COURSE CODE (CREDITS): 18B11EC611 (3)

COURSE NAME: Wireless and Data Communication

COURSE INSTRUCTORS: Dr. Alok Kumar

MAX. MARKS: 35

MAX. TIME: 2 Hours

Note: All questions are compulsory. Marks are indicated against each question in square brackets.

Q.1 In what situation multiplexing is used. Design a TDM system having output bandwidth of 256Kbps to send the data from 4 analog sources of 2 kHz bandwidth and 8 digital signals of 7200 bps.

[CO1 CO2]   [1+3=4 Marks]

Q.2 What is 802.11 medium access control? Explain each subfield of IEEE 802.11 frame format in detail.

[CO2]   [4 Marks]

Q.3 An organization is employing IpV4 addressing scheme and granted the block 211.17.180.0/24. The administrator wants to create the 32 subnets.

a) Find the subnet mask.

b) Find the number of addresses in each subnet.

c) Find the first and last addresses in subnet.
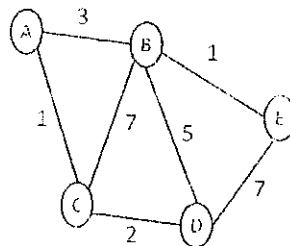
d) Find the first and last addresses in subnet 32.

[CO2]   [4 Marks]

Q.4 Differentiate WiMAX technology with Zigbee. How WiMax works and write three modulation schemes that are supported by WiMaX?

[CO5]   [4 Marks]

Q.5 Find out the shortest path in the given weighted graph by DIJKSTRA routing algorithm. Consider Node C as source node.

[CO2]   [4 Marks]

Q.6 Consider a CSMA/CD network that transmit data at a rate of 100 Mbps over 1 kilometer cable with no repeater. If the minimum frame size requires for this network is 1250 Bytes. Find out the following

(a) The signal speed in the cable.
(b) Efficiency.

[CO4]   [4 Marks]

Q7. What is software defined radio (SDR)? How SDR is different from conventional radio and why SDR is useful for 5G wireless communication?   [CO6]   [1+2+2=5 Marks]

Q.8 Explain the Handoff procedure in cellular network with suitable diagram. What are the different situations under which a handoff is triggered? Explain different types of handoff in wireless communication.   [CO1, CO3]   [2+2+2=6 Marks]