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May, 2019

B.Tech. II SEMESTER

Programming for Problem Solving (ESC-103)

Time : 3 Hours] [Max. Marks : 75

Instructions :

1. *It is compulsory to answer all the questions (1.5 marks each) of Part-A in short.*
2. *Answer any four questions from Part-B in detail.*
3. *Different sub-parts of a question are to be attempted adjacent to each other.*

PART–A

1. (a) Distinguish between Program and Algorithm. (1.5)

(b) List the logical operators used in C. (1.5)

(c) How iteration is different from recursion? (1.5)

(d) What are primitive and non-primitive data types? (1.5)

(e) Write a program to check if number is even or odd. (1.5)

(f) How a switch statement is used, illustrate with example ? (1.5)

(g) What is the use of getchar and putchar? (1.5)

(h) Illustrate with example, how pointers variables are declared and initialized? (1.5)

(i) What is the complexity of Insertion and Selection sort? (1.5)

(j) List out any four file handling functions. (1.5)

PART–B

2. (a) Design an algorithm as well as flowchart for finding out largest number out of three given numbers. (5)

(b) What is a data type? Explain different data types in detail with examples. (5)

(c) Write a program in C to print the numbers from 4 to 9 and their squares. (5)

3. (a) What is an array? Write a program to compute Mean and Median using arrays. (7)

(b) Explain the different types of loops in C with syntax and example. (8)

4. What is a structure? Explain the syntax of structure declaration with example. Write a C program to maintain a record of "n" student details using an array of structures with four fields (Roll number, Name, Marks, and Grade). Each field is of an appropriate data type. Print the marks of the student given student name as input. (15)

5. (a) Explain any five string manipulation library functions with examples. (8)

(b) Write a C program to read n unsorted numbers to an array of size n to sort the numbers in ascending order using bubble sort technique. (7)

6. (a) What is dynamic memory allocation? Write and explain the different dynamic memory allocation functions in C. (7)

(b) Write a C program to search an element from an array and display its position. (8)

7. Write short notes on following :

(i) Complier and Interpreter.

(ii) Operating System.

(iii) Storage Classes in C. (15)