

MARIS STELLA COLLEGE (AUTONOMOUS), VIJAYAWADA -8
(Affiliated to Krishna University, Machilipatnam)

SYLLABUS

Subject: Computer Science

Semester: I

Course Title: Programming

Course Code: 20CSCCPM13

Methodologies

No. of Hours: 60

LTP: 400

Credits: 3

Objectives

- To develop simple algorithms and flow charts to solve a problem.
- To learn the fundamental programming concepts and methodologies which are essential in building good C++ programs
- To analyze the importance of object oriented programming.

Course Outcomes

CO1: Explain the fundamental concepts of programming and problem solving techniques.

CO2: Analyse and debug control statements and functions.

CO3: Apply concepts of arrays and strings to design programs.

CO4: Differentiate and demonstrate the concepts of pointers, structures and unions.

CO5: Describe the basic object oriented programming concepts.

UNIT-I

(12 Hrs.)

Introduction to Programming: Program Concept, Characteristics of Programming, Stages in Program Development, Algorithms, Notations, Design, Flowcharts, Types of Programming Methodologies, Introduction to C++ Programming –Basic Concepts of Object Oriented Programming, Basic Program Structure In C++, Variables and Assignments, Operators in C++ - Programming Exercises

UNIT-II

(12 Hrs.)

Statements: Input and Output statements, Selection and Repetition Statements.

Functions: Top- Down Design, Predefined Functions, Programmer - defined Function, Local Variable, Constructors and Destructors, Function Overloading, Functions with Default Arguments, Call-By-Value and Call-By- Reference Parameters, Recursions: direct recursion and indirect recursion - Programming Exercises.

UNIT-III **(12 Hrs.)**

Introduction to Arrays: Declaration and Referring Arrays, Arrays in Memory, Initializing Arrays, Single dimensional Arrays and Multidimensional Arrays.

Strings: Declaration and Initialization. Reading and Writing Strings, Standard String Library Functions - Programming Exercise.

UNIT-IV **(12 Hrs.)**

Pointers: Create Pointers and Dereferencing , Programming Exercises.

C++ Structures: Declaration of a structure and defining a structure variable, Member Accessing, Arrays of Structures, Programming Exercises.

Unions: Declaration of a Union, defining a union variable, Member Accessing, Difference between Structures and Unions - Programming Exercises.

UNIT-V **(12 Hrs.)**

Classes and Objects: Specifying a class, Defining variable and Member Functions, A simple C++ Program with Class, Inheritance - Programming Exercises.

Files: Use of files for data input and output, Operations on files - Programming Exercises.

Co-Curricular Activities

- Assignments on problem solving
- Student presentations and seminars
- Online quizzes

Prescribed Book

1. Programming with C++ by Bala Guru Swamy

Reference Books

1. Programming with C by Reema Thareja
2. Data Structures using C++ by Semour Lipchutz

MARIS STELLA COLLEGE (AUTONOMOUS), VIJAYAWADA – 8
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Blueprint

Subject: Computer Science

Semester: I

Course Title: Programming

Course Code: 20CSCCPM13

Methodologies

Time: 3 Hrs.

Max. Marks: 100

SECTION – A

Answer **ALL** questions

20 x 1 = 20M

Q. No.	UNIT	Marks Weightage	RBT LEVEL
1	I	1	No. of questions to be set RBT1 – 8 RBT2 – 8 RBT3 – 2 RBT4 – 2
2	I	1	
3	II	1	
4	II	1	
5	III	1	
6	III	1	
7	IV	1	
8	IV	1	
9	V	1	
10	V	1	
11	I	1	
12	I	1	
13	II	1	
14	II	1	
15	III	1	
16	III	1	
17	IV	1	
18	IV	1	
19	V	1	
20	V	1	

SECTION – BAnswer any **FOUR** questions**4 x 8 = 32M**

Q. No.	UNIT	Marks Weightage	RBT LEVEL
21	I	8	No. of questions to be set RBT1 – 2 RBT2 – 2 RBT3 – 1 RBT4 – 1
22	II	8	
23	III	8	
24	IV	8	
25	V	8	
26	I / II / III / IV / V	8	

SECTION – CAnswer any **FOUR** questions**4 x 12 = 48M**

Q. No.	UNIT	Marks Weightage	RBT LEVEL
27	I	12	No. of questions to be set RBT1 – 2 RBT2 – 2 RBT3 – 1 RBT4 – 1
28	II	12	
29	III	12	
30	IV	12	
31	V	12	
32	I / II / III / IV / V	12	

MARIS STELLA COLLEGE (AUTONOMOUS), VIJAYAWADA – 8
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Model Question Paper

Subject: Computer Science

Semester: I

**Course Title: Programming
Methodologies**

Course Code: 20CSCCPM13

Time: 3 Hrs.

Max. Marks: 100

SECTION – A

Answer **ALL** questions

20 x 1 = 20 M

1. Which data type is created to store the variable that stores decimal numbers
A. Integer
B. Float
C. Double
D. String
2. How do you declare a variable with the character value is A?
A. Double x=A;
B. X='A';
C. Num x='A';
D. Char x='A';
3. Which looping process checks the test condition at the end of the loop?
A. for
B. while
C. do-while
D. no looping process checks the test condition at the end
4. Factorial of a given number can be calculated by using _____ in C++
A. Functions
B. For loop
C. Do while loop
D. Recursive function
5. What is the index number of the last element of an array with 9 elements?
A. 9
B. 8
C. 0
D. Programmer-defined

6. Which of the following gives the memory address of the first element in array?
- A. array[0];
 - B. array[1];
 - C. array(2);
 - D. array;
7. Default constructor has _____ arguments.
- A. One Argument
 - B. Two Arguments
 - C. Three Arguments
 - D. No argument
8. In CPP, which of the below is not an access specifier?
- A. void
 - B. Private
 - C. Protect
 - D. public
9. Members of a union are accessed as_____
- A. union-name.member
 - B. union-pointer->member
 - C. both union-name.member & union-pointer->member
 - D. variable decalration
10. What will be the output of the following C++ code?
- ```
#include <iostream.h>
#include <string.h>
int main ()
{string str1[] = "Joyce ";
string str2[] = "Rosy";
string str3[];
int len ;
strcat(str1,str2);
len = strlen(str1);
cout << len << endl;
return 0;}
```
- A. 5
  - B. 55
  - C. 11
  - D. 10
11. \_\_\_\_\_ referred as acquiring the properties of one class to the class.
12. The Object Oriented Programming language C++ was invented by \_\_\_\_\_

13. An Algorithm is \_\_\_\_\_.
14. With respect to streams >> (operator) is called as\_\_\_\_\_.
15. The wrapping up of data and functions in to a single unit is known as \_\_\_\_\_
16. In the concept of pointers, '&' refers \_\_\_\_\_.
17. \_\_\_\_\_ is a compound data type that contains different variables of different types.
18. A Class is defined as \_\_\_\_\_
19. \_\_\_\_\_ is used to create a stream that performs both input and output operations
20. To perform the string operations, \_\_\_\_\_ header file is required to execute the program.

### **SECTION – B**

Answer any **FOUR** questions

**4 x 8 = 32 M**

21. Explain any four types of operators available in C++.
22. Demonstrate Object Oriented Programming concepts in C++.
23. What is String? Explain how Strings are handled in C++.
24. Demonstrate the concept function overloading in C++ with example.
25. What is a Class? Write a program to explain the basic structure of a Class.
26. Write a program to find the factorial of a given number using recursion.

### **SECTION – C**

Answer any **FOUR** questions

**4 x 12 = 48 M**

27. Explain the basic programming structure in C++. Write an algorithm and draw a flowchart to find the circumference of a circle.
28. Demonstrate all the looping statements in C++ with appropriate example programs.
29. Explain how to create Structures in C++. Demonstrate arrays of structures with relevant example programs
30. Demonstrate an Array? Explain a C++ program for single dimensional array.
31. Explain in detail the File Handling concept in C++.
32. Explain the concept of Pointers with example.