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**[5152]-575**

**S.E. (Information Technology) (First Semester)**

**EXAMINATION, 2017**

**PROBLEM SOLVING AND OBJECT ORIENTED**

**PROGRAMMING CONCEPTS**

**(2015 PATTERN)**

**Time : Two Hours**

**Maximum Marks : 50**

- N.B. :—** (i) Answer Q. No. 1 or Q. No. 2, Q. No. 3 or Q. No. 4,  
Q. No. 5 or Q. No. 6, Q. No. 7 or Q. No. 8.  
(ii) Neat diagrams must be drawn wherever necessary.  
(iii) Figures to the right indicate full marks.  
(iv) Assume suitable data, if necessary.

1. (a) What are different types of operators ? Give hierarchy/  
precedence of operators. [6]  
(b) Explain the concept of local variable and global variable with  
suitable example. [6]

*Or*

2. (a) What are the six steps of problem solving ? [6]  
(b) Explain "Top-down design" to solve the problem. [6]
3. (a) Write an algorithm for finding maximum element of an  
array. [4]  
(b) Define the terms polymorphism, data abstraction. [4]  
(c) Explain various features of Object Oriented Programming. [4]

P.T.O.

*Or*

4. (a) Define Constructors and Destructors. [4]  
(b) Define a Class Bank Account having data members and member functions as : [4]

**Data members :**

- (1) Name of depositor
- (2) Account number
- (3) Type of account
- (4) Balance amount in the account.

**Member functions :**

- (1) To assign initial values
  - (2) To deposit an amount
  - (3) To withdraw an amount after checking the balance
  - (4) To display name and balance.
- (c) What is need of virtual destructor ? [4]

5. (a) What is inheritance ? What are different types of inheritance ? [6]  
(b) Write a C++ program to demonstrate multiple inheritance. [4]  
(c) What are rules of operator overloading ? [3]

*Or*

6. (a) Write a C++ program to add the complex numbers using binary operator overloading. [6]  
(b) Explain early binding and late binding. [4]  
(c) Explain virtual base class with example. [3]
7. (a) Explain Standard Template Library (STL). [6]  
(b) What is generic programming ? How is it implemented in C++ ? [4]

- (c) Define friend class. Explain the concept of forward declaration of class. [3]

*Or*

8. (a) Describe briefly the features of I/O system supported by C++. [6]
- (b) What is formatted and unformatted I/O operations. [4]
- (c) Explain how the exception is handled in C++. [3]