



**Department of Computer Science and Engineering**

**V Sem CSE – C3**

**Computer Networks (22ITC10) – Assignment 2**

**Total Marks 10 Marks**

**Date: 01. Nov. 2024**

1. Consider an instance of TCP's Additive Increase Multiplicative Decrease (AIMD) algorithm where the window size at the start of slow start phase is 2 MSS and the threshold at the start of first transmission is 10 MSS. Assume that a time out occurs during the 6<sup>th</sup> transmission. Find the congestion window size at the end of eleventh transmission. Draw the graph for the above scenario and explain each phase in detail. Why? **CO3, L4, 3Marks**
2. In an IPv4 datagram, the M-bit is zero, the value of HLEN is five, the value of total length is 200 and the offset value is 250.
  - a. What is the number of the first byte and the number of the last byte in this datagram?
  - b. Is this the last or first or middle fragment?
  - c. Draw the illustration of above description with neat diagram and explain.**CO3, L4, 3 Marks**
3. Suppose five departments of an institute A, B, C, D and E need 110, 45, 28, 14 and 12 IP addresses. A class-C network address 198.131.172.0 has been allotted to the institute. Suggest the appropriate subnetting scheme and derive the appropriate subnet marks for each department. Also provide the starting and ending address of each department. **CO3, L4, 2 Marks**
4. Consider the subnet shown in Fig. 1. Distance vector routing is used, and the following vectors have just come in to router C: from B: (5,0,8,12,6,2); from D: (16,12,6,0,9,10); and from E: (7,6,3,9,0,4). The measured delays to B, D and E are 6, 3 and 5, respectively. What is C's new routing table? Give both the outgoing line to use and the expected delay. **CO3, L4, 2 Marks**

