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10EC/TE71

Seventh Semester B.E. Degree Examination, June/July 2016
Computer Communication Networks

Time: 3 hrs. Max. Marks:100

Note: *Answer any FIVE full questions, selecting atleast TWO questions from each part.*

PART – A

1 a. Explain the ISO – OSI reference model with suitable diagram. Discuss the functions of each layer. **(10 Marks)**

b. Describe the SS7 signaling and services with suitable model. **(06 Marks)**

c. The internet users in the year January – 2015 is 50,000. It will roughly doubling in size for every 18 months. What is the expected number of internet users in the year December 2026? **(04 Marks)**

2 a. Generate CRC code and check if there is any error in the code word. If data word is 1001 and divisor is 1011. How these are implemented using encoder and decoder? **(10 Marks)**

b. Explain stop-and-wait ARQ protocol with suitable timing diagram. **(06 Marks)**

c. A channel has a bit rate of 4 Kbps and a propagation delay of 20 msec. For what range of frame sizes does stop and wait protocol give an efficiency of at least 50%? **(04 Marks)**

3 a. Discuss the behaviour of the three persistence methods of CSMA. **(06 Marks)**

b. Discuss three channelization protocols. **(09 Marks)**

c. A group of N stations share a 56 Kbps pure ALOHA channel. Each station outputs a 1000 bit frame on an average of once every 100 sec. What is the maximum value of N? **(05 Marks)**

4 a. Explain 802.3 Ethernet frame format and addressing technique. **(10 Marks)**

b. Briefly discuss the distributed co-ordination function and point co-ordination function of 802.11 MAC sub-layer. **(10 Marks)**

PART – B

5 a. Discuss the loop problem in bridged LAN. How loop problems are solved in bridged LAN? **(10 Marks)**

b. Differentiate between a bus back bone network and star back bone network. **(06 Marks)**

c. What characteristics are used to group station in a VLAN? **(04 Marks)**

6 a. Explain class full addressing. What are default masks? **(06 Marks)**

b. Find the class full address :

i) 125·05·13·8

ii) 225·06·13·8

iii) 14·23·120·5

iv) 220·06·120·5. **(04 Marks)**

c. An ISP is granted a block of addresses starting with 190·100·0·0/16. The ISP needs to distribute these addresses to three groups of customers as follows :

i) The first group has 64 customers ; each needs 256 addresses

ii) The second group has 128 customers ; each needs 128 address

iii) The third group has 128 customers ; each needs 64 addresses

Design the sub blocks and find out how many addresses are still available after these allocations. **(10 Marks)**

7 a. Explain the distance vector routing for following graph. **(10 Marks)**

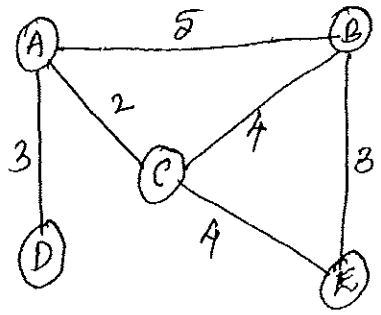

Fig. Q7(a)

b. Find a shortest path three for following graph using Dijkstra algorithm. **(10 Marks)**

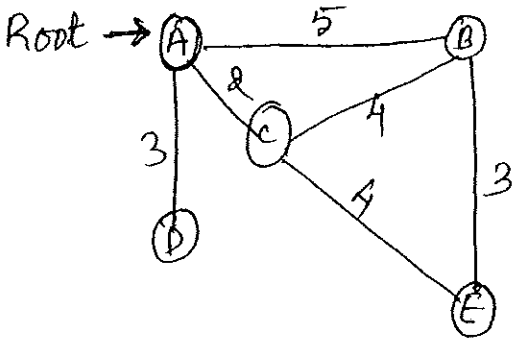

Fig. Q7(b)

8 a. Explain three way hand shake based connection establishment in TCP. **(10 Marks)**

b. Explain the different field in UDP, with suitable diagram. **(06 Marks)**

c. Differentiate between connection less and connection-oriented service. **(04 Marks)**

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