Enroll. No._____

MARWADI UNIVERSITY
MU-FOT
CE-FOT1 (MU), ICT-FOT1 (MU), IT-FOT1 (MU)
Semester 3 - Winter

**Subject : DM> ( 01MA0231 )** **Date : 24-Aug-2021**
**Total Marks : 30** **Time : 1 Hours 15 Minutes**

**Instructions :**

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

**Que.1 Answer the following questions.** **[6]**

**(A)**

(1) Define Isomorphic graph

(2) Define Incidence matrix

(3) Define Separable graph

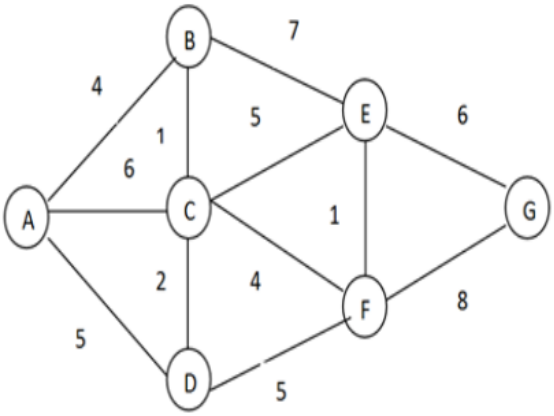
(4) Define Adjacency Matrix

(5) Define: Simple Graph

(6) Write the Vertex and Edge Connectivity of the Tree.

**Que.2**

(A) Find the Minimum Spanning Tree of the following graph using Kruskal Algorithm. [6]




(B) Show that the maximum number of edges in a simple graph with n vertices are $\frac{n(n-1)}{2}$ [6]

OR

(B) Draw $K_{2,3}$, $K_{3,4}$ and $K_{2,4}$ graphs and write their Incidence matrices. [6]

**Que.3**

(A) Find 10 possible spanning trees of a complete graph with 8 vertices. [8]

(B) Explain Connected and Disconnected graphs with examples [4]

OR

(A) State and prove 1st theorem of graph theory. [8]

(B) Draw a graph with seven vertices, out of which three vertices have degree 6, two vertices have degree 3, one vertex has degree 5 and one vertex is pendant vertex. Also, verify the first theorem of graph theory for the drawn graph. [4]

*---Best of Luck---*

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| Difficulty Level | Weightage | | No of Question | Total Marks | Question List |
|---|---|---|---|---|---|
| | Recommended | Actual | | | |
| High | 20 | 41.67 | 3 | 20 | 2(A), 2(B), 3(A) |
| Low | 20 | 4.17 | 2 | 2 | 1(A) |
| Medium | 60 | 54.17 | 8 | 26 | 1(A), 2(B), 3(A), 3(B) |

| Module Name | Weightage | | No of Question | Total Marks | Question List |
|---|---|---|---|---|---|
| | Recommended | Actual | | | |
| Representation Graph using Matrix : | 40 | 22.92 | 6 | 11 | 1(A), 2(B) |
| Graphs and Trees: | 60 | 77.08 | 7 | 37 | 1(A), 2(A), 2(B), 3(A), 3(B) |

| Blooms Taxonomy | Weightage | | No of Question | Total Marks | Question List |
|---|---|---|---|---|---|
| | Recommended | Actual | | | |
| Remember / Knowledge | 20 | 6.25 | 3 | 3 | 1(A) |
| Understand | 30 | 52.08 | 7 | 25 | 1(A), 2(B), 3(A), 3(B) |
| Apply | 25 | 29.17 | 2 | 14 | 2(B), 3(A) |
| Analyze | 15 | 12.50 | 1 | 6 | 2(A) |
| Evaluate | 10 | 0.00 | 0 | 0 | |
| Higher order Thinking | 0 | 0.00 | 0 | 0 | |