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**B. E. (Fourth Semester) Examination,
April-May 2016**

(New Scheme)

(IT Engg.)

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

*Time Allowed : Three hours**Maximum Marks : 80**Minimum Pass Marks : 28*

Note : Attempt all questions. Part (a) of each question is compulsory and is of 2 marks. Attempt any one part from (b) and (c).

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1. (a) Explain the features of Object Oriented Language. 2

- (b) Define and differentiate between following terms. 14

- (i) Class and Object
- (ii) Static data member and static member function

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- (c) Write a program using nested classes. 14

2. (a) Describe abstract classes. 2

- (b) Create a class sort to sort n names in ascending order. Also create a friend class Reverse of Sort Class which will show it in descending order. 14

- (c) What is function? Explain following types : 14

- (i) Inline function
- (ii) Virtual function

3. (a) Explain why 'this' pointers are used. 2

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- (b) What are pointers? Explain the use of pointer giving example with new and delete operators.

- (c) Create a matrix class and create member functions for finding transpose and checking if it is a symmetric matrix other than required member functions. 14

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4. (a) Briefly explain multiple and hybrid inheritance. 2
- (b) What is Function Overloading? Write a program to perform the following in using function overloading. 7
- (i) Count the number of digits of a number and reverse it. CSVТУonline.com
- (ii) Count the number of characters in a string and reverse it.
- (c) Write a C++ program to declare a class STUDENT having two subclasses BE and MCA. Write a program to accept details of n number of students for each category and generate marksheet calculating average and percentage of students, thus displaying the detail of each student. CSVТУonline.com 14
5. (a) Explain concept of Virtual Base Classes. 2
- (b) Write a program to retrieve only the comments from any C++ program stored in a text file. 14
- (c) Write a program using class template. 14