

**BACHELOR OF COMPUTER
APPLICATIONS (PRE-REVISED)****Term-End Examination****June, 2013****CS-72 : C++ AND OBJECT ORIENTED
PROGRAMMING***Time : 2 hours**Maximum Marks : 60*

Note : Question number 1 is compulsory. Attempt any three questions from the rest. All examples must be in C++ programming language only.

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1. (a) What are objects ? How do objects interact with each other and with the external interfaces ? Describe with the help of a diagram. 4
- (b) What are Macros and why are they needed ? Design a macro to find the cube of a variable. 5
- (c) Create a class student containing data members as Roll-no, Stu_name, Stu_address, Stu_class, Stu_dob, Stu_percentage. 10
Include member functions to accomplish the following :
- (i) Design a constructor to automatically generate Roll_no for the students.
- (ii) Accept student details from the user.

(iii) Calculate the student age from his birth year.

(iv) Assign grade to the student as follows :

Grade	percentage criteria
A	- Percentage $\geq 90\%$
B	- $90 < \text{percentage} \geq 80\%$
C	- $80 < \text{percentage} \geq 70\%$
D	- $70 < \text{percentage} \geq 60\%$
E	- percentage < 60

Write appropriate main function for the above.

- (d) What is Dynamism ? Describe dynamic binding for object-oriented design with the help of an example. 5
- (e) Differentiate between Call by Value and Call by Reference with the help of examples. 6
2. (a) What is Inheritance ? What are the different visibility modes observed while deriving a class from a base class. 5
- (b) Describe at least five advantages of object oriented programming. 5
3. (a) JAVA is a modern object oriented language. Describe any five features of JAVA. 5
- (b) Write a program to overload the + operator to concatenate two strings. 5

4. (a) What are templates ? Create a function template for a stack. 5
- (b) Explain various data types in C++. 5
5. Explain the following with the help of an example : 10
- (a) Type conversion
- (b) Size of operator
- (c) Bitwise operators
- (d) Logical operators
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