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**22SYAIML204304**

**Q. Paper Code:**

**D.Y. PATIL COLLEGE OF ENGINEERING & TECHNOLOGY**

**KASABA BAWADA KOLHAPUR-416006**

**(An Autonomous Institute)**

**S. Y. B.Tech./B. Arch (Semester-III)**

**END SEMESTER EXAMINATION, OCT/NOV- 2021-22**

COURSE NAME: Data Structures COURSE CODE: 201AIMLL204

Seat No :

**Day and Date: Wednesday, 09/02/2022**

**Time: 11.00am to 12.30pm Max. Marks- 50**

***Instructions:***

1. *All Questions are compulsory.*
2. *Figure to the right indicate full marks.*
3. *Give suitable general Instructions*
4. *Any other Course Specific Instructions.*

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| **BT** | **CO’s** | **Q. No.** | **Marks** | |
|  |  | **Q.1** | **Attempt the following 20** | |
| **L6** | **CO1** | **a** | Discuss types of Data Structure with example | **07M** |
| **L2** | **CO2** | **b** | Illustrate insertion sort algorithm and give steps of insertion Sort for sorting the following list in ascending order.  List: 4,3,2,10,12,1,5,6 also find total number of comparisons made | **07M** |
| **L2** | **CO3** | **c** | Explain queue in detail with its operations and condition. | **06M** |
|  |  | **Q.2** | **Attempt the following 15** | |
| **L2** | **CO4** | **a** | Illustrate operations of linked list? Explain any two. | **07 M** |
| **L6** | **CO1** | **b** | Discuss binary tree with its types.  **OR**  Discuss storage representation of graph using matrix and linked list for directed, undirected graph with at least 06 vertices. | **08 M** |
|  |  | **Q.3** | **Attempt the following 15** | |
| **L2** | **CO4** | **a** | Explain use of sparse matrix over simple matrix & representation of sparse matrix using linked list.  **OR**  Explain B-Tree with its operations in detail. | **08 M** |
| **L6** | **CO4** | **b** | Discuss graph data structure using following terminology with example:  - Adjacency matrix  - Path  - Bridge | **07 M** |

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