

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 necessary.
- 3) Figures to the right indicate full marks.
- 4) Assume Suitable data if necessary.

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]

