Code No: 152AF

R18

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 examples illustrating their usage and implementation. [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]

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