Examination : 2024   Subject Code : BCA(II)-14/24

Session   : 2022-25   Paper   : XIV

Time   : 3 hrs.   Full Marks   : 80

Candidates are required to give their answers in their

own words as far as practicable.

The figures in the margin indicate full marks.

Answer from all groups as directed.

Group-A

(Objective Type Questions)

(Compulsory)

1. Choose the correct answer of the following: 2×10=20

   (a) The Full form of DDL is

       (i) Data Definition Language

       (ii) Data Data Language

       (iii) Delta Definition Language

       (iv) Data Dictionary Language

   (b) Which normalization form is based on the transitive dependency?

       (i) 1NF

       (ii) 2NF

       (iii) 3NF

       (iv) BCNF

(c) Which is the lowest level of abstraction that describes how the data are actually stored?

   (i) Physical

   (ii) Abstract

   (iii) View

   (iv) User

(d) Which of the following is a command of DML?

   (i) update

   (ii) create

   (iii) drop

   (iv) alter

(e) Rectangles in ER diagram represents

   (i) Tables

   (ii) Attributes

   (iii) Tuples

   (iv) Entity sets

(f) Which of the following allows to uniquely identify a tuple?

   (i) Schema

   (ii) Supper Key

   (iii) Attribute

   (iv) Domain

(g) How many levels are there in architecture of database?

   (i) 2

   (ii) 3

(iii) 4

(iv) 5

(h) Primary key can be

   (i) NULL

   (ii) NOT NULL

   (iii) Both (i) & (ii)

   (iv) None

(i) To select some particular columns, which of the following command is used?

   (i) Projection

   (ii) Selection

   (iii) Join

   (iv) Union

(j) What is a table joined with itself called?

   (i) Self Join

   (ii) Join

   (iii) Equi Join

   (iv) Outer Join

Group-B

Long-Answer Type Questions

Answer any **four** questions of the following: $15 \times 4 = 60$

2. What is a Database Management System and how is it different from a File System? List some applications of DBMS.

3. Explain following terms with suitable example:

   (i) Relational Algebra

   (ii) Strong Entity Set

   (iii) Data Dictionary

4. What is transaction? Explain the ACID Properties of transactions.

5. Why is Normalization required? Explain different normalization techniques.

6. Construct an ER-Diagram for a Hospital by taking suitable entities.

7. Describe different types of keys in the database. Explain each of them in details.

8. Write short notes on any three of the following

   (a) DDL

   (b) SQL

   (c) Hashing

   (d) Database Recovery

   (e) Tuple Calculus

   (f) Data Model

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Examination : 2024   Subject Code : BCA(II)-13/24

Session   : 2022-25   Paper   : XIII

Time   : 3 hrs.   Full Marks   : 80

Candidates are required to give their answers in their

own words as far as practicable.

The figures in the margin indicate full marks.

Answer from all groups as directed.

Group-A

(Objective Type Questions)

(Compulsory)

1. Choose the correct answer of the following: 2×10=20

   (a) Which topology covers security, robust and eliminating traffic factors?

   (i) Mesh

   (ii) Ring

   (iii) Star

   (iv) Bus

   (b) Combination of two or more networks in called

   (i) WAN

   (ii) MAN

   (iii) LAN

   (iv) INTERNET WORK

P.T.O.

(c) What kind of transmission medium is most appropriate to cary data in a computer network that is exposed to electrical interferences?

(i) Unshielded twisted pair

(ii) Optical fiber

(iii) Coaxial cable

(iv) Microwave

(d) The location of a resource on the internet is given by its

(i) Protocol

(ii) URL

(iii) E-mail address

(iv) ICQ

(e) FTP stands for

(i) File transfer protocol

(ii) File transmission protocol

(iii) Form transfer protocol

(iv) Form transmission protocol

(f) The .... layer change bits onto electromagnetic signals.

(i) Physical

(ii) Transport

(iii) Data Link

(iv) Presentation

(g) What is the commonly used unit for measuring the speed of data transmission?

(i) Bytes per second

(ii) Baud

(iii) Bits per second

(iv) Both (ii) and (iii)

(h) Which of the transport layer protocols is connectionless?

(i) UDP

(ii) FTP

(iii) TCP

(iv) Nvt

(i) The............... layer is responsible for resolving access to the shared media or resources.

(i) Physical

(ii) Mac sub layer

(iii) Network

(iv) Transport

(j) The .... is used to provide integrity check, authentication and encryption to IP datagram.

(i) SSL

(ii) ESP

(iii) TSL

(iv) PSL

Group-B

Long-Answer Type Questions

Answer any **four** questions of the following: $15 \times 4 = 60$

2. Write a short description of the different types of Transmission modes, with their advantages/disadvantages.

3. Differentiate between OSI and TCP/IP reference model in detail.

4. Discuss various Error detection and Correction techniques in detail.

5. Find CRC for the data polynomial $X^5 + X^4 + X^2 + 1$ with generator polynomial $X^3 + 1$.

6. Explain Circuit switching, Packet switching and Message switching. Writer their advantages and disadvantages also.

7. Define IP Address. Specify IPv4 address classes with their address ranges.

8. Explain in detail the following CSMA protocols:
   (a) I-persistent
   (b) Non-persistent
   (c) P-persistent

9. What is Transport layer? Explain the protocol and services of transport layer.

10. Write short notes on any three of the following:
    (a) Routers
    (b) Switches
    (c) Simplex and Half Duplex Channels
    (d) Congestion Control
    (e) ISDN
    (f) DNS

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Examination : 2024   Subject Code : BCA(II)-9/24

Session   : 2022-25   Paper   : IX

Time   : 3 hrs.   Full Marks   : 80

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Answer from all groups as directed.

Group-A

(Objective Type Questions)

(Compulsory)

1. Choose the correct answer of the following: 2×10=20

    (a) C++ is a _____ type of Language.

        (i) High Level Language

        (ii) Low-Level Language

        (iii) Middle-Level Language

        (iv) None of the above

    (b) Which one of the following represents the tab?

        (i) 1n

        (ii) 1t

        (iii) 1r

        (iv) None of the above

    (c) Which one of the following cannot be a friend in C++ language.

        (i) A Class

P.T.O.

(ii) A Function

(iii) An object

(iv) None of the above

(d) Which of the following user-define header file extension is used in C++?

   (i) hg

   (ii) cpp

   (iii) h

   (iv) hf

(e) Which of the following is "address of operator"?

   (i) *

   (ii) &

   (iii) [ ]

   (iv) &&

(f) Identify the scope resolution operator

   (i) :

   (ii) ::

   (iii) ?

   (iv) None

(g) Which of the following is mandatory in a function?

   (i) return-type

   (ii) parameter

   (iii) function-name

   (iv) Both (i) and (iii)

(h) Identify the size of int datatype in C++

    (i)   1 byte

    (ii) 2 bytes

    (iii) 4 bytes

    (iv) Depends on compiler

(i) Total types of error in c++

    (i)   1

    (ii) 2

    (iii) 3

    (iv) 4

(j) What is an object in C++?

    (i)   It is a function of class

    (ii) It is inforce of class

    (iii) It is a datatype of class

    (iv) It is a part of the syntax of class

Group-B

Long-answer Type Questions

Answer any **four** questions of the following: $15 \times 4 = 60$

2. What are class and object in C++? Explain.

3. What is function? What do you mean by Call by value and Call by reference in C++?

4. Explain the constructor and destructors in C++.

5. What is function overloading? What is the difference between function overloading and operator overloading?

6. What is inheritance? Explain its types.

BCA(II)-9/24   3   P.T.O.

7. What is meant by catching all the exception in C++? Explain with example.

8. Write a program to find Fibonacci Series.

9. Write short notes on any two of the following:

   (i) Recursion

   (ii) Structure & Union

   (iii) Operator Overloading

   (iv) Multi-level Inheritance

   (v) Pointer

   (vi) Pure Virtual Function

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Examination : 2024   Subject Code : BCA(II)-10/24

Session   : 2022-25   Paper   : X

Time   : 3 hrs.   Full Marks   : 80

Candidates are required to give their answers in their

own words as far as practicable.

The figures in the margin indicate full marks.

Answer from all groups as directed.

Group-A

(Objective Type Questions)

(Compulsory)

1. Choose the correct answer of the following: 2×10=20

    (a) .... is an important factor of management information system.

       (i) System

       (ii) Process

       (iii) Data

       (iv) All

    (b) In a DFD external entities are represented by a

       (i) Rectangle

       (ii) Ellipse

       (iii) Diamond

       (iv) Circle

    (c) The data flow diagram is the basic component of ...... system
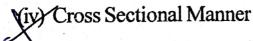
       (i) Conceptual

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(ii) Physical

(iii) Logical

(iv) None

(d) Actual coding of software is performed during ..... step in SDLC.

(i) Design

(ii) Analysis

(iii) Maintenance

(iv) Development and documentation

(e) Problem Analysis is done during

(i) System Design Phase

(ii) System Analysis Phase

(iii) Before System test

(iv) None

(f) A decision table facilitates condition to be related to

(i) Action

(ii) Program

(iii) Table

(iv) Operation

(g) Enhancements, upgrades and bug fixes are done during the

(i) Maintenance and Evaluation

(ii) Problem Identification

(iii) Design & Documentation

(iv) None

(h) Which of the model is used for system components?

(i) PERT Chart

(ii) Gantt Chart

(iii) Organizational Hierarchy Chart

(iv) DFD

(i) Changes made periodically to a system, after its implementation is known as System

(i) Analysis

(ii) Design

(iii) development

(iv) Maintenance

(j) Coding and Testing are done in a

(i) Top-Down Manner

(ii) Bottom Up Manner

(iii) AdHoc Manner

(iv) Cross Sectional Manner

Group-B

Long-answer Type Questions

Answer any **four** questions of the following: $15 \times 4 = 60$

2. What do you mean by the term System? Explain its characteristics.

3. Discuss the various types of testing in detail.

4. Discuss the utility of Decision Table and Structure Chart.

5. What is System Development Life Cycle? Explain briefly.

6. Describe the role and task of system Analyst.

7. Discuss the concept of MIS and DSS. How are they related? How do they differ?

8. Discuss Top-Down Approach of System Planning.

9. What considerations are involved in Feasibility Analysis? Which consideration is important and why?

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Examination : 2024   Subject Code : BCA(II)-11/24

Session   : 2022-25   Paper   : XI

Time   : 3 hrs.   Full Marks   : 80

Candidates are required to give their answers in their

own words as far as practicable.

The figures in the margin indicate full marks.

Answer from all groups as directed.

Group-A

(Objective Type Questions)

(Compulsory)

1. Choose the correct answer of the following: 2×10=20

   (a) Stack is a .... Data Structure

      (i) FIFO

      (ii) LIFO

      (iii) Both (i) & (ii)

      (iv) None of them

   (b) Graph is a _____ Data Structure?

      (i) Linear

      (ii) Non-linear

      (iii) Both (i) & (ii)

      (iv) None of them

   (c) The process of deleting an element from a Stack is called

      (i) PUSH

P.T.O.

(ii) POP

(iii) Evaluate

(iv) Create

(d) Which data structure is used for implementing recursion?

(i) Stack

(ii) Queue

(iii) Array

(iv) List

(e) Which data structure is needed to convert infix notation to postfix notation?

(i) Stack

(ii) Queue

(iii) List

(iv) Tree

(f) Which type of Linked List has two link fields?

(i) Single Linked List

(ii) Doubly Linked List

(iii) Circular Linked List

(iv) All of these

(g) Which one is based on Divide and Conquer approach?

(i) Linear Search

(ii) Binary Search

(iii) Selection Sort

(iv) Insertion Sort

(h) What is the value of the postfix expression 6 3 2 1 + - *?

(i) 10

(ii) 0

(iii) -5

(iv) 2

(i) Inorder, Preorder and Postorder traversal techniques are used in

(i) Tree

(ii) Graph

(iii) Array

(iv) Stack

(j) Worst Case Time Complexity of Quick Sort is

(i) $O(n^2)$

(ii) $O(\log n)$

(iii) $O(n \log n)$

(iv) $O(2^n)$

Group-B

Long-Answer Type Questions

Answer any **four** questions of the following: $15 \times 4 = 60$

2. What is an algorithm? Write some characteristics of an algorithm. Why do we need to do an algorithm analysis?

3. What is Stack? Write an algorithm for PUSH ( ) and POP ( ) operations on Stack.

4. Differentiate between Single Linked List and Double Linked List. Write an algorithm to insert a node in a single linked list at the end.

BCA(II)-11/24   3

5. What is Binary Search Tree? Write an algorithm for Inorder and Preorder Traversal on Binary Tree.

6. What do you mean by Searching? Write an algorithm for Binary Search with its time complexity.

7. What is Quick Sort? Write an algorithm of Quick Sort with its time complexity.

8. Write short notes on any three of the following:

   (a) Static Data Structure

   (b) Complete Binary Tree

   (c) Heap

   (d) Graph

   (e) Time Complexity

   (f) Queue

***

Examination : 2024   Subject Code : BCA(II)-15/24

Session   : 2022-25   Paper   : XV

Time   : 3 hrs.   Full Marks   : 80

Candidates are required to give their answers in their

own words as far as practicable.

The figures in the margin indicate full marks.

Answer from all groups as directed.

Group-A

(Objective Type Questions)

(Compulsory)

1. Choose the correct answer of the following: 2×10=20

   (a) Which of the following statement transfers control to the labeled statement?

   (i) Exit

   (ii) Continue

   (iii) GoTo

   (iv) None of the above

   (b) Visual Basic is a tool that allows you to develop application in _____.

   (i) Real time

   (ii) Graphical User Interface

   (iii) Character User Interface

   (iv) None of these

P.T.O.

(c) The Checked property is found only in which object?

    (i) Textbox

    (ii) RadioButton

    (iii) CheckBox

    (iv) Both (ii) & (iii)

(d) Which of the following extension is used to represent the project file in Visual Basic?

    (i) .vbp

    (ii) .vb

    (iii) .cls

    (iv) .vvb

(e) What does IDE stand for?

    (i) Integrated Design Environment

    (ii) Integrated Development Environment

    (iii) Interior Design Environment

    (iv) Interior Development Environment

(f) _____ control executes the timer events at specified intervals of time?

    (i) Clock

    (ii) Frame

    (iii) Timer

    (iv) Digital

(g) Which of the following is the default name assigned to the label control in Visual Basic?

(i) Label 1

(ii) DefaultLabel

(iii) Label 0

(iv) NewLabel

(h) Frame Cotrol acts as a/an_____?

(i) Event

(ii) Method

(iii) Class

(iv) Container

(i) The method, which loads the form into memory and displays

it on screen:

(i) Load

(ii) Show

(iii) Display

(iv) All of these

(j) _____ do not return a value?

(i) Sub procedure

(ii) Function procedure

(iii) Property procedures

(iv) All of these

Group-B

Long-Answer Type Questions

Answer any **four** questions of the following: $15 \times 4 = 60$

2. What is data binding? Explain the different ways to use data

binding in VB.NET application.

3. Explain properties, methods and events of Checkbox & RadioButton control.

4. What is an array? Write a program to Demonstrate Dynamic Array.

5. Describe the ADO.Net Architecture.

6. Explain the different loop statements in VB.NET with example.

7. Write a VB.NET program to accept a character from keyboard and check whether it is vowel or not. Also display the case of that character.

8. Write Short Notes an:

   (a) TextBox

   (b) CheckBox

   (c) MessageBox

   (d) Command Buttons

   (e) Control Structure

***