**GIET UNIVERSITY, GUNUPUR – 765022**
**B. Tech –2nd Semester (2024-2025): ASSIGNMENT**
**BESBS 2040– Data Structures and Algorithms**
**ASSIGNMENT-II**

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| **Date of issue:** | **SECTION: FOR ALL SECTIONS** |
| **Date of submission:** | **Total Marks : 50 ( each question carries 5 marks)** |

| **SL NO** | QUESTION | CO/PO |
|---|---|---|
| 1 | Differentiate between Linear search operation and Binary search operation implements on an array of elements. | CO1/PO1 |
| 2 | Given a list of elements: 70, 40, 50, 30, 35, 25, 45. Write down the algorithm for applying insertion sort on the elements to sort them in ascending order. | CO3/PO2 |
| 3 | Write algorithms to implement insertion and deletion operations on a circular queue using array. | CO3/PO3 |
| 4 | Write down the algorithm to perform Insertion and Deletion operations on it.<br>Execute the below operations on a linear queue Q[5], then find out the sequence of deleted elements and also the elements hold by the Queue.<br>The operations are: INSERT (Q), INSERT (W), INSERT (E), INSERT (R) , DELETE(),DELETE(), INSERT (T), DELETE(), DELETE(). | CO3/PO3 |
| 5 | Given a list of elements as follows: 670, 903, 786, 451, 234, 432, 975, 444, 810, 339, 287. Explain the process of Radix sort for sorting the above elements in ascending order. | CO2/PO2 |
| 6 | Explain the process of quick sort on the given a list of elements: 34, 56, 12, 23, 90, 78, 67, and 45. Write down the algorithm for quick sort to get the elements in ascending order. | CO3/PO2 |
| 7 | What is a circular queue? What are the overflow and underflow conditions for a circular queue using array. | CO2/PO2 |
| 8 | State the difference between Queue using Array and Linked Queue.<br>What are the drawbacks of a linear queue compared to circular queue | CO3/PO2 |
| 9. | Write down the algorithm to perform INSERTION and DELETION operations on a linear queue implemented using an array. | CO3/PO2 |
| 10. | Given a linear queue QUEUE[SIZE] where SIZE=5.<br>Initially Front=-1 and Rear=-1<br>Apply the below lits of operations on the queue and elaborate the execution process in details.<br>INSERT(1), INSERT(2), INSERT(3), DELETE(), DELETE(), INSERT(4), INSERT(5), DELETE(), INSERT(6), INSERT(7) | CO3/PO3 |