

Code No: 152AF

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, HYDERABAD****B.Tech I Year II Semester Examinations, May - 2019****PROGRAMMING FOR PROBLEM SOLVING****(Common to EEE, CSE, IT)****Time: 3 hours****Max. Marks: 75****Note:** This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer all questions in Part A.

Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

**PART- A****(25 Marks)**

- 1.a) Name any two secondary storage devices and mention their characteristics. [2]
- b) Why is it necessary to give the size of an array in an array declaration? [2]
- c) Define the terms: Binary file and text file. [2]
- d) How does a recursive function differ from an iterative function? [2]
- e) Differentiate between selection sort and insertion sort. [2]
- f) What is an operating system? List out its goals and functions. [3]
- g) Mention the advantages and disadvantages of arrays. [3]
- h) What is the purpose of feof( ) function? [3]
- i) Write the syntax and purpose of malloc( ) function. [3]
- j) Write an algorithm to find the maximum number in a given set. [3]

**PART-B****(50 Marks)**

- 2.a) What is precedence and associativity in an expression? What is their need?
- b) Write down the significance of break statement inside a switch statement.
- c) Discuss the concept of type conversion in C. [10]

**OR**

- 3.a) What are command-line arguments? Explain briefly.
- b) List and explain various storage classes available in C and state the reason why register storage classes are less frequently used. [5+5]

- 4.a) What is a multidimensional array? Explain how a multidimensional array is defined in terms of a pointer to a collection of contiguous arrays of lower dimensionality.
- b) Differentiate between structure and union in C.
- c) Write down the applications of using arrays. [10]

**OR**

- 5.a) Write and explain the general format for declaring and accessing members of a structure.
- b) How to use pointers as arguments in a function? Explain with a program. [5+5]

6. List and explain various file read/write functions available in C with illustrating their usage and implementation. examples [10]
- OR**
- 7.a) Write the syntax of fseek( ) function in C and explain the same.  
b) Explain the concept of streams and their significance in I/O operations. [5+5]
- 8.a) Explain the call-by-value and call-by-reference parameter passing methods.  
b) Write a C program to generate Fibonacci series using recursive functions. [5+5]
- OR**
- 9.a) State the need for user-defined functions.  
b) List and explain the functions used to allocate and free memory dynamically. [5+5]
- 10.a) Devise an algorithm for linear search and explain with an illustration.  
b) Write a C program to determine whether a given number is prime or not. [5+5]
- OR**
- 11.a) Devise an algorithm for selection sort and explain with an illustration.  
b) Give a brief note on asymptotic notations.  
c) Mention the complexity of linear search and binary search algorithms. [10]

---ooOoo---