C

Question Paper Code: 53804

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2022

Third Semester

Information Technology

15UIT304 - OBJECT ORIENTED PROGRAMMING

(Regulation 2015)

Duration: Three hours   Maximum: 100 Marks

Answer ALL Questions

PART A - (5 x 1 = 5 Marks)

1. Which datatype is used to represent the absence of parameters?   CO1- R

    (a) Int   (b) Short   (c) Void   (d) Float

2. Which keyword should be used to declare static variables?   CO2- R

    (a) Static   (b) Stat   (c) Const   (d) Common

3. Which class is used to design the base class?   CO3- R

    (a) Base class   (b) Abstract class   (c) Derived class   (d) Super class

4. Which is used to create a pure virtual function?   CO4- R

    (a) =0   (b) $ (c)&   (d) !

5. Which operator is used to insert the data into file?   CO5- R

    (a) <<   (b) >>   (c) #   (d) !=

PART – B (5 x 3= 15Marks)

6. Discuss about the merits of object oriented programming.   CO1- R

7. What are the types of constructors in C++ ?   CO2- R

8. How do the properties of following two derived classes differ?   CO3- R

    (i) class X : public A{//..}

    (ii) class Y : private A{//..}

9. Can a destructor be pure virtual in C++? CO4 -R

10. What are the various modes available in opening a file? CO5- R

PART – C (5 x 16= 80 Marks)

11. (a) (i) Write a function repstr() which takes a string and an integer value as its arguments. The string value is passed as a reference variable. This function reverses the string and prints it to the number of times equal to the integer value which is passed as the second argument to that function. CO1- App (8)

(ii) Write code for a function void Even Odd(int T[], int c) in C++, to add 10 in all the odd values and 20 in all the even values of the array T. CO1- App (8)

Example: If the original content of the array T is

T[0]	T[1]	T[2]	T[3]
35	12	16	59

The modified content will be:

T[0]	T[1]	T[2]	T[3]
45	22	36	69

Or

(b) (i) Illustrate with an example about the control structures in C++. CO1- App (8)

(ii) Write a C++ program using function which accept two integers as an argument and return its sum. Call this function from main( ) method and print the results in main( ) method. CO1- App (8)

12. (a) (i) Define a class employee. Take name, designation, age, DoB, address and years of experience as data members and getdata and show data as methods. Now enter the details of 10 employee using array of objects. CO2- U (8)

(ii) Can we have more than one constructor in a class? If yes, explain such a situation with example. CO2- U (8)

Or

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(b)	Why is destructor function required in class? What are the special characteristics of destructors? Can a destructor accept arguments?	CO2- U	(16)

13. (a) (i) Write a C++ program using operator overloading to find the difference of two complex numbers. (C3 = C1 - C2) where the name of the class is Complex. CO3- App (8)

(ii) Differentiate between compile time & runtime polymorphism with example. CO3- App (8)

Or

(b) Write a C++ program to create a class STUDENT having data member roll no. Create classes TEST & SPORTS from class student having data member marks of two test & sports score respectively. All three classes contain functions. CO3- App (16)

(i) to set values of data members

(ii) to display values of data members.

Create class RESULT from Class test & 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.

14. (a) (i) Explain with the help of an example why templates are used in programming? CO4- U (8)

(ii) Write a function template for finding the minimum values contained in an array. CO4- U (8)

Or

(b) The keyword 'virtual' can be used for functions as well as classes in C++. Explain the two different uses. Give an example for each. CO4- U (16)

15. (a) (i) Describe the various approaches by which we can detect the end-of-file condition successfully. CO5- U (8)

(ii) Write a program using 4 functions Seekg, Seekp, tellg, tellp which are used for setting pointers during file operation and show how they are derived from fstream class. CO5- U (8)

Or

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(b)   Write a C++ program with the following logic   CO5- U   (16)

    1.A function to read two double type numbers from keyboard.

    2. A function to calculate the division of these two numbers.

    3. A try block to throw an exception when a wrong type of data
      is keyed in.

    4. A try block to detect and throw an exception if the condition
      "divide-by-zero" occurs.

    5. Appropriate catch block to handle the exception thrown.