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 :
     (a)   Class and object.
     (b)   Class in C++ and structures in C.
     (c)   Functional programming and OOPS.
     (d)   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.

                                                                        10

     (b)   Explain the need of data hiding and how it is done in C++.

                                                                        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

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.

                                                                16

OR

3   Explain following with code :
    (a) Friend function.   3
    (b) Constructor overloading.   3
    (c) Protected class members.   3
    (d) Runtime polymorphism.   4
    (e) Abstract base class.   3

UNIT – IV

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

                                                                16

OR

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

                                                                16

UNIT – V

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

                                                                16

OR

5   Write short notes on following :
    (a) Stack and it's practical use.   6
    (b) Priority Queue.   6
    (c) Linear V/s Nonlinear data structures.   4