2025/EVEN/18/24/CS-DSM-252/006

UG/Integrated Even Semester Examination, 2025

COMPUTER SCIENCE

(4th Semester)

Course No.: CS-DSM-252

(Data Communication And Computer Networks)

Full Marks: 70

Pass Marks: 28

Time: 3 hours

The figures in the right margin indicate full marks for the question. Answer any five questions selecting one from each unit.

UNIT-I

1. Explain the working of each layer of OSI Model. 14

2. (a) Explain the following : 2+2+5=9

   (i) Attenuation

   (ii) Destortion

   (iii) Noise

   (b) The Signal to noise ration is $SNRd_B$=36 and the channel band with is 2 MHZ. Calculate the shanon channel capacity. 5

UNIT-II

3. (a) For each of the following four Networks, discuss the consequences if a connection fail. 2x4=8

(i) Six devics arranged in a bus topology.

(ii) Four devices arranged in a ring topology.

(iii) Five devices arranged in a Mesh topology

(iv) Seven devices arranged in a stan topology

(b) Explain the following :

(i) Perjoidic and Aperiodic signal 2+2

(ii) Composite signal. 4+2

4. Explain various types of topologies in LAN. 14

UNIT-III

5. (a) Explain the following Digital conversion scheme with an examine— 3+3=6

(i) Vniplolar scheme (NRZ)

(ii) Polar scheme (NRZ-L, NRZ-I)

(b) Explain the link state Routing Algo in detail. 8

6. (a) Explain the Distance Vector routing algorithm in detail. 9

(b) Why we used Repeater, Hub, routess, switches? 5

UNIT-IV

7. Explain the transmission media in detail. 14

8. (a) What are propagation time and transmission time for a 2.5k byte message, if the bandwidth of the network is 1 Gbps and the distance between the senter and receiver is 24000 km and the light travels at 2.4 x 10^8 m/s? 3+3=6

(b) Explain the time division multiplexing and frequency division multiplexing in detail. 4+4=8

UNIT-V

9. (a) What is the use of checksum? Explain the working of checksum technique with a suitable example. 1+7=8

(b) What do you mean by latency? 3

(c) A HDTV Screen is consist of 1920 by 1080 pixels, per scren, and the screen is senewed 30 times per second and 24 bits represents one color pixel. What is the bit rate of HDTV? 3

10. Explain the following : 4+5+5=14

(i) Parity check

(b) Vertical Redundancy

(c) Longitudinal Redundancy

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