

Reg. No: 

|  |  |  |  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|--|--|--|
|  |  |  |  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|--|--|--|

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR**  
(AUTONOMOUS)

**BTECH I Year I Semester Regular Examinations June 2021**

**C PROGRAMMING AND DATA STRUCTURES**

[Common to CE, AGE, CSE, CSIT, CSE (AI & ML) & CSE (IOT & CS including BCT)]

Time: 3 hours

Max. Marks: 60

(Answer all Five Units 5 x 12 = 60 Marks)

**UNIT-I**

- |           |   |    |    |
|-----------|---|----|----|
| 1         | a Define Expression. Mention types of expressions.  | L1 | 6M |
|           | b Explain in detail about the data types in C.  | L1 | 6M |
| <b>OR</b> |   |    |    |
| 2         | a Write a program to print first n terms in Fibonacci series.                                   | L3 | 6M |
|           | b Define a type conversion. What are different types of types conversions explain with example? | L1 | 6M |

**UNIT-II**

- |           |  |    |    |
|-----------|--|----|----|
| 3         | a Describe about type qualifiers in C.                                   | L1 | 6M |
|           | b Distinguish between call by value and call by reference with examples. | L4 | 6M |
| <b>OR</b> |  |    |    |
| 4         | a What is recursion? Mention advantages and disadvantages of recursion.  | L1 | 6M |
|           | b Differentiate local and global variable with example.                  | L2 | 6M |

**UNIT-III**

- |           |   |    |    |
|-----------|---|----|----|
| 5         | a How to declare and initialize a structure? Mention with example.                    | L2 | 6M |
|           | b Define pointer. How to pass a pointer to a function? Explain.                       | L2 | 6M |
| <b>OR</b> |   |    |    |
| 6         | a How do you define structure within a structure? Explain with an example.            | L2 | 6M |
|           | b Define union and give the general syntax for union. Write suitable example program. | L3 | 6M |

**UNIT-IV**

- |           |  |    |     |
|-----------|--|----|-----|
| 7         | What is a queue? What are various operations that can be performed on them? Explain with an example. | L2 | 12M |
| <b>OR</b> |  |    |     |
| 8         | What is data structure? Explain the linear and nonlinear data structure in detail.                   | L2 | 12M |

**UNIT-V**

- |           |  |    |     |
|-----------|--|----|-----|
| 9         | Explain merge sort with suitable examples.                           | L5 | 12M |
| <b>OR</b> |  |    |     |
| 10        | a Explain insertion sort with an example.                            | L2 | 6M  |
|           | b Explain sequential search and binary search with suitable example. | L1 | 6M  |

\*\*\* END \*\*\*