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Roll No. :

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**B. E. (Fourth Semester) Examination April-May 2021
(New Scheme)**

(IT Branch)

**OBJECT ORIENTED CONCEPTS &
PROGRAMMING using C++**

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : Each question of part (a) is compulsory and from part (b), (c) & (d) attempt any two questions. Part a carry 2 mark and from part (b), (c) & (d) each one carries 7 marks.

Unit - I

1. (a) Write the name of different visibility modes.
- (b) How does a C++ structure differ from C++ class?
What are objects and how are they created?

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Explain with an example.

- (c) What are the basic concepts of Object Oriented Programming? Give examples of each.
- (d) Can we pass class object as function arguments? Explain with the help of an example.

Unit - II

- 2. (a) Define reference variable with a small code.
- (b) What are the static data members and static member functions? A static function can access only static data members. Why?
- (c) What is a friend class? If Class B is friend of class A, then is class A also a friend of class B? If no, then how can classes A and B be made friends of each other?
- (d) Write a program to depict the concept of nested classes.

Unit - III

- 3. (a) Which statement in the above code will generate an error and why?

[3]

```
class test
{
int x;
public :
change(test & A) const
{
A.x++;//statement 1
x++; //statement 2
}
};
```

- (b) What is constructor explain types with an example code?
- (c) Explain dynamic memory management operator with suitable example.
- (d) Write a program to demonstrate use of constructors and destructors with static members.

Unit - IV

- 4. (a) What is function overriding?
- (b) What do you mean by operator overloading, explain with an example code? Give the list of operators which cannot be overloaded.

- (c) Consider an example of declaring the examination result. Design three classes: Student, Exam, and Result. The student class has data members such as those representing roll number, name, etc. Create the class exam by inheriting the student class. The exam class adds data member representing the marks scored in six subjects. Derive the result from the example class and it has its own data members such as total marks. Write an interactive program to model this relationship. What type of inheritance this model belongs to?
- (d) What do you mean by function overloading? Explain with example. Write a program to compute the area of a rectangle and a circle by overloading the area () function.

Unit - V

5. (a) What is order of execution of constructors and destructors in inheritance?
- (b) Discuss the abstract classes with suitable example.
- (c) What are the advantages of using exception handling mechanism in a program?
- (d) What is template? Explain their types with example.