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[5668]-205

S.E. (Information Technology) (I Sem.) EXAMINATION, 2019
PROBLEM SOLVING AND OBJECT ORIENTED PROGRAMMING
(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 and 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 the *six* steps of problem solving ? Discuss with example. [6]
(b) Design an algorithm to find out maximum number from an array using the following problem solving strategies : [6]
(i) Sequential logic structure
(ii) Decision logic structure
(iii) Loop logic structure.

Or

2. (a) Write a solution to the problem of finding the largest number from an array of 'n' element. Develop algorithm, flowchart, and interactivity chart. [6]
(b) Explain data dictionary with example. [6]

P.T.O.

3. (a) How is memory allocated/deallocated in C++ ? [6]

(b) Consider the definition of the following class : [6]

```
class Sample
{
private:
    int x;
    double y;
public:
    Sample(); //Constructor 1
    Sample(int, double); //Constructor 2
    Sample(Sample &P ); //Constructor 3
};
```

(i) Write the definition of the constructor 1 so that the private member variables are initialized to 0.

(ii) Write the definition of the constructor 2 so that the private member variable x and y is initialized according to the value of the parameter.

(iii) Write the definition of the constructors 3, where copy one object to another.

Or

4. (a) What is Static variable and static function ? Explain with example. [6]

(b) Give properties of friend function and explain with suitable example. [6]

5. (a) What is virtual function ? What is the use ? Give an example how compilers Resolve a function call. [7]
- (b) What are class templates ? How are they created ? What is the need for class templates ? [6]

Or

6. (a) What is STL ? Explain various component of STL. [6]
- (b) Discuss difference between early and late binding. [4]
- (c) Write a note on 'this' pointer. [3]
7. (a) How to catch multiple exceptions ? Illustrate with example. [6]
- (b) What is unformatted and formatted I/O operations. [7]

Or

8. (a) Explain need of exception handling. Explain it with example. [6]
- (b) How to manage console I/O operation in C++ ? Explain with example. [7]