**H.T No**

**Regulations:**

**A18**



**Sreenidhi Institute of Science and Technology**

(An Autonomous Institution)

**Code No:7HC13**  **Date: 22-July-2021(AN)**

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

**TRANSFORM TECHNIQUES AND NUMERICAL METHODS (EEE 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 Laplace transforms of . | L3 | CO1 | [5M] |
|  | b) | Evaluate . | L5 | CO1 | [9M] |
|  |  |  |  |  |  |
| 2. | a) | Evaluate Z transform of cosnθ and sinnθ. | L5 | CO2 | [9M] |
|  | b) | Find Inverse Z transform of | L3 | CO2 | [5M] |
|  |  |  |  |  |  |
| 3. | a) | Solve the equation x2p+y2q=z2. | L4 | CO3 | [7M] |
|  | b) | Solve the equation zpq=p+q. | L4 | CO3 | [7M] |
|  |  |  |  |  |  |
| 4. | a) | Using bisection method find the approximate root of the equation  *x3-x-1=0* . | L3 | CO4 | [7M] |
|  | b) | Find the approximate root of the equation xex=cosx using Regula-Falsi method. | L4 | CO4 | [7M] |
|  |  |  |  |  |  |
| 5. | a) | Fit a polynomial using Newton’s forward interpolation formula to the following data   |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | x | 40 | 50 | 60 | 70 | 80 | 90 | | y | 184 | 206 | 228 | 254 | 278 | 310 | | L4 | CO5 | [7M] |
|  | b) | Find a polynomial using Lagrange’s Interpolation formula to the following data   |  |  |  |  |  | | --- | --- | --- | --- | --- | | x | 0 | 2 | 3 | 6 | | f(x) | 459 | 605 | 648 | 884 | | L5 | CO5 | [7M] |
|  |  |  |  |  |  |
| 6. |  | Apply Range – Kutta method of 4th order find the solution of | L3 | CO6 | [14M] |
|  |  |  |  |  |  |
| 7. |  | Using Z- transforms, solve the difference equation un+2+6un+1+9un=2n with u0=u1=0. | L5 | CO1 | [14M] |
|  |  |  |  |  |  |
| 8. | a) | Solve y1-y2=0 ,y(0)=1 at x=0.1and 0.2 by Euler’s method. | L3 | CO4 | [7M] |
|  | b) | Find the Laplace transforms of . | L5 | CO5 | [7M] |

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