demonstrate that system is in safe state.
        10

PART-B

Q.5   Define logical and physical address space. How logical addresses are converted intoPhysical addresses, explain with example.
20

Q.6   a) Differentiate between Internal and External Fragmentation.
5
b) Explain different fitting techniques to fit the process of 100k, 250k, 150k, 300k and 120kin to the memory chunks of 200k, 300k, 100k, 90k, and 180k.calculate the external& internal fragmentation in each case.
15

Q.7   Suppose that disk drive has 5000 cylinders, numbered 0 to 4999. The drive is currently serving a request at cylinder 143. The queue of pending request, in FIFO order is
    86,   1470,   913,   1774,   948,   1509,   1022,   1750,   130.
Starting from the current head position, compute the total distance (in cylinders) that the disk arm moves to satisfy all the pending requests, for each of the following disk scheduling algorithms:
a) FCFS
b) SSTF
c) SCAN
d) LOOK
20

End Semester Examination, Dec. 2019
BCA — Third Semester
WEB APPLICATION DEVELOPMENT (BCA-304 (CB))

Time: 3 hrs. Max Marks: **100**

No. of pages: 2

Note: *Attempt* **FIVE** *questions in all;* **Q.1 is compulsory.** *Attempt any* **TWO** *questions from* **PART-A** *and* **TWO** *questions from* **PART-B**. *Marks are indicated against each question.*

Q.1 Answer the following questions:
a) How can you make bulleted list with numbers?
   i) <dl>   ii) <OL>   iii) <list>   iv)
b) Choose the correct HTML tag for largest heading:
   i) <h1>   ii) <head>   iii) <heading>   iv) <h.6>
c) What is the correct element for making a checkbox?
   i) <check>   ii) <checkbox>
   iii) <input type = "check">   iv) <input type = "checkbox">
d) What are style sheets?
e) What do you mean by scripting language?
f) Is CSS Case Sensitive?
g) What does CSS stand for:
   i) Creative style sheets.
   ii) Colourful style sheets.
   iii) Cascading style sheets.
   iv) Computer style sheets
h) JavaScript is _____ side scripting language.
i) Which tag is used to display picture in HTML page?
   i) picture   ii) image   iii) img   iv) src
j) Which browsers support HTML5?
   2x10

PART-A

Q.2 Write short notes on:
a) Web browsers
b) SMTP
c) Search Engines
d) Applications of Internet. **5x4**

Q.3 a) Create an html page with red background with a message "warning" in large size Add scrolling text "read the message" below it.
   10
b) Compare external linking and internal Linking with appropriate code.
   10

Q.4 a) Write a HTML code to generate following output
Maharashtra
Pune
   i) Dighi
   ii) Moshi
   iii) Shivajinagar.
Mumbai
   i) Santakruiz
   ii) Vikroli

iii) Mumbra.

10

b) Create an html page with 7 separate lines in different colors. State color of each line in its text.

10

PART-B

Q.5 Design an html form to take the information of a customer visiting a departmental store such as name, contact phone no , preferred days of purchasing , favourite item (to be selected from a list of items), suggestions etc. Include submit as well as Reset buttons.

20

Q.6 What are cascading style sheets? Explain different types of CSS with suitable examples.

20

Q.7 a) What are different types of data types in JavaScript?

10

b) Write a program to swap two images, using mouseover event.

10

End Semester Examination, Dec. 2019
BCA — Third Semester
WEB APPLICATION DEVELOPMENT (BCA-304A-CB)

Time: 3 hrs.   Max Marks:**100**

No. of pages:2

Note: Attempt **FIVE** questions in all; **Q.1 is compulsory.** Attempt any **TWO** questions from **PART-A** and **TWO** questions from **PART-B**. Marks are indicated against each question.

Q.1   Answer the following questions:
   a) How do you insert a comment in HTML?
   b) Can attribute values be set to anything or are there specific values that they accept?
   c) If you see a web address on a magazine, at which web page does it point out?
   d) What are style sheets?
   e) Can a single text link point to two different web pages?
   f) Is CSS Case Sensitive?
   g) How do you apply JavaScript to a web page?
   h) JavaScript is _____ side scripting language.
   i) Define array in JavaScript with syntax.
   j) Which browsers support HTML5?
      2x10

PART-A

Q.2   a) Discuss the functions of the client and server in client server environment.
         10
       b) Email is emerging as one of the most valuable services on the internet today.Illustrate how it works and explain its architecture too.
         10

Q.3   a) Write HTML code as per given instructions: Place your College name at the top of the page in large text followed by address in smaller size Add names of courses offered each in a different color, style and typeface   Add scrolling text with a message of your choice Add college image at the bottom.
         10
       b) i) Create a link that will connect to another web page when clicked.   **5**
          ii) Create links to sections within the same page.
          5

Q.4   Design Air Ticket reservation table, using all attributes of table in HTML.
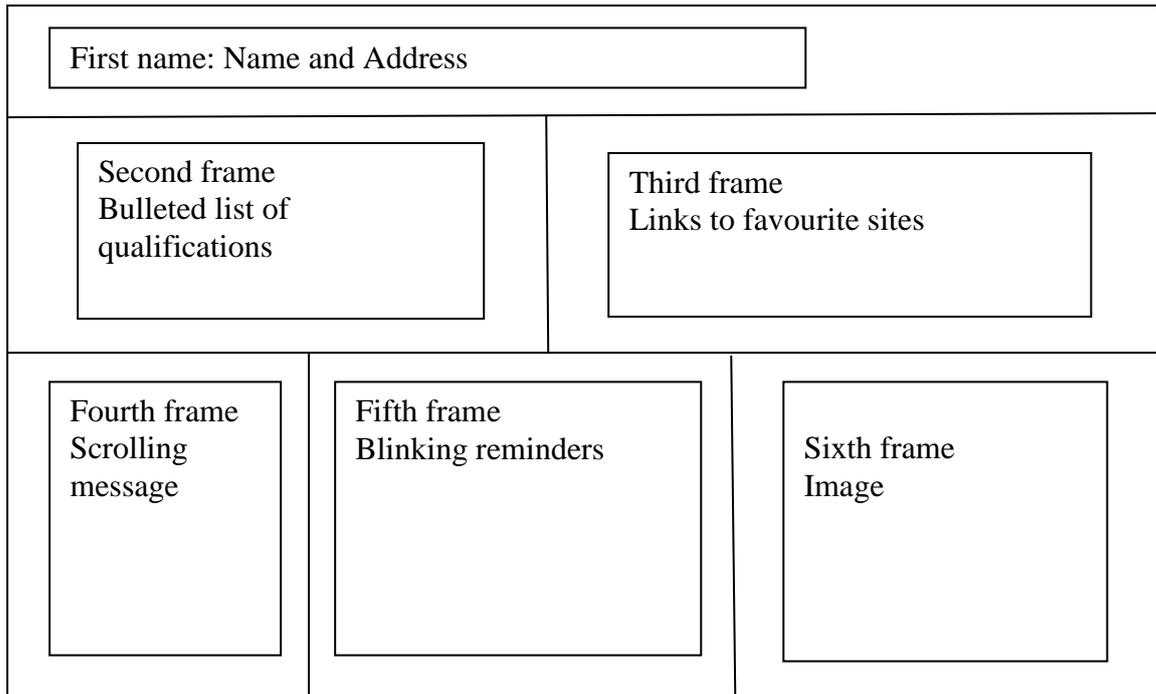   **20**

PART-B

Q.5   a) Design an html form to take the information of an article to be uploaded such as file path, author name , type (technical, literary, general), subject topic (to be selected from a list) etc. Also provide button to Submit as well as Reset the form contents.
         10

b) Write HTML code to generate the following output:

```
+----------------------------------------------------------+
|  +----------------------------------------+              |
|  | First name: Name and Address           |              |
|  +----------------------------------------+              |
|  +--------------------------+   +------------------------+|
|  | Second frame             |   | Third frame            ||
|  | Bulleted list of         |   | Links to favourite sites|
|  | qualifications           |   |                        ||
|  |                          |   |                        ||
|  +--------------------------+   +------------------------+|
|  +-------------+  +----------------+   +----------------+ |
|  | Fourth frame|  | Fifth frame    |   |                | |
|  | Scrolling   |  | Blinking reminders  | Sixth frame   | |
|  | message     |  |                |   | Image          | |
|  |             |  |                |   |                | |
|  |             |  |                |   |                | |
|  +-------------+  +----------------+   +----------------+ |
+----------------------------------------------------------+
```

10

Q.6 a) How do you apply CSS styles to a web page?
10
b) Demonstrate the basic syntax and structure of style sheets.
10

Q.7 a) What are the various operators available in JavaScript?
10
b) Write a program to swap two images, using mouse over event.
10

End Semester Examination, Dec. 2019
BCA– Third Semester
SHELL PROGRAMMING (BCA-306 (CB))

Time: 3 hrs.   Max Marks:**100**

No. of pages: 1

Note: *Attempt* **FIVE** *questions in all;* **Q.1 is compulsory.** *Attempt any* **TWO** *questions from* **PART-A** *and* **TWO** *questions from* **PART-B**. *Marks are indicated against each question.*

Q.1 Answer the following questions:
  a) List the text modification command of vi editor.
  b) What is a job? How can we suspend the foreground job?
  c) Describe usage of cp and mv commands.
  d) Write a shell script by using korn shell to read a file line by line.
  e) Write syntax for changing ownership and group name on a given file/s.
  f) List out 'here' document and append redirection operators with example.
  g) Describe usage of cmp and diff commands.
  h) Name the two categories of regular files. Does UNIX recognize the difference between these two categories?
  i) Define I-node number.
  j) State the purpose of –n option with sed.
       2x10

PART-A

Q.2 a) Describe in detail about the structure of UNIX.
     7
  b) Summarize the permission rules. Explain it by using directory level permissions.   **6**
  c) What is a path? Explain different type's paths to locate a file in UNIX system.
     7

Q.3 a) What is the relationship of a file name to its inode? Is the relationship one-to-one, one – to – many or many – to – many? Explain your answer with an example.
     7
  b) Identify and explain the different sates of a job.   **6**
  c) Explain the role of tr command in shell programming.
     7

Q.4 a) Describe sticky bit to achieve protection for a directory. Also write the steps to set the sticky bit.
     7
  b) What is meant by security? Explain the different levels of security provided by UNIX.
                                                                                     6
  c) Distinguish among a backslash, a pair of double quotes and a pair of single quotes. Explain with example.
       7

PART-B

Q.5 a) Write how to configure a startup and shutdown scripts.
     6
  b) Write a shell script to display various file attributes corresponding to it.   **7**

c) Write a shell script to count the number of words, characters and lines present in a file.
7

Q.6 a) What are the different ways that are available to compare the files? Explain them.

7

b) Explain grep family utility with one example for each. **6**

c) Write the differences between sed and awk.
7

Q.7 a) Which utility is used to transfer file from client to server or server to client? Explain it with a neat diagram.
7

b) What is grep? Why we are using it? Explain the grep family. **6**

c) Give brief description about the different types of expressions supported by korn shell.
7

End Semester Examination, Dec. 2019
BCA– FourthSemester
MATHEMATICAL FOUNDATION OF COMPUTER SCIENCE
(BCA-401(CB))

Time: 3 hrs.   Max Marks:**100**

No. of pages: 2

Note: *Attempt **FIVE** questions in all;* **Q.1is compulsory.** *Attempt any**TWO** questions from* **PART-A** *and* **TWO** *questions from* **PART-B**. *Marks are indicated against each question.*

Q.1   Answer the following questions:
   a) Complement of a set.
   b) Equivalence relation.
   c) Euclidean algorithm.
   d) Symmetric difference of a set.
   e) What is LHRRWCCs?
   f) Convert in tabular form:
      $A = \{x = x^2 = 4 : x \quad is\ even\}$
   g) Disjunctive normal form.
   h) One-point form of a straight line equation.
   i) Slope of a line.
   j) LAN   **2×10**

PART-A

Q.2   a) If $U = \{5,6,7,8,9,10,11,12,13,14\}$

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

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

   Find the following:

   i) $(B-C)$ ii) $(A-D) \cap (B \cap D)$ iii) $(B-A) \cup (B \cap A)$

   iv) $(A' \cup D') \cup C'$ v) $(A \cup B) \cup (B \cup C)$ **10**

   b) In a survey of 200 musicians, it was found that 40 wore gloves on the left hand and 39 wore gloves on the right hand. If 160 wore no gloves at all. How many wore a glove on a) the right hand? b)the left hand?   **10**

Q.3   a) Prove by principle of mathematical induction:
      $1+3+5+ \cdots +(2n-1) = n^2$ **10**
   b) How many people must you have to guarantee that at least 9 of them will have birthdays in the same day of the week?   **10**

Q.4   a) Discuss various types of lattices alongwith suitable examples.   **10**
   b) If $f(x,y,z) = (x \vee y) \wedge (x \vee \bar{y}) \wedge (\bar{x} \vee z)$ be a given Boolean function. Determine its disjunctive normal (DN) form.   **10**

PART-B

Q.5   a) Explain recurrence relation.   **10**
   b) Solve the difference equation:
      $a_r - 3a_{r-1} + 2a_{r-2} = 0$

      Such that $a_o = 0 \quad and \quad a_1 = 1$ **10**

Q.6   a) Discuss bisection formula.   **10**
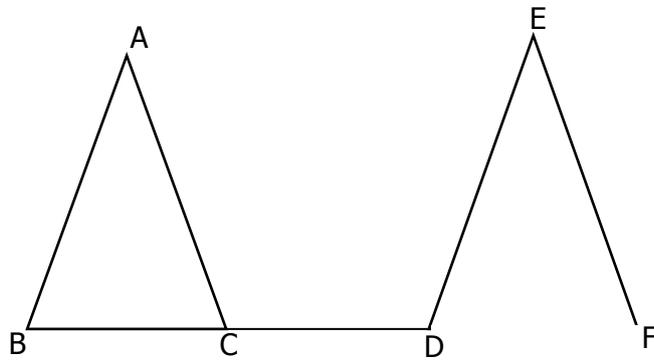   b) Show that the points (12, 8), (-2, 6) and (6, 0) are the vertices of a right angled isosceles triangle.   **10**

Q.7 a) Define the following:
   i)   Multigraph.
   ii) Odd vertex.
   iii) Isomorphic graphs.
   iv) Weighted graph.
   v)   Adjacent vertex.   **2x5**
  b) Draw all the spanning tree of the given graph.

                                                                      10

End Semester Examination, Dec. 2019
BCA- Third Semester
MATHEMATICAL FOUNDATION OF COMPUTER SCIENCE
(BCA-401A (CB))

Time: 3 hrs.   MaxMarks:**100**

No. of pages: 2

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

Q.1   a) The number of subset of a set containing n element is _____.

b) If $A=\{1,3,5\}$ and $B=\{2,4\}$ find $A \cup B$

c) What is the Cartesian product of $A=\{1,2\}$ and $B=\{a,b\}$

d) Define pigeonhole principle.

e) How many people among 100 are born in the same month?

f) Find the characteristic roots of the difference equation $a_r - 3a_{r-1} + 2a_{r-2} = 0$

g) Draw the undirected graph represented by adjacency Matrix M_A

$$M_A = \begin{array}{c|ccccc} & v_1 & v_2 & v_3 & v_4 & v_5 \\ \hline v_1 & 0 & 1 & 1 & 0 & 0 \\ v_2 & 1 & 0 & 1 & 0 & 0 \\ v_3 & 1 & 1 & 0 & 1 & 0 \\ v_4 & 0 & 0 & 1 & 0 & 1 \\ v_5 & 0 & 0 & 0 & 1 & 1 \end{array}$$

h) Give an example of a graph that has Euler circuit which is also a Hamiltonian circuit.

i) Draw the undirected graph K_3.

j) Consider the following graph, Find the number of vertices and edges.
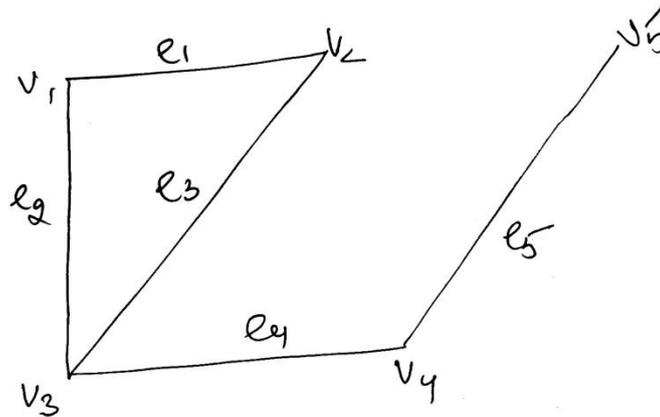
2x10

PART-A

Q.2   a) Out of 1200 students at a college 582 took economics, 627 took English, 543 took Mathematics, 217 took both economics and English, 307 took both economics and mathematics, 250 took both mathematics and English, 222 took all three courses. How many took none of the three?
      10

b) Prove $1+3+5+...+(2n-1)=n^2$ by principle of mathematical induction.
      10

Q.3   a) Consider the Set $A = \{4,5,6,7\}$. Let R be the relation $\leq$ on A. Draw the directed graph and the Hasse diagram of R.
10

b) Let D_{10} be the set of all positive factors of 10, then probe that D_{10} forms a lattice with the relation of divisibility. Also draw the Hasse diagram of the lattice D_{10}.
10

Q.4   a) Determine the disjunctive normal form of following Boolean expression.
$$x \wedge (y \vee z)$$
10

b) Find the values of m and n if:
$$\gcd(595, 252) = 252m + 595n$$
10

PART-B

Q.5   a) Solve the difference equation $a_r - 7a_{r-1} + 10a_{r-2} = 0$ satisfying the conditions $a_0 = 0$ and $a_1 = 6$
10
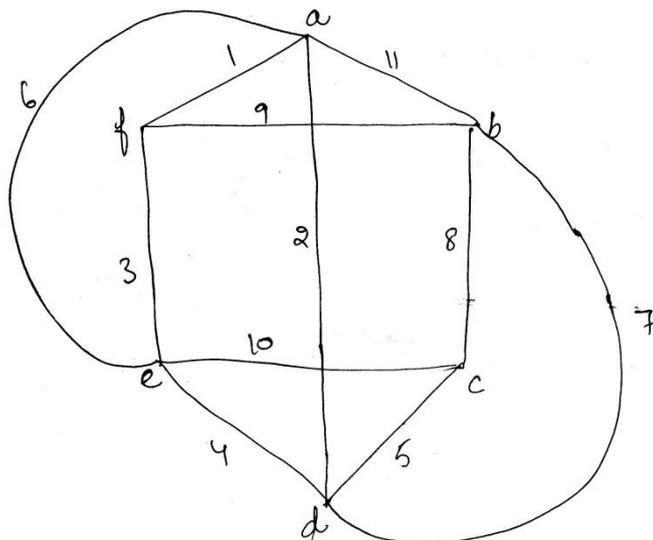
b) Consider the tree given below:
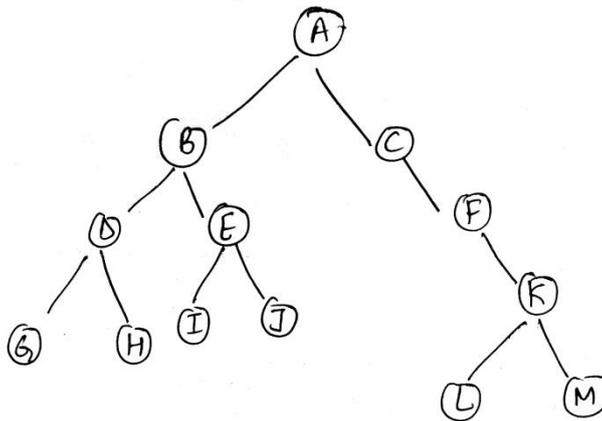
i)   Find root node.
ii) List of child nodes.
iii) List of sibling.
iv) Level of each node.
v) Depth of the tree.
10

Q.6   Determine the minimum spanning tree for the graph shown below.

Q.7 a) Find the value of p for which the points $(7,-2),(5,1)$ and $(3,p)$ are collinear.
10

b) Prove that the points $(9,3),(7,-1)$ and $(9,3)$ are the vertices of an isosceles triangle.
10

End Semester Examination, Dec. 2019
BCA – Fourth Semester
PROGRAMMING IN JAVA (BCA-403 (CB))

Time: 3 hrs.   Max Marks: **100**

No. of pages: 1

Note: *Attempt **FIVE** questions in all; **Q.1 is compulsory**. Attempt any **TWO** questions from **Part-A** and **TWO** questions from **Part-B**. Marks are indicated against each question.*

Q.1   Answer the following questions:
   a) What is bytecode?
   b) What is the size of character data type in java?
   c) Define 'stream'.
   d) Define 'array'. Write the syntax for declaring one dimensional array with example.
   e) What is constructor? Give example.
   f) Write any two application of using package.
   g) List any two built in exception in java.
   h) What is the purpose of the system class?
   i) What are the steps involved in Applet development.
   j) Define 'Abstract Class'.   **2x10**

PART-A

Q.2   a) Discuss and explain the salient features of java programming language that makes it as a platform independent language.   **10**
       b) What is Type Casting in java? Explain it with the help of an example.   **10**

Q.3   What are various data types available in java? Discuss each with suitable example.   **20**

Q.4   a) What is package in Java? How it is implemented? Explain it with suitable example. **10**
       b) What is an abstract class? What is its use in Java?   **10**

PART-B

Q.5   What is an Exception? What are its types? Discuss in detail exception handling in java. **20**

Q.6   Create an applet that will receives name of the user as input from the user and then displays the same on the screen. Write a simple HTML page to include this applet.   **20**

Q.7   Explain with examples the various methods supported by Abstract Window Toolkit (AWT) package in java.   **20**

End Semester Examination, Dec. 2019
BCA – Fourth Semester
PROGRAMMING IN JAVA (BCA-403A (CB))

Time: 3 hrs.   Max Marks: **100**

No. of pages: 2

Note: *Attempt* **FIVE** *questions in all;* **Q.1 is compulsory**. *Attempt any* **TWO** *questions from* **Part-A** *and* **TWO** *questions from* **Part-B**. *Marks are indicated against each question.*

Q.1   Multiple choice questions:
a) Which of the following can be operands of arithmetic operators?
   i)   Numeric   ii) Boolean
   iii) Characters   iv) Both Numeric and Characters
b) Can 8 byte long data type be automatically type cast to 4 byte float data type?
   i)   True   ii) False
c) Which one of the following is true for Java?
   i)   Java is object-oriented and interpreted
   ii) Java is efficient and faster than C
   iii) Java is the choice of everyone.
   iv) Java is not robust.
d) Multiple inheritance means:
   i)   One class inheriting from more super classes
   ii) More classes inheriting from one super class
   iii) More classes inheriting from more super classes
   iv) None of the above
   v)   (a) and (b) above.
e) Which of the following is true about Java?
   i)   Java does not support overloading.
   ii) Java has replaced the destructor function of C++
   iii) There are no header files in Java.
   iv) All of the above.
f) Command to execute compiled java program is.
   i)   Java   ii) Javac   iii) Run   iv) Javaw
g) Inner classes are:
   i)   Anonymous classes
   ii) Nested classes
   iii) Subclasses
   iv) Derived classes
h) The jdb is used to
   i)   Create a jar archive
   ii) Debug a java program
   iii) Create a C header file
   iv) Generate java documentation
i) A package is a collection of
   i)   Classes
   ii) Interfaces
   iii) Editing tools
   iv) Classes and interfaces
j) Method overloading is one of the ways that Java supports _____.
   i)   Encapsulation   ii) Class
   iii) Inheritance   iv) Polymorphism
   2x10

PART-A

Q.2   a) Discuss various loop statements and branching statements available in Java. Show their syntax.
10

      b) What is ternary operator? Give an example.
10

Q.3   a) What is data encapsulation and what's its significance?
10

      b) What are the various access specifiers for Java classes?
10

Q.4   a) Explain following:
       i) Constructers and its syntax
       ii) Methods Overloading
10

      b) What is the difference between an Abstract Class and Interface in Java?Can we declare a class as Abstract without having any abstract method? Justify your answer with example.
10

PART-B

Q.5   a) How do we create a Java applet? Discuss its life cycle showing passing parameters to Applets.
10

      b) What is error and exception handling in Java? How would you handle the exception using Try and Catch?
10

Q.6   a) Explain Java AWT basics. Explain the syntax of TextArea layout in AWT package.
10

      b) What is exception? How exception can be created and handled in java .Explain with suitable examples.
10

Q.7   a) Write a program in java to design Login window using AWT controls.
10

      b) Write a program to draw a hut in applet.
10

End Semester Examination, Dec. 2019
BCA – Fourth Semester
ELEMENTS OF COMPUTER GRAPHICS (BCA-404 (CB)

Time: 3 Hours   Max   Marks: **100**

No. of pages: 1

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

Q.1 **Answer the following in brief:**
   a) Define computer graphics.
   b) Discuss the terms pixel, point, line, and polygon.
   c) Differentiate between CUI and GUI.
   d) Define GKS.
   e) Mention boundary fill algorithm.
   f) Define Translation. Write down its homogenous coordinates.
   g) What is window and viewport? Discuss window-to-viewport transformation.
   h) Differentiate between 2Dand 3D transformations.
   i) Why clipping is required? Write down name of any two algorithms of clipping.
   j) Define zooming and panning.

                                                                      2x10

PART-A

Q.2 Differentiate between DVST and Refresh CRT. Explain the various components of CRT with suitable diagram. Discuss Flicker.   **20**

Q.3 Define scan conversion. Discuss the DDA algorithms for line drawing. Find the pixel positions to plot a line between end coordinates X (20,10) and Y (30,18). Explain the side effects of scan conversion.   **20**

Q.4 Define all basic transformations. What is the use of homogenous co-ordinate representation of transformations? Consider a triangle with co-ordinates A (2, 2),B (4, 2), C (4, 4). Rotate the triangle by 90 degree. Find the transformed co-ordinates. Also translate the original triangle by 3 units in x-axis and 2 units in y-axis.   **20**

PART-B

Q.5 Discuss various types of projections? Classify Parallel and Perspective projections with respect to real world.   **20**

Q.6 Define "polygon". Explain various polygon clipping algorithms with suitable example. **20**

Q.7 Write short note on the following:
   a) Real time Animation Techniques.
   b) Applications of Animation in real world.
   c) Zooming and Panning.
   d) Animation Procedure.   **5x4**

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

No. of pages: 2

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

Q.1   Choose the correct option:

a) Which of the following statements are true with respect to "Communication"?
   i) It forms the foundation for planning.
   ii) Controlling is not possible without written and oral communication.
   iii) Bothi) and ii).
   iv) None of the above.   **1**

b) In formal letters to have a desired effect on the reader, it should be:
   i) Free of any grammatical or spelling errors.
   ii) Polite, even if you are complaining.
   iii) Short and to the point.
   iv) All of the above.   **1**

c) The goal of a negotiation process should always be:
   i) We should be able to judge and use the vulnerability of the other party.
   ii) We should be able to sell the products at our specified price.
   iii) A win-win situation wherein both the parties are satisfied.
   iv) There may/may not be any future business relationship.   **1**

d) Disruptive behavior in a team means:
   i) Being overly aggressive.
   ii) Withdrawing and refusing to co-operate.
   iii) Raising irrelevant matters.
   iv) All of the above.   **1**

e) The non-verbal communication displayed by attitude towards time, through punctuality and late arrival is called:
   i) Haptics.
   ii) Chronemics.
   iii) Vocalics.
   iv) Proxemics.   **1**

f) State whether the following statements are **TRUE** or **FALSE:**
   i) Only 7% of what we communicate is through body language.
   ii) The entering of sound waves into our ears and striking the eardrums is called hearing.
   iii) The tone of our voice conveys our mood, interest, anger etc. to the audience.
   iv) An agenda has to be circulated in advance for meetings.
   v) While listening to a song, we do the "Empathetic" type of listening.   **1×5**

PART-A

Q.2   a) "Communication is an interdisciplinary subject". Argue against or in favor with evidence.   **10**

     b) What is the impact of using too much or too little information in one's communication?   **10**

Q.3   a) How does the use of concrete words make communication more effective? Explain with an example.   **10**

     b) Elaborate on the 7C's and 4S's of communication.   **10**

Q.4 a) Good listening results in development of a comprehensive approach and open vistas to new ideasand newer avenues". Elaborate. **10**

b) Write short notes on **(any two)** of the following:
   i) Different types of listening.
   ii) Role of persuasion skills.
   iii) Effective negotiation skills. **5×2**

PART-B

Q.5 What is non-verbal communication? Illustrate with suitable examples. Explain the various components of non-verbal communication in detail. **10**

Q.6 a) Why does formal letter writing still hold its relevance in the age of telecommunication? Explain the steps in the formal letter writing process in detail.

b) Suppose you are V. Sharma. Write a cover letter to Mr. GauravGupta, Manager HR of ABC Ltd., submitting yourcandidature for an opening in his organization, about which an advertisement was published in anewspaper. **10**

Q.7 Discuss the 'advantages and disadvantages of internet usage for the youth'in 200 words. **10**