

# Object Oriented Programming (BCSF20)

Dated: 25-10-2021

## 20 marks

### Note:

- All the programs should be implemented using classes. You can take input in main() function and then call appropriate methods/ member functions of a designed class to set and get values.
- The attributes of class should be declared as private and member functions as public.
- You should not initialize the attributes while declaring them in class. The values should be assigned using member functions only. E.g. you cannot declare like:

```
Class Person
{
    private:
    int age=25;
}
```

- All inputs should be taken in main() and all the final results should also be reported/ displayed in the main function.
- All the logic should be implemented in class' member functions. Main() should only input and output relevant values by calling relevant functions of the class

**Last hour is reserved for evaluation purpose. Make sure to complete the tasks in 2 hours time.**

## Lab 1: Basic class design

### Question 1: (5 marks)

Assume you have to write a program for a cricket game. There are two teams and each team has a value for score and wicket. You are required to design a class Team that has relevant member functions for setting the score and wicket's value and for getting these values too. The score and wicket of both the teams should be taken as an input from the user in main(). The main function should interact with the class Team to set and get values.

### Question 2: (10 marks)

Assume you have to schedule two most earliest jobs on the basis of their deadlines. Assume there are three jobs in the system with deadlines (deadline1, deadline2, and deadline3, respectively) then the system should report the top two earliest jobs (with smallest deadline value). You might need to find the deadline with smallest and second most smallest value.

For example, if we have jobs as

JobID	Deadline
1	5
2	4
3	7

### Expected output:

Job 2 has the earliest deadline job

Job 1 has second most earliest deadline job

**Question 3: (5 marks)**

Implement a class `RandomNumberGenerator` that has `number` as a data member. It has two member functions named as `int GetRandom10 ()`; and `int GetRandom30 ()`; First one generates random number between 0-10. Second one generates random number between 0-30. Main function should call appropriate functions of class to generate 5 random numbers lying in the range (0-10) and 5 random numbers lying in the range (0-30). This should all be done by calling the functions of the class `RandomNumberGenerator`. The program should then display in `main()` the maximum number out of these 10 generated random numbers.

Hint: You can store the 10 generated random numbers in an array and then find maximum value from this array.

**For example:**

Random numbers generated in the range (0-10): 2 4 6 1 1

Random numbers generated in the range (0-30): 5 22 11 9 10

Maximum number: 22