**H.T No**

**Regulations:**

**A20**



**Sreenidhi Institute of Science and Technology**

(An Autonomous Institution)

**Code No:** **8HC09 Date: 28-July-2021(AN)**

**B.Tech I-Year I- Semester Covid-19 Special External Examination, July-2021 (Regular)**

**MATRIX METHODS AND CALCULUS (CIVIL, EEE, ME and ECE)**

**Time: 3 Hours Max.Marks:70**

***Note: a****) No additional answer sheets will be provided.*

*b) All sub-parts of a question must be answered at one place only, otherwise it will not be valued.*

*c) Missing data can be assumed suitably.*

**ANSWER ANY 5 OUT OF 8 QUESTIONS. EACH QUESTION CARRIES 14 MARKS.**

**Bloom's Cognitive Levels of Learning (BCLL)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Remember | L1 | Apply | L3 | Evaluate | L5 |
| Understand | L2 | Analyze | L4 | Create | L6 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  |  | **BCLL** | **CO(s)** | **Marks** |
| 1. | a) | Find the rank of the matrix | L5 | CO1 | [7M] |
|  | b) | Using Gauss-Jordan method, Find the inverse of the matrix | L3 | CO1 | [7M] |
|  |  |  |  |  |  |
| 2. |  | Find the Eigen values and Eigen vectors of the matrix A= | L5 | CO2 | [14M] |
|  |  |  |  |  |  |
| 3. | a) | Find the Fourier series expansion for | L3 | CO3 | [7M] |
|  | b) | Find the Fourier series expansion for the function | L5 | CO3 | [7M] |
|  |  |  |  |  |  |
| 4. | a) | Using Lagrange’s mean value theorem show that | L4 | CO4 | [7M] |
|  | b) | Obtain the Taylor’s series expansion for about the point | L4 | CO4 | [7M] |
|  |  |  |  |  |  |
| 5. | a) | Show that | L2 | CO5 | [7M] |
|  | b) | Evaluate | L4 | CO5 | [7M] |
|  |  |  |  |  |  |
| 6. | a) | Examine for maximum and minimum values. | L2 | CO6 | [7M] |
|  | b) | Prove that | L2 | CO6 | [7M] |
|  |  |  |  |  |  |
| 7. | a) | Solve | L4 | CO1 | [7M] |
|  | b) | Using Cayley-Hamilton theorem find for the matrix | L3 | CO2 | [7M] |
|  |  |  |  |  |  |
| 8. | a) | Verify Cauchy’s mean value theorem for | L5 | CO4 | [7M] |
|  | b) | Discuss the maxima and minima for | L3 | CO5 | [7M] |

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