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Total No. of Questions : 16 ]

[ Total No. of Printed Pages : 3

# COMPSEM-125

M.Sc. (Ist Semester) Examination, Dec., 2022

COMPUTER SCIENCE

Paper - MSC-CS-CC-104

(C++ Programming)

Time : 3 Hours ]

[ Maximum Marks : 40

The question paper contains three Sections.

## Section-A

(Marks : 1 × 10 = 10)

*Note* :- Answer all *ten* questions (Answer limit 50 words). Each question carries 1 mark.

## Section-B

(Marks : 3 × 5 = 15)

*Note* :- Answer any *five* questions by selecting at least *one* question from each Unit (Answer limit 200 words). Each question carries 3 marks.

## Section-C

(Marks : 5 × 3 = 15)

*Note* :- Answer any *three* questions by selecting *one* question from each Unit (Answer limit 500 words). Each question carries 5 marks.

## Section-A

1. (i) Define OOPs.
- (ii) List out the various data types in C++.

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- (iii) Define Recursion.
- (iv) Explain type casting in C++.
- (v) What is Polymorphism ?
- (vi) How can we declare static members in C++ ?
- (vii) Define Abstract Class.
- (viii) List any *four* string functions.
- (ix) Define Template.
- (x) What are additional features incorporated in C++ ?

### **Section-B**

#### **Unit-I**

- 2. Differentiate while and for loops in C++ using suitable examples.
- 3. What is Pointer ? How pointers can be passed to and return from a function ? Explain with suitable examples.
- 4. Explain matrix multiplication using suitable example.

#### **Unit-II**

- 5. Differentiate between multiple and multilevels inheritance.
- 6. Explain, why inline function are used ? Also give a code snippet to explain how we can declare inline functions in C++.
- 7. What is Overriding ? How is it different from overloading ?

#### **Unit-III**

- 8. What is Standard Template Library (STL) in C++ ? Explain with an example that it is useful.
- 9. Write a program in C++ for Linear searching.
- 10. Explain insertion sort with example.

## **Section–C**

### **Unit–I**

11. Explain the various characteristics and applications of OOPs programming.
12. What is Function ? Explain the difference between pass by values and pass by reference in C++ functions. Give examples.

### **Unit–II**

13. Why constructors and destructors are important ? Explain how we can declare and define constructors and destructors in C++.
14. What is Friend function ? Explain how friend function helps in operator overloading.

### **Unit–III**

15. Explain Binary Search in detail with suitable example.
16. (a) Write a program to read a string and reverse it without using inbuilt function. 3
- (b) Write a note on Shell Sort. 2