

TDC Odd Semester Exam., 2020
held in July, 2021

COMPUTER SCIENCE

(Pass)

(3rd Semester)

Course No. : BCSP-301

(Programming in C and Data Structure)

Full Marks : 35

Pass Marks : 12

Time : 2 hours

The figures in the margin indicate full marks
for the questions

Answer **five** questions, selecting **one** from each Unit

UNIT—I

1. (a) What are the basic data types in C language? 3
- (b) Distinguish between the following : 4
- (i) Keyword and Identifier
- (ii) Constant and Variable
2. (a) Write a C program to determine whether an integer is odd or even. 5

- (b) What do you mean by conditional operator? Give example. 2

UNIT—II

3. (a) Distinguish between while and do-while statements. 3
- (b) Differentiate between call by value and call by reference. 4
4. (a) Define recursion. 2
- (b) State three advantages of the use of function. 2
- (c) What is the scope of external variable? How is a static variable defined in a single-file program? Compare static variable with automatic variable. 3

UNIT—III

5. (a) Define pointer. 2
- (b) Write a C program to display the elements of an array using pointer. 5
6. (a) Write the use of structure and union in C program. 2+2=4
- (b) How are the structure elements stored in memory? Explain with example. 3

UNIT—IV

7. (a) What do you mean by linear and non-linear data structure? What is abstract data type? $2+1=3$
- (b) Compare between array and linked list with example. 4
8. (a) Write a C program to create a linked list. 4
- (b) What are the advantages and disadvantages of doubly linked list? 3

UNIT—V

9. (a) What is binary tree? What do you mean by complete binary tree? $1+1=2$
- (b) Write an algorithm for bubble sort. 3
- (c) How does a linear queue differ from a circular queue? 2
10. (a) What is stack? Discuss different applications of stack. $1+3=4$
- (b) Suppose the following six numbers are inserted in order into an empty binary search tree T :
- 40, 60, 50, 33, 55, 11
- Draw the tree T. 3

★ ★ ★