Code: 13A05101 **R13**

B.Tech I Year (R13) Supplementary Examinations December 2019

PROBLEM SOLVING & COMPUTER PROGRAMMING

(Computer Science and Engineering)

Time: 3 hours Max. Marks: 70

PART – A

(Compulsory Question)

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1 Answer the following: (10 X 02 = 20 Marks)

(a) Illustrate bitwise shift-left operator with a neat diagram.
(b) What are the differences between input and output devices?
(c) Write differences between while loop and do-while loop
(d) What is a control structure? List out their types.
(e) Write the usage of break and continue statement with example.
(f) List the major differences between arrays and structures.
(g) Differentiate variable, array variable and pointer variable.
(h) Write the general format of sending a copy of a structure to the called function.
(i) Describe ftell() function with example.
(j) Define Linked list. Draw the single list representation.

PART – B

(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

2 (a) Design the flowchart of ATM machine.
(b) Differentiate printf () and scanf () with examples.

OR

3 (a) Explain different data types in C with example programming.
(b) Define algorithm. List out characteristics of algorithm.

UNIT – II

4 Write a C program to read ‘n’ values from the input and print the first and second maximum and minimum values.

OR

5 Write a C program to display the traffic control signal lights based on the following:
(i) If user entered character is R or r then print RED Light Please STOP.
(ii) If user entered character is Y or y then print YELLOW Light Please Check and Go.
(iii) If user entered character is G or g then print GREEN Light Please GO.
(iv) If user entered any other character then print THERE IS NO SIGNAL POINT.

UNIT – III

6 Write C programs that uses both recursive and non-recursive functions for the following:
(i) Find the N^{th} Fibonacci number.
(ii) Find the reverse of a number.

OR

7 Define array. Explain 1D and 2D arrays with example programs.

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UNIT – IV

8 Explain the following string handling functions with example:
(i) strcpy()
(ii) strcat()
(iii) strrev()
(iv) strcmp()
(v) strupr()

OR

9 The University maintains salary details of every employee by storing their { name, department, basic pay, da, hra and cca }. Write C-program to store this information in array of structures and display the salary of each employee.

UNIT – V

10 State the arithmetic operations which are allowed in pointers? Explain each of them with example.

OR

11 (a) Write a C program to: (i) Add two numbers using pointers.
(ii) Swap two numbers using pointers.

(b) Write a C program to read a list of N integers and sort them using pointers. [hint: use any sorting technique]

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