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53 (IT 401) OOPR

2019

**OBJECT-ORIENTED PROGRAMMING
AND DESIGN**

Paper : IT 401

Full Marks : 100

Time : Three hours

**The figures in the margin indicate
full marks for the questions.**

Answer **any five** questions.

- (a) Explain Array Index Out of Bounds Exception and NullPointer Exception with an example. 10

(b) Describe the significance of throw list in C++. 10
- (a) Is it possible to overload template functions? Explain with example. 10

Contd.

(b) Explain different modes in which file can be opened in C++. 5

(c) Explain the problem of ambiguity in multiple inheritance with an example. 5

3. (a) What is a virtual table? What is the application of virtual tables? Explain with example. 10

(b) What is pointer to a function? Explain the situations in which such a concept is used. 10

4. (a) What is initialization list? Illustrate the use of initialization lists in the base and derived constructors. 10

(b) What do you understand by dynamic constructors? Explain the use of creating dynamic constructors in a C++ program. 10

5. Write a C++ program to overload + and - operators for performing addition and subtraction of Matrix objects respectively. Create a class Matrix and overload operators by writing operator functions as friend functions of class Matrix. 20

6. Write a program to open a file in read and to count.

(i) Number of uppercase characters in file

(ii) Number of lowercase characters in file

(iii) Number of digits in the file

(iv) Number of special characters in file

7. Write short notes on :

(i) Class template

(ii) Destructor

(iii) Virtual base class

(iv) Function overriding.

