| Roll No. | otal No. of Pages : 02 |
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| Total No. of Questions:09 | |
| B.Voc. (Electronics & Information Technolog | y) (Sem.–5) |
| DATA STRUCTURES | |
| Subject Code : BVET 501-20 | |
| M.Code: 93209 | |
| Date of Examination: 21-12-202 | 2 |
| Time : 3 Hrs. | Max. Marks:60 |

INSTRUCTIONS TO CANDIDATES :

- 1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
- 2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
- 3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. Write briefly :

- a) Why do we need data structure?
- b) List operations that can be applied to data structures.
- c) Can we increment / decrement pointers? Give example.
- d) How we can calculate the location [row, column] in 2D array?
- e) How we can dynamically allocate the memory in arrays?
- f) List few applications of stocks.
- g) What is the average case complexity of linear search?
- h) What are advantages of linked list over arrays?
- i) What is circular linked list?
- j) What is deque operation?

SECTION-B

- 2. Discuss the different applications of various data structures in detail.
- 3. Write routines to push and pull an element into stack.
- 4. Define Queue data structure, how it is different from the stack and how is it implemented?
- 5. What is a recursion? Write a pseudo code to implement a factorial of a number using recursion?
- 6. What are pointers? How do pointers work in data structure?

SECTION-C

- 7. What is sorting? Compare the merge sort and quick sort algorithms.
- 8. What is doubly linked list? Write a function to implement quick sort on doubly linked list.

9. Write a short note on :

- a) implementing queue using stack.
- b) Analysis of an algorithm.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.