Total No. of printed pages = 3

CSE 181602

3071/VC

Roll No. of candidate

2022

B.Tech. 6th Semester End-Term Examination

COMPUTER NETWORKS

(New Regulation & New Syllabus)

Full Marks – 70 Time – Three hours

The figures in the margin indicate full marks for the questions.

Answer Question No. 1 and any *four* from the rest.

1. Answer the following (MCQ/ Fill in the blanks) : (10 × 1 = 10)

(i) In Star topology, devices are connected via a centralized network component known as

(a) Bus (b) Hub

(c) Node (d) Client

(ii) In which of the following schemes change or lack of change in the value of voltage determines the value of bit

(a) NRZ-I (b) NRZ-L

(c) Both (a) and (b) (d) None of these

(iii) Amplitude modulation is a technique used for

(a) Analog to Digital Conversion (b) Digital to Analog Conversion

(c) Analog to Analog Conversion (d) Digital to Digital Conversion

(iv) BNC connectors are used with

(a) Satellites (b) Fiber Optic cables

(c) Coaxial Cables (d) Twisted pair cables

(v) Store and forward technique is used in

(a) Message switching (b) Packet switching

(c) Time division multiplexing (d) Both (a) and (b)

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(vi) CRC computation is based on

(a) OR operation (b) AND operation

(c) XOR operation (d) NOR operation

(vii) In which of the following protocols, the station senses the channel before trying to use it.

(a) ALOHA (b) CSMA

(c) CDMA (d) None of these

(viii) How many bits are allocated for the host ID in an IP address of Class A?

(a) 8 (b) 24

(c) 48 (d) 16

(ix) In which of the following algorithm, the output rate of burst packets can be of variable rate?

(a) Token bucket (b) Leaky bucket

(c) Both (a) and (b) (d) None of these

(x) TCP exchanges data in the form of

(a) Datagram (b) Packets

(c) Segments (d) Frames

2. (a) Explain ring, star and bus topologies with their advantages and disadvantages. (6)

(b) Write functionalities of different OSI layers? (9)

3. (a) Distinguish between data and signal. Name the advantages of optical fiber over twisted pair and coaxial cable. (2 + 4 = 6)

(b) Compare circuit switching and Packet switching.

A bit word 1011 is to be transmitted. Construct the even parity seven bit Hamming code for this data. (5 + 4 = 9)

4. (a) Explain CSMA / CD? Consider a CSMA / CD LAN running at 1 Gbps over a 1 KM long cable with no repeaters. The signal propagation speed is 200 m/μ s. What is the minimum frame size? (5 + 4 = 9)

(b) Explain the mechanism of selective repeat ARQ. (6)

5. (a) A company is granted a site address 201.70.64.0. The company needs six subnets. Design the subnets. (8)

(b) With neat sketch explain connection establishment and release using 3 way handshaking in transport layer. (7)

6. (a) Explain leaky bucket algorithm? Explain DES algorithm. (6 + 6 = 12)

(b) Calculate the throughput of stop and wait flow control mechanism if the frame size is 4800 bits, bit rate is 9600 bps and distance between device is 200 Km, Speed of propagation over the transmission is 200,000 km/s. (3)

7. Write short notes on : (5 × 3 = 15)

(a) FDM

(b) ARP

(c) FTP

(d) Static routing

(e) UDP.