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| **P.V.P Siddhartha Institute of Technology(Autonomous)** |
| **Department of Computer Science and Engineering** |
| **Course: B.Tech** | **Year: II** | **Semester: I** | **Descriptive: II** | **A.Y:2023-24** |
| **Subject Code: 20BS1303** | **Subject Name: Engineering Mathematics-III****(Discrete Mathematical Structures)** | **Regulation:PVP20** |
| **Duration:****1 hr. 30 min.** | **Maximum Marks:15 Marks** | **Date:27/11/23** | **Session: F.N** |
|  **Answer all the Questions.** **Each Question carries 5 Marks 3×5 =15M** |
| **Q. No** | **QUESTION** | **Marks** | **CO** | **Level** |
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| **1.** | **a)** | Solve the recurrence relation usingcharacteristics method with initial conditions a0=2 and a1=5. | **2.5** | **CO3** | **3** |
| **b)** | Explain Eulerian and Hamiltonian graphs with examples and draw the graphs of the following.1. Eulerian but not Hamiltonian.
2. Hamiltonian but not Eulerian.
 | **2.5** | **CO1** | **2** |
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| **2.** | **a)** | Consider the relation R = {(a, b), (b, c), (b, d), (d, a), (c, c)} Show the Digraph and Adjacency Matrix for the relation R? | **3** | **CO1** | **2** |
| **b)** | Let S150 be the set of all divisors of 150. Let the relation ≤ be given by a ≤ b if a│b on S150.1. Draw the Hasse Diagram for the Poset (S150, |).
2. Find the least element and greatest element of this POSET if it exists.
3. Find the GLB and LUB of {5, 6, 10, 15}.
 | **2** | **CO4** | **4** |
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| **3.** | **a)** | Examine whether the following graphs are isomorphic or not. Justify your answer? | **3** | **CO3** | **3** |
| **b)** | Discover a Minimal Spanning Tree for the given weighed graph using Kruskal’s algorithm. | **2** | **CO3** | **3** |