

M.C.A.- I / P.G.D.C.S. Ist Year First Semester (CGS)
15502 : Problem Solving Using C++
I MCA 2

P. Pages : 2

Time : Three Hours



AV - 3264

Max. Marks : 80

- Notes :
1. Due credit will be given to neatness and adequate dimensions.
 2. Assume suitable data wherever necessary.
 3. Illustrate your answer necessary with the help of neat sketches.
 4. Draw diagrams using pen only.
 5. Use of pen Blue/Black ink/refill only for writing the answer book.

1. a) Explain standard C++ string class with the help of various string handling functions. 7
b) Define a class circle using class definition of C++ with radius as a data member, PI as a constant. Use area, circumference and diameter as the member functions to calculate them for circle. 7

OR

2. a) Write a program in C++ to perform Binary Search to Search an element from an array. (Input array should be first sorted using bubble sort and then binary search is to be applied on sorted array). 10
b) State and explain the basic features of object oriented programming language. 4
3. a) Explain the concept of operator overloading write a C++ program code to implement "time" class to represent time in hh:mm:ss (hours:minutes:seconds) format with hours, minutes & seconds as a data members. Overload "+" operator to add two "time" objects and store the result in another "time" object (ie time 3 = time 1 + time 2). 8
b) Explain the concept of pointers in context to memory management using "new" & "delete" operator. 6

OR

4. a) Explain the concept of data conversion with example. 9
a) Conversion between Basic types.
b) Conversion between objects and Basic types.
c) Conversion between objects of different classes.
b) What are pitfalls of operator overloading? Explain in brief. 5
5. a) Explain constructors in derived class with suitable C++ program. 7
b) What is multilevel and multiple inheritances? Give its syntax and program to use it. 6

OR

6. a) Write a C++ program to implement matrix class. Add member function to add, subtract & multiply two matrices using function overloading. 7
- b) What do you mean by "Containership"? Explain with example. 6
7. a) Explain the concept of : 7
- a) Pure virtual function.
- b) Friend function with example.
- b) What is purpose of "this" pointer? Explain with example. 6

OR

8. a) Explain the characteristics & properties of static data member and static member function with example. 7
- b) Explain the concept of Assignment and copy Initialization with example. 6
9. a) What is the difference between opening a file with constructor function and opening a file with open() function? 6
- b) Write a suitable program in C++ to overload insertion (>>) and extraction (<<) operator. 7

OR

10. a) Explain the disk file I/O with streams. Give example of each. 7
- b) Explain the use of command line arguments with C++ program. 6
11. a) What is an iterator? What are its characteristics. 5
- b) Explain the concept of function objects in STL. 6
- c) State the advantages of using exceptions in C++ program. 2

OR

12. a) Write a C++ program using exception handling for "Array Index Out of Bound". 5
- b) What is Standard Template Library (STL)? How it is used? Explain the following entities of standard template library: containers and algorithms. 8
