Total No. of Questions – 8] [Total No. of Printed Pages – 3

BE-III/02(A)

25036

COMPUTER/ I.T. ENGINEERING COURSE NO. COM – 301

(OOAD with C++)

Time Allowed: 3 Hours Maximum Marks: 100

Note: Attempt five questions in all selecting at least two questions from each Section. Each question carries 20 marks.

Section – A

1. (a) Explain the following characteristics of object oriented programming with examples:

   (i) Polymorphism

   (ii) Modularity

   (iii) Inheritance

   (b) With the help of a suitable example, explain the use of "this" pointer. (12, 8)

2. (a) What are friend functions? Why are they used? Explain with an illustration.

   (b) What is an inline function? In which situations would you make a function inline? Give two examples of inline functions. (10, 10)

[Turn Over

3. (a) What are constructors? Explain the different type of constructors with example.

(b) Write a program in C++ using OOP approach to find the sum and average of an array A with n integer values. Provide a feature for dynamic initialization of variables. (10, 10)

4. (a) Explain public, private, protected with references to object oriented paradigm.

(b) Write a program in C++ by OOP approach which read an array and print the array after removing its duplicates.

(10, 10)

Section – B

5. (a) Define a class string. Use overloaded '= =' and '+' operators to compare two strings and concatenate two strings respectively.

(b) What are the advantages of inheritance? Give the relationship between the member visibility and inheritance modes. (10, 10)

6. (a) Write a C++ program to find the sum of two time quantities in hours and minutes (HH:MM) by overloading the + operator.

(b) What are virtual classes? Explain the need for virtual classes while building a class hierarchy. (10, 10)

7. (a) Write a program in C++ to create a base class called STUDENT (Name, Reg.No., Age) and using inheritance create classes UG_STUDENT and PG_STUDENT having fields as semester, fee and stipend. Enter the data of 10 students. Find the average age, semester wise for all the UG and PG students separately. (10)

(b) Explain the following:

(i) seekg ( ) (ii) seekp ( )

(iii) tellg ( ) (iv) tellp ( ) (10)

8. (a) Write a program in C++ to read 10 student records from a file "STUDENT.DAT". Modify the first and last record and store the records in another file "STUDENT1.DAT". (10)

(b) Write notes on:

(i) Pure virtual function (ii) Abstract Class. (10)

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