Code: A-C 730124 - A

I SEMESTER EXAM. - 2023-24

2 x 260

Std.: XII | Sub: COMPUTER SCIENCE - I | Marks: 50

Date: 04/11/23 | Roll No.: _____ | Time: 3 hrs.

Q1. A. Select the most appropriate option and rewrite the following statements. 4

1) object is a _____
   a) variable of a user defined data type
   b) variable of a basic data type
   c) class
   d) none of these

2) <td> tag is used to create _____ in a table.
   a) row b) table c) column d) caption

3) data item which can be further divided in sub item, is called as _____
   a) group item b) elementary item c) field d) file

4) C++ is a _____
   a) Operating system
   b) programming language
   c) program
   d) compiler

Q. 1. B Attempt any 2 of the following. 6

1) What is data structure? Explain any two data structures.
2) Explain three tags in html that doesn't have a closing tag.
3) What do you mean by scope of a variable? Explain scope resolution operator.

Q.2 A Attempt any 2 of the following. 6

1) Explain the following concepts of Object oriented programming.
   a) Inheritance b) Polymorphism c) Data Encapsulation
2) What is a class? Explain general form of class declaration.
3) Explain <a> tag in html,with an example.

Q.2. B Attempt any 1 of the following. 4

1) Explain binary search algorithm with an example.
2) Define the following and give example of each.
   a) Pointer
   b) Reference Variable

Q.3. A. Attempt any 2 of the following. 6

1) What are linked lists? Show a linked list with suitable example having 3 nodes with a labeled diagram.
2) What is a constructor? Why it is called so?
3) Differentiate between Procedural Oriented Programming Approach and Object Oriented Programming Approach.

Q.3. B. Attempt any d of the following. 4

1) Explain local and global variables in C++, with examples.
2) Define binary tree. Draw a binary tree structure for the following expression.
   $C = (X/Y)^3 - (5A + B)^2$

Q4. A. Attempt any 2 of the following. 6

1) Write declaration statement for each of the following.
   a) An array of 6 floats.
   b) A function that returns a float value.

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c) An array of 8 pointers to float value.

2) Define deletion operation in data structure. Write an algorithm for deleting an element from the array.

3) Explain the following string functions:

a) strlen ()

b) strlwr ()

c) strupr ()

Q4. B. Attempt any 2 of the following. 4

1) Explain bubble sort algorithm with an example.

2) Explain pass by reference with a program.

Q. 5 Attempt any 2 of the following. 10

1) Write a program in C++ to initialize an array with 10 integer values. The program must find and print the smallest value from the array.

2) Write an Object Oriented Program with two functions. One function will read the value of integer from user. The other function will calculate and print factorial of the entered integer.

3) Write HTML code for the following.

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STATIONARY	ERASER	5
	PENCIL	7
	PEN	10
	BOOK	22
	TOTAL	44

OR

1) Write a program in C++ that reads a string (max. 50 characters) from the user. The program must calculate and print the count of the character 'M' in the given string.

2) Write an HTML code for the following output :

COMPUTER DEVICES ← (Text size h2, align center)

- INPUT DEVICES
  1) Keyboard
  2) Mouse
- STORAGE DEVICES
  1) Hard Disk
  2) Floppy Disk
  3) Compact Disk
- OUTPUT DEVICES
  o Screen
  o Printer

3) Implement a class circle. Include a constructor in it which accepts value of radius from user. Include two more functions in it, one of which calculates area and circumference and the other prints answers.