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INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

B.Tech II Semester End Examinations (Regular) - May, 2019

Regulation: IARE – R18

PROGRAMMING FOR PROBLEM SOLVING

Time: 3 Hours

(Common to CSE | IT | ECE | EEE | CE)

Max Marks: 70

Answer ONE Question from each Unit

All Questions Carry Equal Marks

All parts of the question must be answered in one place only

UNIT – I

- (a) What are variables and constants? What are the rules for declaring the variables? [7M]

(b) Identify the steps in creating and running a C program? Draw a flow chart that shows how to find roots of quadratic equation $ax^2+bx+c=0$. [7M]
- (a) Explain primary data types used in C and specify the range of each data type. [7M]

(b) Write an algorithm and draw the flow chart to find the largest of the given three numbers A, B and C. [7M]

UNIT – II

- (a) Differentiate between if statement and if-else statement with suitable examples and proper syntax. [7M]

(b) Write a C program to count number of odd and even digits in a given integer number. For example input number is : 1213, output is : odd digits 3, even digits 1. [7M]
- (a) What is a control structure? List out their types. What is the difference between while loop and do-while loop. [7M]

(b) Write a C program that takes three input numbers from user. Find maximum between given three numbers using nested if...else.

UNIT – III

- (a) What is an array and write the syntax to declare an array. Identify the string function used to find the length of string and also write it's syntax? [7M]

(b) Write a C program that will count the number of occurrences of a specified character in a given line of text?
Ex: Input character: 'i', Input Text: "india is my country", Output: 3 [7M]
- (a) What is recursion and explain how it works? Write a recursive function to calculate the factorial of a given number? [7M]

(b) What is a user defined function and how to define it? Write a user-defined function in C language named as Find Length(char str[]) for length of a string and call this function in main to find the length of a given string. Note:Don't use built-in string functions. [7M]

UNIT – IV

7. (a) What is structure? How to access the elements of structure? How to calculate size of structure? Explain with example. [7M]
- (b) Write a program to perform addition of array elements using pointer to array. [7M]
8. (a) What is self-referential structure? Explain with example. [7M]
- (b) Define a structure data type called time_struct containing three member's integer hours, minutes, second. Develop a program that would assign values to individual member and display the time in following format : HH:MM:SS [7M]

UNIT – V

9. (a) Write the basic operations of a file? Write the various text file opening modes? State the various types of status enquiry library functions in C? [7M]
- (b) Write a C program to write even, odd and prime numbers to separate file. [7M]
10. (a) Define algorithm and complexity of algorithm. Explain the bubble sort x algorithm with an example. [7M]
- (b) Write a program to sort the elements by using bubble sort. [7M]

