**BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI**
**(MID SEMESTER EXAMINATION SP/2024)**

CLASS:     BCA                                                                 SEMESTER : II
BRANCH:    BCA                                                                 SESSION : SP/2024

**SUBJECT: CN121 INTRODUCTION TO DATA STRUCTURES**

TIME:      02 Hours                                                            FULL MARKS: 25

**INSTRUCTIONS:**
1. The question paper contains 5 questions each of 5 marks and total 25 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
4. Tables/Data handbook/Graph paper etc., if applicable, will be supplied to the candidates

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|---|---|---|---|---|
| Q.1(a) | Explain array, structures and self referential structure. | [2] | 2 | 2 |
| Q.1(b) | Write an algorithm to store student (name ,roll number )records using structure and find student names start with ' A' character . | [3] | 2 | 3 |
| Q.2(a) | Write code or algorithm for finding maximum marks stored in array along with roll number | [2] | 2 | 2 |
| Q.2(b) | Write algorithm or code to store and display 10 students' record using structure. | [3] | 2 | 3 |
| Q.3(a) | Define link list and write an algorithm to find element stored in the list | [2] | 1 | 2 |
| Q.3(b) | Write an algorithm for inserting elements in the queue and also to display middle element of the queue | [3] | 2 | 2 |
| Q.4(a) | Define asymptotic notations. | [2] | 1 | 1 |
| Q.4(b) | Find order of algorithm for linear search. | [3] | 4 | 3 |
| Q.5(a) | What is use of tree data structure? | [2] | 3 | 2 |
| Q.5(b) | Construct binary tree of the sequence A,B,C,D,E,FG | [3] | 3 | 3 |

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