M.Sc. 3rd Semester Examination, 2018

OOP USING C++

PAPER – MCA-303

Full Marks : 100

Time : 3 hours

Answer **Q. No. 1** and any **five** from the rest

The figures in the right hand margin indicate marks

Candidates are required to give their answers in their own words as far as practicable

Illustrate the answers wherever necessary

1. Answer any *five* : 2×5

(*a*) What is Data Abstraction ?

(*b*) How encapsulation performs the task of data hiding ?

(*c*) What are default arguments ?

(*d*) Why class is known as abstract data type ?

(*e*) What is polymorphism ?

(*f*) What do you mean by 'objects of a class' ?

2. (*a*) What is dynamic memory allocation ? How does it differ from static memory allocation ? Explain with example how memory is allocated dynamically in C++ ? 1 + 2 + 3

(*b*) Can we change the default behaviour of 'new' operator ? Explain your answer with the help of an example. 6

3. (*a*) What is constant data member ? With the help of an example explain the role of constant member function ?

(*b*) What is Mutable data members ? Why we need mutable data members, explain ? (2 + 4) + (2 + 4)

4. (*a*) What is inline function ? Explain with the help of example ? Under what conditions does the function cannot be made inline by the compiler ?

(*b*) Explain in brief how a class can be made friend of another class ? Also, explain the need of the concept 'friend' in C++.

(4 + 2) + (3 + 3)

5. (*a*) Explain in brief, the different forms of passing object to functions with example.

(*b*) What are the access specifiers available in C++ ? Explain the characteristics of each access specifiers ? 6 + (1 + 5)

6. (*a*) What is constructor ? Why we need constructor ? What are the characteristics of constructor ? (1 + 1 + 2)

(*b*) What is Inheritance ? Mention the different forms of inheritance available in C++ ? (2 + 6)

7. Write short notes on (any *four*) : 4 × 3

(*i*) Arrow operator

(*ii*) This pointer

(*iii*) Scope Resolution operator

(*iv*) Dynamic binding

(*v*) Copy constructor

(*vi*) Destructor.

8. Compare and contrast (any *three*) : 4 × 3

(*a*) Structure and class.

(*b*) Object oriented programming and procedure oriented programming.

(*c*) Top down approach and bottom up approach.

(*d*) Function overloading and function overriding.

(*e*) Static member function and constant member function.

[*Internal Assessment* – 30 marks]