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**Question Paper Code: 94803**

B.E./B.Tech. DEGREE EXAMINATION, MAY 2024

Fourth Semester

Information technology

19UIT403- Object Oriented Programming in C++

(Regulations 2019)

Duration: Three hours

Maximum: 100 Marks

Answer All Questions

PART A - (10x 2 = 20 Marks)

1. Write a program that prompts the user to input a year and determine whether the year is a leap year or not. CO2- App
2. Write a program that receives a number as input from user, and checks whether it is greater than 10 and less than 100 or not, to print message accordingly. CO2- App
3. Write a C++ program to count all the words in a given string. CO2- App
4. Create an array named coins of type int and initializes it to the values of the penny, nickel, dime, quarter, half-dollar, and dollar. CO2- App
5. What is the output of the following code? CO1- U  

```
#include<string.h>
void main()
{
cout<<strlen("Hello, World.\n")<<"\n";
}
```
6. When used in prefix form, what does the overloaded ++ operator do differently from what it does in postfix form? CO3- Ana
7. How can the members of base class be accessed in derived class?. CO1- U
8. Assume a class Derv derived from a base class Base. Both classes contain a member function func() that takes no arguments. Write a statement to go in a member function of Derv that calls func() in the base class. CO2- App
9. List out the Keyword used for handling exceptions CO1- U
10. Draw a neat and clean diagram to show exception handling model in C++ CO1- U

PART – B (5 x 16= 80Marks)

11. (a) Write a temperature-conversion program that gives the user the option of converting Fahrenheit to Celsius or Celsius to Fahrenheit. Then carry out the conversion. Use floating-point numbers. Interaction with the program might look like this:  
Type 1 to convert Fahrenheit to Celsius,  
2 to convert Celsius to Fahrenheit: 1  
Enter temperature in Fahrenheit: 70  
In Celsius that's 21.111111
- Or
- (b) Suppose you give a dinner party for six guests, but your table seats only four. In how many ways can four of the six guests arrange themselves at the table? Any of the six guests can sit in the first chair. Any of the remaining five can sit in the second chair. Any of the remaining four can sit in the third chair, and any of the remaining three can sit in the fourth chair. (The last two will have to stand.) So the number of possible arrangements of six guests in four chairs is  $6*5*4*3$ , which is 360. Write a program that calculates the number of possible arrangements for any number of guests and any number of chairs. (Assume there will never be fewer guests than chairs.) Don't let this get too complicated. A simple for loop should do it.
12. (a) Write a program that defines a class "distance" that stores distance value in meters. Perform operation  $d3=d1+d2$  on its objects.
- Or
- (b) Write a C++ program that create class customer with customer name, account number and account type and provides below operation on customer account such as deposit, withdraw and display balance then use constructor to display full details.
13. (a) Write a C++ program to display the record of student with highest percentage using this pointer.

Or

- (b) Create a class Student. Include data members roll no, name, city and age. Write member functions: CO2-App (16)
- (i) To accept information of 'n' students
  - (ii) To display information of 'n' students
  - (iii) To search details of a student using roll no (use array of objects)
14. (a) Write a class template to represent a generic vector. Include member functions to perform the following tasks: CO2- App (16)
- (a) To create the vector
  - (b) To modify the value of a given element
  - (c) To multiply by a scalar values
  - (d) To display the vector in the form (10, 20, 30 ...)
- Or
- (b) Design a base class Person (name, address) and derived class as Student(roll no, percentage). Write member functions to accept and display information of student.(use virtual function). CO2- App (16)
15. (a) Write a C++ program using function template to find the maximum among two number in integer, float & double. CO2- App (16)
- Or
- (b) Write a C++ program to sort n numbers using templates CO2- App (16)

