UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination, December 2017

Program: B.Tech. (Mechatronics)	Semester – III
Subject (Course): Object Oriented Programming with C++	Max. Marks : 100
Course Code : CSEG206	Duration : 3 Hrs
No. of page/s: 2	

Section A

Note: Attempt All the question   5*4

Que 1. What are the main characteristic of OOP language?

Que 2. Differentiate parameterized and default constructor in C++.

Que 3. Write a program to handle division by zero exception using try and catch block in C++.

Que 4. Explain the use of abstract class in C++.

Que 5. Define Polymorphism. Explain the different type of polymorphism.

Section B

Note: Attempt All the question   4*10

Que 6. Explain hybrid inheritance with an example in C++.

Que 7. Differentiate function template and class template.

Que 8. Write a C++ program that will ask temperature in Fahrenheit and display it in Celsius.

$$\text{Fahrenheit to Celsius: } (F-32)\frac{5}{9}=C$$

Use the concept of objects and classes for the Fahrenheit to Celsius conversion.

Que 9. Create a class that contains one data member. Overload all four arithmetic operators so that operate on the object of same class.

_OR_

What is the virtual function? Explain with an example in C++.

Section C

Note: Attempt All the question   2*20

Que 10. Create a complex number class in C++. The class should have a constructor and methods to add, subtract and multiply two complex numbers and return the real and imaginary parts.

Que 11. Discuss **_any four_** of the following:
   a) Vectors and Iterators
   b) String Class
   c) 'this' keyword
   d) Stream
   e) Manipulators and Functors
   f) Access Specifier

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Section A

Note: Attempt All the question   5*4

Que 1. What do you mean by copy constructor?

Que 2. What are the main characteristic of OOP language?

Que 3. Differentiate destructor and constructor with simple C++ example.

Que 4. Write a program to handle division by zero exception using try and catch block in C++.

Que 5. Explain the use of abstract class in C++.

Section B

Note: Attempt All the question   4*10

Que 6. Describe the syntax of different form of inheritance in C++.

Que 7. Write a C++ program to demonstrate file handling as follows: get string as input from the user, store them in a file, retrieve them and display them.

Que 8. What is encapsulation? Do friend function violet encapsulation.

OR

Differentiate function template and class template.

Que 9. Create a class that contains one data member. Overload all four arithmetic operators so that operate on the object of same class.

Section C

Note: Attempt All the question   2*20

Que 10. Write a C++ program as follows to perform arithmetic operations on Rational numbers of type a/b, where a and b are integers.

  a)   Define a class by 'Rational Number'.

  b)   Use operator overloaded methods for addition and subtraction.

  c)   Write a main program to demonstrate the use of this class and its methods.

  d)   Give a sample output.

Que 11. Discuss ***any four*** of the following:

    a) Iterators and Allocators

    b) Composition and Classification

    c) 'this' keyword

    d) Garbage Collection

    e) Ambiguity in MI

    f) Access Specifier