Code: 13A12101 **R13**

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

PROGRAMMING IN C & DATA STRUCTURES

(Common to CE, ME, EEE, ECE, EIE & IT)

Time: 3 hours Max. Marks: 70

PART – A

(Compulsory Question)

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

(a) What are the steps in development of a program?
(b) Classify the programming languages.
(c) Write a C program which reads and prints text using gets and puts.
(d) What is the use of break and continue statement in C language.
(e) Give the syntax of any two string library functions.
(f) Write a C function to do linear search.
(g) What is dynamic memory allocation? Write the syntax of dynamic memory allocation functions in C.
(h) What are bit fields? What is their use?
(i) Give the definition of stack along with operations that can be performed on it.
(j) Evaluate the postfix expression: 2 5 + 8 * 7 /.

PART – B

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

UNIT – I

2 (a) Explain the top-down approach for solving problems.
(b) What is the difference between constant and variable? Give examples.
(c) Write algorithm for generating prime numbers between 1 and n.

OR

3 (a) What are the operators supported by C language. What is their precedence and associativity?
(b) What is the use of conditional operator? Illustrate with an example.

UNIT – II

4 (a) How do you convert for statement into while statement? Explain with an example.
(b) Write a C program to add even numbers between 1 and n.
(c) What is recursion? Write a recursive function to calculate the factorial of a given number ‘n’.

OR

5 (a) How the switch statement works. Illustrate with an example.
(b) How reading and printing are done using scanf and printf? Illustrate with an example.

UNIT – III

6 (a) Write a C program to reverse the elements of an array.
(b) Write an algorithm to sort the elements using exchange sort.

OR

7 (a) Write a C function to remove duplicates from an array of elements.
(b) What are the storage classes supported by C language?

UNIT – IV

8 (a) What is the difference between structure and union? Explain with an example.
(b) How to pass structures to functions? Illustrate with an example.

OR

9 (a) Discuss the functions supported by C language for reading and writing files.
(b) What is pointer? How do you declare pointers? How do you pass pointers to functions?

UNIT – V

10 (a) What are the different ways of representing expressions? Illustrate with examples.
(b) How do you implement multiple stacks?

OR

11 (a) What is circular queue? How do you implement a circular queue?
(b) What is data abstraction? Give an example.

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