

# Question Paper

Exam Date & Time: 09-May-2019 (02:00 PM - 05:00 PM)



## MANIPAL ACADEMY OF HIGHER EDUCATION

### INTERNATIONAL CENTRE FOR APPLIED SCIENCES I SEMESTER B.Sc. (Applied Sciences) - in Engg END SEMESTER THEORY EXAMINATION APRIL/MAY 2019 Introduction to Computers and Programming [CS 111]

**Marks: 100**

**Duration: 180 mins.**

#### Answer 5 out of 8 questions.

- 1) Explain the various functions of the Control Unit and ALU? List and explain atleast four applications of computer? (6)
  - A)
  - B) List the salient features of secondary memory. (4)
  - C) List and explain various data types in C++? (10)
- 2) Explain the various steps to be followed in developing an algorithm and write an algorithm to compute the factorial of a given positive integer? (10)
  - A)
  - B) Draw a flowchart for finding factorial of given positive integer. (5)
  - C) Differentiate between syntax and semantic errors in a C++ programming language? (5)
- 3) Write a complete C++ program to reverse given positive integer using while construct. (6)
  - A)
  - B) Draw else-if ladder control structure and explain its control flow functionality. (8)
  - C) Differentiate between the "break" and "continue" statements in C++ programming with suitable illustration? (6)

- 4) (8)

- A) Write a C++ program to find largest among three given positive numbers using ***if-elseif-else*** construct.
- B) Write stepwise illustration for searching of key element 75 from a 1D-array list {58, 62, 75, 88, 92, 105} using Linear Search algorithm. (12)
- 5) Write a complete C++ program to delete an element from a 1D array at a specific position. (8)
- A)
- B) Write a stepwise illustration for bubble sorting the 1D array input {16, 12, 67, 11}. Indicate steps in each pass clearly with appropriate messages. (12)
- 6) Define trace and norm of a 2D array. Write a complete C++ program to compute and print the trace and norm of a 2D array. (8)
- A)
- B) Write in detail the use of following string-handling functions with an example? (12)  
a) strcmp( )  
b) strcat( )
- 7) Write a C++ program to subtract two M x N matrices with required condition checking while taking input matrix elements. Print the resultant matrix in an appropriate format. (12)
- A)
- B) Write a complete C++ program to check whether given string is a palindrome or not? (8)
- 8) Write a complete C++ program to reverse a given string input and display? (8)
- A)
- B) Write a complete C++ program to check and display whether a positive number is prime number or not by passing the input from main( ) to Isprime( ). (12)

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