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Seat No.	
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[5057]-2064

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

EXAMINATION, 2016

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) Define function. What are the various types of functions ?
Explain any *one* function in detail. [6]
- (b) Write a solution to the problem of finding the largest number out of five numbers. Develop algorithm, flowchart, interactivity chart and input-output chart. [6]

Or

2. (a) What is the difference between an expression and equation ?
Evaluate the following for the values $A = 5$, $B = 2$,

P.T.O.

C = True, D = False.

(Include the structure of the order of processing)

(i) $R = A + 3 > B - 1 \text{ AND } C \text{ OR } D$

(ii) $R = \text{NOT } C \text{ OR } D \text{ OR } A - 3 > = B.$ [6]

(b) Explain with flowchart concept of : [6]

(i) While/WhileEnd

(ii) Repeat Until.

3. (a) Differentiate between Procedural Oriented Programming and Object Oriented Programming. [4]

(b) What is static data member and static member function ? [4]

(c) Write a C++ program to overload unary operator minus (-). [4]

Or

4. (a) Write a program in C++ for creating array of student object (for 150 students). Create class student with data members as Roll Number, Name, Address, Mobile Number and Member functions as get data and display data. Define member function outside class. [4]

- (b) Write a C++ program to calculate the area of circle and triangle using function overloading. [4]
- (c) Explain the syntax of operator overloading using friend function. [4]
- 5.** (a) Write a C++ program to swap two numbers using concept of function template. [6]
(Without using temporary variable)
- (b) Explain virtual function in C++. [4]
- (c) What is STL ? Explain various components of STL. [3]

Or

- 6.** (a) Write a C++ program for a function template that returns the maximum of two values. [6]
- (b) Write a program in C++ to demonstrate concept of hierarchical inheritance. [4]
- (c) What is 'this' pointer ? [3]
- 7.** (a) Explain the following file manipulation functions with example seekg(), seekp(), and tellp(). [6]

(b) Explain exception handling mechanism in C++. [4]

(c) How to catch multiple exceptions ? [3]

Or

8. (a) What are C++ stream classes for console operations ? Explain it in detail with the help of diagram. [6]

(b) Explain the following file mode ios::trunk, iso::app, ios::ate, ios::binary. [4]

(c) What is formatted I/O operation ? [3]