Total No. of questions :7] Roll No. ..BETNICS20014.]

B.Tech(CSE Cyber Security.), Third Semester (Reg. & Ex.)

End-Term Examination, December, 2021

DATA COMMUNICATION AND DATA SCIENCE (CSL0311)

Time : 3:00 hours Max. Marks : 40

Note: Attempt all the questions.

1. **Very short answer type questions.** *1X5=5*

(i) Functions of Presentation layer (3)

(ii) Write a characteristic of logical address

(iii) Write a notes on DHCP server?

(iv) Write a range of class D and class E ip addressing ?

(v) What is relationship between VPN and firewalls?

2. If the bandwidth of the line is 1.5 Mbps, RTT is 45 msec and packet size is 1 KB, then find the link utilization in stop and wait. 5

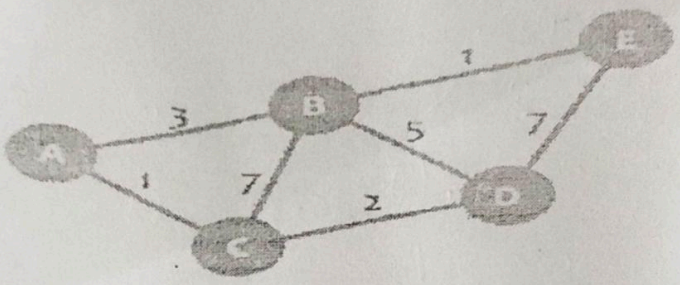
Or

(i) Describe the advantages of using fiber cable compared to Twisted pair cable? 3

(ii) Explain how "lost" message are detected in Selective repeat protocol. 2

3. Find out the shortest path from source node using Distance Vector routing algorithm. 5

(i) A to D (ii) A to E



Or

(4) Describe the OSI seven layer model Name each of the layers in the model and draw a diagram that shows the ordering of these layers Write a paragraph describing the areas of function that each layer.

4.(i) What is difference between half- duplex and full-duplex transmission modes with suitable example 3

(ii) Explain to different fields of IPv4 Header 2

Or

(4) Why do we need a DNS system when we directly use an IP address.5

5. Justify the difference between symmetric encryption and public key Encryption and explain to DES cryptography algorithm. 5

Or

Explain the frame format of IEEE 802.5 Write the characteristics of Token Ring and Token Bus Topology.

6. Major trade off in the design of a routing strategy for a circuit switching network? 5

Or

(i) List and briefly explain the functions of TCP/IP Suite and define the TCP header. 3

(ii) Draw and explain Classful IP addressing in terms of Class A, ClassB, Class C, Class D and Class E. also explain Sub netting . 2

7. Give an argument why the leaky bucket algorithm should allow just one Packet per tick, independent of how large the packet is. *10*

Or

Consider a 128×10^3 bits/sec satellite communication link with one way propagation delay of 150 msec. Selective Retransmission(repeat) protocol is used on this link to send data with a frame size of 1 KB. Neglect the transmission time of acknowledgement. The minimum number of bits required for the sequence number field to achieve 100% utilization is.
