Roll No ....

IT-304-CBGS

B.Tech., III Semester

Examination, June 2020

Choice Based Grading System (CBGS)
Object Oriented Programming and Methodology

Time : Three Hours

Maximum Marks : 70

Note: i)　Attempt any five questions.

　　　ii) All questions carry equal marks.

　　　iii)In case of any doubt or dispute the English version
　　　　question should be treated as final.

1. a)　What do you understand by term 'object oriented
　　　programming'? What are its different characteristics?
　　　Explain and define various OOP concepts in brief.

　　'Object oriented programming'

b) Explain the difference between procedural programming languages and object oriented programming language. What are the merits and demerits of object oriented methodologies? Explain them in brief.

Procedural programming languages   object oriented programming language

object oriented

2. a) Discuss the role of Cout and Cin in detail. Why they are used in C++ and from which class they belong to? Explain in detail.

b) Explain in detail about the various control and looping statements in object oriented programming. Write the syntax and property of several control statements? Where and when do while loop and for loop is used? Differentiate between them.

Object oriented programming

looping statements

statements   do

3. a) Explain the role of constructor and destructor in a class. What are the different types of constructors in C++? Write the appropriate syntax for the copy constructor and parameterized constructors.

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Copy constructor   parameterized constructor

b) Write a C++ program to show the concept of class, object and calculate the area of rectangle, square and circle by using function overloading. Define scope and life of any variable.

Function overloading

4. a) What are the inline functions and what are the benefits of declaring any function as inline? How any function is made inline? Give its syntax.

Inline functions ^{3}

b) Discuss the term 'polymorphism' in detail. What are the different ways to implement polymorphism in C++? Explain them in brief. Differentiate between compile time and run time polymorphism.

Polymorphism

IT-304-CBGS   PTO

5. a) Explain the fundamental concept behind 'inheritance' in object oriented programming by taking an suitable example. Define multiple, multilevel and hybrid inheritance with proper diagram and syntax.

Object oriented programming '|inheritance

Multilevel

b) Explain the concept of 'Operator overloading' in detail and with proper syntax show how unary and binary operator are overloaded? What are its advantages? Write a C++ program to overload '+' operator using member function to add two complex numbers.

Operator overloading

unary

operator binary operator

member function 6 overload

C++

program

6. a) What are the access modifiers? How many types of access modifiers are available in C++? Explain each of them and their role in implementing the data hiding in object oriented programming.

b) What do you mean by the term 'base class' and 'derived class'? Explain the difference in deriving any class through public inheritance and through private inheritance.

Base class   derived class

class   public inheritance   private inheritance

derive

7. a) Explain the concept of 'Pointer' and its types. What are the usage of 'new' and 'delete' operator in terms of memory management in C++. Write a program in C++ to show the concept of function pointer and accessing any element of an array through pointer.

Pointer   '|new

                                                        on

b) Explain the concept of virtual function, friend function and static function by writing its syntax. Also discuss the role of 'virtual function' and 'abstract class'.

Virtual function, friend function   static function H$s

8. a) What are the various stream classes and stream error? Explain them in brief. What are input and output streams? Give examples.

b) Explain in detail about exception and how they handled? Define function template and class template.

Function template   class template

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