

Code: A-C730124 - M

I SEMESTER EXAM. - 2023-24

2 x 190

Std.: XII

Sub: COMPUTER SCIENCE - I

Marks: 50

Date: 04/11/23

Roll No.: _____

Time: 3 hrs.

- i) All the questions are compulsory
- ii) Draw a neat labeled diag. whenever necessary
- iii) Figs. To right indicate full marks
- iv) Use any type of calc is not allowed
- v) Due credit will be given for the programs with appropriate comments / remarks.

Q.1 A) Select the correct alternatives and rewrite the following : [Each of 1 mark]

- a) While accessing the number in int array using pointer, the pointers value every time increases by _____.
1) 2 2) 4 3) 8 4) none
- b) Maximum no. of nodes in a symmetric Binary Tree with depth 4 is _____.
1) 16 2) 17 3) 15 4) 4
- c) _____ is not member of class .
1) constructor 2) friend function 3) static function 4) none
- d) To place an image into the html file, attribute used with is _____.
1) src 2) href 3) alt 4) url

B) Answer any two of the following. [3 marks each]

- a) Explain in brief any six data structure operations.
- b) Write an algorithm of bubble sort and explain method used in bubble sort with example.
- c) What is scope resolution operator? Explain the use of scope resolution operator by one example.

Q.2 A) Answer any two of the following. [3 marks each]

- a) Define the following terms with proper example.
1) class 2) object
- b) What is Linked List ? Show a linked list with a suitable example having six nodes with a properly labeled diagram.
- c) What is Record? Write any two distinguish points of Record and Linear Array.

B) Answer any one of the following. [4 marks each]

- a) With suitable example show the representation of linked list in memory.
- b) What is friend function? Write the characteristics of friend function.

Q.3 A) Answer of the following. [3 marks each]

- a) What is constructor? Explain by one example.
- b) Explain how the memory address of a variable can be accessed in C++.

B) Explain the static data member and member function used in class with proper example. Write the rules to access static data member and member function.

Q.4 A) Answer the following. [3 marks each]

- a) Explain the concept stack and queue used in data structure with proper diagram.
- b) Explain the following HTML tags with example of each.
1) <pre> 2) <sub> 3)

- c) What is destructor? State any four characteristics of destructor.

B) Answer any one of the following. [4 marks]

- a) What is Binary tree? Draw the binary tree structure for the following expression:

$$E = (a-b)/[(r*s)+t]$$
- b) Explain the call by value and call by reference with suitable example.

Q.5 Write program of ANY TWO of the following. [5 marks each]

- a) Write a program in C++ to calculate factorial of a entered number using function:
 long int fact(int n);
- b) Write a program in C++ to print Fibonacci series using class upto n terms with the help of functions void cal() and void print(). **fibonacci series is : 0 1 1 2 3 5 ... n terms**
- c) Write the HTML code for the following table.

College Report card

B. Sc.(IT)				
Year wise	FYBSC	SYBSC	TYBSC	TOTAL
Total score	60	60	60	180

OR

- a) Write a program in C++ to enter a number and check whether entered number is prime number or not.
- b) Write a program in C++ to enter string with 79 characters and count the alphabet 'A' or 'a' present in that string.
- c) Write the HTML code for the following output:
- o Computer
 - a. Software
 - i. C++
 - Function
 - Class
 - ii. Python
 - b. Hardware
 - 1. Printer
 - 2. Keyboard