Roll No. $\square$
Total No. of Questions : 15

# MBA (2015 to 2017) (Sem.-4) PROGRAMMING IN C++ <br> Subject Code : MBA-986 <br> M.Code : 71400 

Time: 3 Hrs.
Max. Marks : 60

## INSTRUCTION TO CANDIDATES :

1. SECTION-A contains SIX questions carrying FIVE marks each and students has to attempt any FOUR questions.
2. SECTION-B consists of FOUR Subsections: Units-I, II, III \& IV. Each Subsection contains TWO questions each carrying EIGHT marks each and student has to attempt any ONE question from each Subsection.
3. SECTION-C is COMPULSORY carrying EIGHT marks.

## SECTION-A

1. What do you mean by programming language?
2. What are pointers? Explain by giving suitable examples.
3. What are the various types of derivations?
4. What are nested classes?
5. What do you mean by inheritance?
6. What are functions?

## SECTION-B

UNIT-I
7. What are Objects and classes in C++. Explain by citing examples.
8. What are Different loops used in $\mathrm{C}++$. Explain by citing examples.

UNIT-II
9. What are Arrays and pointers in $\mathrm{C}++$. Explain by citing examples
10. What do you understand by Parameter passing by value, by address and by reference. Explain in detail.

## UNIT-III

11. What are Constructers and destructors in $\mathrm{C}++$. Explain by citing examples.
12. What do you understand by various types of inheritance? Explain by citing examples

## UNIT-IV

13. What do you mean by polymorphism? Explain by citing examples
14. Explain in detail about operator overloading in $\mathrm{C}++$.

## SECTION-C

15. The goal of a traffic simulation is to collect data about the traffic flow. In a project to simulate traffic, coders start with modelling one orthogonal intersection controlled by a traffic light. Each roadway leading to and from the intersection will have a fixed length (providing space for a fixed number of cars). The simulation is driven by a timer. Cars arrive onto the four lanes of traffic leading to the intersection every timer unit with a probability 1:n (n selected by user - suggested value 6). All cars travel at a constant speed of one half car length per timer unit, unless the road ahead is blocked (by another car or by the colour of the traffic light). Cars exit the simulation when the front of the car 'falls off the road'. The duration of the light cycles for the traffic light is selected by the user. Due to the geometry of the design a car needs six timer units to clear the intersection. This determines the duration of yellow light. At this point coders only collect and define the count of number of cars that traversed the entire road in each direction. During the development process the user input is limited to selecting the traffic light timing, the probability of a car arriving during any given timer unit, and the length of the simulation run.
Answer the following questions :
a. List the objects involved in the simulation and probable classes.
b. Discuss the role of member functions and constructors, if any in different classes. (3)
c. Discuss how collection of cars on the road can be managed using arrays and are allowed to turn using pointers?

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.

