Total No. of Questions : 8]

SEAT No. : [ ]

P1539

[Total No. of Pages : 2

[6002]-168
S.E. (I.T.)
OBJECT ORIENTED PROGRAMMING
(2019 Pattern) (Semester-III) (214444)

Time : 2½ Hours] ***[Max. Marks : 70***

Instructions to the candidates:

1) ***Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8.***
2) ***Neat diagrams must be drawn wherever necesary.***
3) ***Figures to the right indicate full marks.***
4) ***Assume Suitable data if necesary.***

Q1) a) Consider the definition of 'complex' class as below. **[9]**

```
public class complex
{
private int real, img;
 public complex ()
{
   //constructor 1
}
public complex (int real, int img)
{
   //constructor 2
}
public complex (complex c)
{
   // constructor 3
 }
}
```

Re-write the class 'Complex' as:

i) Define the constructor 1 so that the private member variables are initialized to 0.

ii) Define the constructor 2 so that the private member variable real and img is initialized according to the value of the parameter.

iii) Define the constructors 3, where copy one object to another.

b) With suitable code segments illustrate various uses of 'final' keyword. **[9]**

OR

P.T.O.

Q2) a) What are the characteristics of Destructor? How is Destructor declared in OOP? Demonstrate with an example. **[9]**

b) Write a program which demonstrate constructor with default arguments. **[9]**

Q3) a) Discuss diamond problem in detail? How it can be solved? **[9]**

b) Enlist the benefits and costs of Inheritances. **[8]**

OR

Q4) a) How parameterized constructors get executed in multilevel inheritance? Explain with an example? **[9]**

b) Define polymorphism? What are the types of Polymorphism? How can be run time polymorphism achieved in OOP? **[8]**

Q5) a) Define exception. What are its types? Discuss exception handling mechanism in detail. **[9]**

b) What is Generic programming? Discuss any four methods of ArrayList class with their syntax. **[9]**

OR

Q6) a) Is there any difference between throw and throws in exception handling in Java? If 'yes', justify your answer. **[9]**

b) How basic mathematical set operations union, intersection, and subset are performed using set interface? **[9]**

Q7) a) What is a design pattern? Write a short note on 'Singleton' design pattern. **[9]**

b) Write program to handle primitive data types in file handling. **[8]**

OR

Q8) a) How do you write to a file and read from a file using File Writer and FileReader class, respectively? **[8]**

b) What are the advantages of design patterns? Explain 'Adaptor' design pattern in detail. **[9]**

❖ ❖ ❖