MCA Bridge Course (2 Year Programme) 1st Semester,

w.e.f. 2020-21, Examination, May-2023

C++AND DATASTRUCTURES

Paper - 20BCC11C2

Time allowed : 3 hours] *[Maximum marks : 80*

Note: *Attempt **five** questions in all. **Question no. 1** is **compulsory.** In addition to compulsory question, attempt **four** more questions selecting **one** question from each unit. All questions carry equal marks.*

1. Compulsory Question : 8×2

(i) What is pointer array?

(ii) What is main function? How it is different from other functions?

(iii) Why constructors are important? Explain.

(iv) Write down the different applications of queue.

(v) Why avail list is used?

(vi) Enlist the limitations of structure in C language.

(vii) Explain the term symbolic constants.

(viii) Explain input operator in C++ with suitable diagram.

Unit - I

2. (a) What is object? How it is different from a class? Explain various advantages of object oriented approach over procedural approach. 8

(b) Why data types are important in C++? Explain the different data types available to support the need of user. 8

3. Differentiate between following: 2×8

(a) Dynamic Binding and Static Binding

(b) Access Specifies

Unit - II

4. (a) What is operator overloading? Why it is important? Explain the overloading of any arithmetic operator with the help of suitable program. 10

(b) What is virtual base class? Explain with suitable example. Also discuss the working of virtual function. 6

5. Write notes on following with the help of suitable diagrams : 2×8

(a) Polymorphism and its types

(b) Inheritance and its types

Unit - III

6. What is insertion sort? Why it is applied on small number of list of elements? Explain the algorithm and complexity of insertion sort. Also sort the following list using insertion sort with suitable diagram. 16

75, 32, 55, 11, 44, 21, 99, 67, 10

7. (a) Define the term array. What are the various notations available for the array? Explain the insertion and deletion into array with the help of algorithm and diagrams. 10

(b) What is hashing? Enlist the principle criteria used in selecting a hash function. What is collision and how it is solved using chaining technique? 6

Unit - IV

8. What is stack? Convert the following expression into postfix expression. Also enlist the various steps used for the conversion : 16

$((A + B/D) \uparrow (E - F) * G (H - I))$