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**INTERNATIONAL CENTRE FOR APPLIED SCIENCES  
MAHE, MANIPAL**

**B.Sc. (Applied Sciences) in Engg.**

**End – Semester Theory Examinations – NOV 2021**

**I SEMESTER - INTRODUCTION TO COMPUTERS & PROGRAMMING (ICS111)**

**Time: 3 Hours**

**Date: 27 NOV 2021**

**Max. Marks: 50**

- ✓ Answer ALL questions.
- ✓ Missing data, if any, may be suitably assumed.

1A. Briefly describe Cache Memory. How does it help to improve the speed of CPU.  
1B. Draw the flowchart to print first N natural numbers.  
1C. Write a complete C++ program using switch to display the appropriate grade dependent on Index, as per the following criteria:  
Index : 10, 9, 8 – Grade A  
Index : 7, 6 – Grade B  
Index : 5 – Grade C  
Default grade is D.

(2M +4M +4M)

2A. Write an algorithm to find all kinds of roots of a quadratic equation.  
2B. Write short notes on: (syntax and example code)  
i) Data types in C++  
ii) Pointers

(5M +2.5M +2.5M)

3A. Evaluate the code/expression :

i) `( - 25/3) %2.0`

ii) `int x, y, z;  
x=5;  
y=5;  
z= x + y - - ;  
cout<<z;`

iii) `int a=15;  
int b=5;  
(a>b) ? cout<<a : cout<<b;`

iv) `int i=5;  
while( i > 1);  
i++;`

**cout<<i;**

3B. What are the differences between entry control and exit control loop? [ Write any three differences with example code.]

(4M +6M)

4A. Illustrate bubble sort for data list { 9, 3, 5, 1, 6 }. Show all the steps clearly.

4B. . Define the following with the help of prototype and example code:

i) strcpy( ) ii) strcmp( )

(5M + 5M)

5A. Define Employee structure with name, ID and salary as it's data members. Create two Employee variables in main( ) and input the data into these variables from user and display the data on output screen.

5B. What is an inline function? Write a complete C++ program to explain the inline function.

(5M+5M)

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