

Total No. of Questions : 8]

SEAT No. :

PB-3654

[Total No. of Pages : 2

[6261]-62

S.E. (I.T.)

**Object Oriented Programming  
(2019 Pattern) (Semester - III) (214444)**

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Answer Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8.
- 2) Neat diagram must be drawn wherever necessary
- 2) Figures to the right side indicate full marks.
- 3) Assume suitable data if necessary.

- Q1)** a) Write a short note on 'Symbolic Constants' in Java. [9]  
b) Discuss Constructor Overloading with suitable code. [9]

OR

- Q2)** a) How are objects initialized dynamically? Explain with an example. [9]  
b) What is garbage collection in OOP? Explain finalize() method in Java. [9]

- Q3)** a) Define a class 'shape' with abstract method compute\_area(). Derive the classes 'circle' and 'rectangle' from 'shape' class. Calculate the area of circle and rectangle using Dynamic Binding. Use appropriate instance variables and methods whenever necessary. [9]  
b) Discuss diamond problem in detail? How it can be solved? [8]

OR

- Q4)** a) Design a class 'person1' with instance variables 'name' and 'age'. Derive a class 'person2' from 'person1' class with instance variable 'gender'. Derive a class 'employee' from 'person2' class with instance variable 'address'. Create a database of the 3 employees. Use the appropriate methods to accept and display the data. [9]  
b) Define Polymorphism? Differentiate between Compile Time Polymorphism and Run Time Polymorphism with an example. [8]

P.T.O.

**Q5) a)** Can we throw an exception explicitly or manually? If 'yes', justify your answer with an example. [9]

b) What is Generic Programming? Discuss any four methods of LinkedList class with their syntax. [9]

OR

**Q6) a)** Differentiate between an array and ArrayList class. Explain following methods of ArrayList class. [9]

i) add()

ii) get()

iii) remove()

b) Implement a program which handle ArrayIndex Out of Bound Exception [9]

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

b) How do you write to a file and read from a file using FileWriter and FileReader class, respectively? [8]

OR

**Q8) a)** How are input/output exceptions handled in File Handling? Explain with an example [9]

b) Is it possible to concatenate two or more files and save them in a different file? If 'yes', justify your answer with an example. [8]

