

**3E1415**

Roll No. : \_\_\_\_\_

Total Printed Pages : **2****3E1415****B.Tech. (Sem. III) (Main/Back) Examination, January - 2012****Production & Industrial Engg.****3PI5 Object Oriented Programming in C++****(Common for ME/AE)**Time : **3 Hours**][Total Marks : **80**[Min. Passing Marks : **24****Instructions to Candidates :**

*Attempt any five questions selecting one question from each unit. All questions carry equal marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.*

Use of following supporting material is permitted during examination.  
(Mentioned in form No. 205)

1. \_\_\_\_\_ Nil \_\_\_\_\_

2. \_\_\_\_\_ Nil \_\_\_\_\_

**UNIT - I**

- 1 State the difference between following :
- Class and object.
  - Class in C++ and structures in C.
  - Functional programming and OOPS.
  - Compiler of C and C++.

**4×4****OR**

- 1 (a) What do you understand by polymorphism? Explain it's types and how it is achieved in C++. Also discuss it's advantages.
- (b) Explain the need of data hiding and how it is done in C++.

**10****6****UNIT - II**

- 2 What is dynamic memory allocation? How it is done in C++ ? Write suitable C++ code for allocation and deallocation of memory, dynamically.

**16****OR****3E1415]****1**

2 State the difference between following with suitable code :

- (a) Macro and inline function
- (b) Function and operator overloading.

8×2

### UNIT - III

3 Write a C++ program and do following :

- (i) Create a class employee.
- (ii) In main program create object's of class employee.
- (iii) Count and display Number of objects created.

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OR

3 Explain following with code :

- (a) Friend function.
- (b) Constructor overloading.
- (c) Protected class members.
- (d) Runtime polymorphism.
- (e) Abstract base class.

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### UNIT - IV

4 What are container classes ? Write code to define any container class using class Templates. rtuonline.com

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OR

4 Discuss stream classes that performs file I/O. Also discuss file opening modes.

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### UNIT - V

5 Write a C++ code to implement a Node of doubly link list. Also discuss self referential pointers.

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OR

5 Write short notes on following :

- (a) Stack and it's practical use.
- (b) Priority Queue.
- (c) Linear V/s Nonlinear data structures.

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