

**Even Semester Examination - 2017****B.C.A. (II SEMESTER)****PROGRAMMING IN C++****Time: 03:00 Hours****Max Marks : 70**

Note: Question 1 is compulsory.

- Q1. Attempt all questions. (5x3=15)
- (a) other and with the external interfaces? Describe with the help of a diagram.
  - (b) Explain stream classes and give stream classes for console operation
  - (c) What are Macro What are objects? How do objects interact with each and why are they needed? Design a macro to find the cube of a variable.
  - (d) Create a class student containing data members as Roll\_no, Stu\_name, Stu\_address, Stu\_class, Stu\_dob, Stu\_percentage. 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 3	=> 90%
B	90 < percentage	=> 80%
C	80 < percentage	=> 70%
D	- 70 < percentage	=> 60%
E	percentage < 60	

Write appropriate main function for the above

- (e) What is Dynamism? Describe dynamic binding for object-oriented design with the help of an example.

Q2 Give answer of the following:- (5x3=15)

- (a) Differentiate between call by value and call by reference with the help of examples.

- (b) Explain the scope and inheritance of public, private and protected members of a class.
- (c) Explain the concept of 'this' pointer with example.
- (d) Write a program to illustrate the concept of parameterized constructor.
- (e) Find errors, if any, from the following code –

```
#include<iostream.h>
class xyz
{
    private:
        int d1;
        float d2;
    public:
        void xyz ();
        void display ();
};
void main ()
{
    xyz s;
    s.showdata ();
}
```

Q3. Attempt any two of the following: (2x10=20)

- (a) Explain stream classes and give stream classes for console operation. What is the difference between opening a file with constructor function and opening a file with open() function.
- (b) Explain Virtual function and pure virtual function. Explain the working of virtual functions. Also write the advantage of virtual function and virtual class.
- (c) Draw a neat diagram showing the Stream-I/O template hierarchy which includes the file-processing templates.

4. Attempt any two of the following : (2x10=20)

- (a) Write a program to
  - i. Create a Random-Access File
  - ii. Write data randomly to a Random-Access File
  - iii. Read from a Random-Access File sequentially.

- (b) Write notes on the following with example:-
- (i) Copy constructors.
  - (ii) Overloading and Overridden
  - (iii) new & delete operator
- c) Summarize the base –class member accessibility in a derived class under various types of Inheritance with example.

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