

**2<sup>nd</sup> Internal Test of MSc CS/IT 2022**

**Paper: Data Communication and Computer Networks**

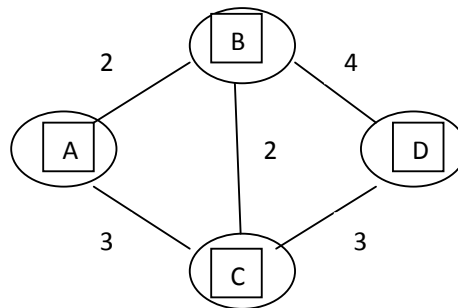
**Semester: 2<sup>nd</sup>**

**Marks: 30**

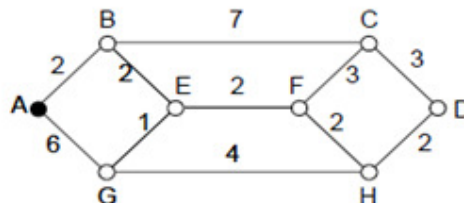
**Time: 1hr 15min**

**Answer any six questions-**

1. a) Briefly explain IFS and Contention window used in CSMA/CA protocol to avoid collision. 3  
b) Write the difference between connection-oriented service and connectionless service. 2
2. What is congestion? Write about different techniques to deal with congestion. 1+4=5
3. Briefly describe leaky bucket algorithm used for traffic shaping. Suppose there are two clock ticks are available and in each clock tick leaky bucket algorithm can send 1000 MB data. The size of available packets in the queue is Packet\_1: 100MB, Packet\_2: 200MB, Packet\_3: 400MB, Packet\_4: 450MB, Packet\_5: 200MB, Packet\_6:150MB. Mention which packets are sent in 1<sup>st</sup> clock tick and which packets are sent in 2<sup>nd</sup> clock tick by the leaky bucket algorithm. 3+2=5
4. a) What is the use of DF and MF fields of IPV<sub>4</sub> header? 1  
b) Briefly explain different classes of IP address. 4
5. For the following network, calculate the routing table for router A using link state routing algorithm. 5



6. For the following network, calculate the shortest path from node A to D using distance vector routing algorithm. 5



7. Briefly explain about TCP header format. 5