Class Test 1 (Sep. 2021)

MC 405 (Graph Theory)

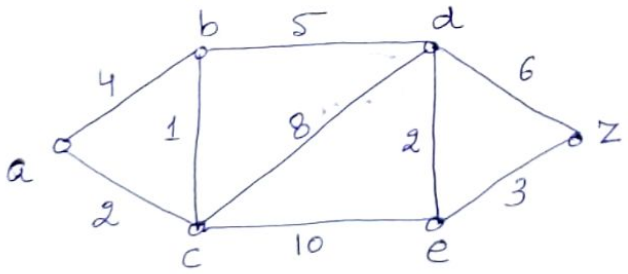
Max. Marks : 15

Note : Attempt all.

Q1. Let G be a disconnected graph with n vertices where n is even. If G has two components each of which is complete, prove that G has a minimum of $\frac{n(n-2)}{4}$ edges.

Q2. By using Havel-Hakimi Theorem, show that the sequence 6, 5, 5, 4, 3, 3, 2, 2, 2 is graphical. Find a graph corresponding to this sequence.

Q3. use Dijkstra's algorithm, find the shortest path between the vertices a and Z in the weighted graph given below :



Q4. At a committee meeting of 10 people, every member of the committee has previously sat next to at most four other members. Show that the members may be seated round a circular table in such a way that no one is next to some one they have previously sat beside (use the concept of Hamiltonian graphs).