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

**22SYAIML201301**

**Q. Paper Code:**

**KASABA BAWADA KOLHAPUR-416006**

**(An Autonomous Institute)**

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

**END SEMESTER EXAMINATION, January 2022**

**COURSE NAME:** Liner Algebra, **COURSE CODE:** 201AIMLL201

Seat No :

**Day and Date: Saturday, 05.02.2022**

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

***Instructions:***

1. *All Questions are* ***compulsory.***
2. *Figure to the right indicate* ***full marks****.*
3. Use of **non-programmable** calculator is allowed.

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| **BT** | **CO’s** | | **Q. No.** | | | **Statement of Question** | **Marks** |
|  |  | | **Q.1** | | | **Attempt the following** | **20** |
| **L3** | **201.1** | | **a** | | | Let be the set of all positive reals. Define addition of any two members x and y to be the usual multiplication of numbers that is , define scalar multiplication by a scalar k to any member is to be . Show that V is a vector space. | **7** |
| **L3** | **201.2** | | **b** | | | Calculate the rank and nullity of the matrix | **7** |
| **L3** | **201.3** | | **c** | | | Let F be a function defined by the formula    Show that F is a linear transformation. | **6** |
|  | | | | | | | |
|  | |  | | **Q.2** | **Attempt the following** | | **15** |
| **L3** | | **201.4** | | **a** | Using Euclidean inner product on . Show that  Satisfy Cauchy-Schwarz inequality. | | **7** |
| **L3** | | **201.5** | | **b** | Consider the fuzzy sets A and B given by Calculate  **OR**  Calculate for where | | **8** |
|  | | | | | | | |
|  | |  | | **Q.3** | **Attempt the following** | | **15** |
| **L3** | | **201.6** | | **a** | Define fuzzy cardinality of fuzzy set and calculate the fuzzy cardinality of the fuzzy set defined by    **OR**  Determine which of the following fuzzy sets are fuzzy numbers | | **7** |
| **L3** | | **201.6** | | **b** | For the fuzzy set A and B defined on the Universal set X as    Calculate fuzzy set. | | **8** |

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