COMPUTER COMMUNICATION & NETWORKING
(ECEN 3231)

Time Allotted : 3 hrs **Full Marks : 70**

Figures out of the right margin indicate full marks.

Candidates are required to answer Group A and any 5 (five) from Group B to E, taking at least one from each group.

Candidates are required to give answer in their own words as far as practicable.

Group – A
(Multiple Choice Type Questions)

1. Choose the correct alternative for the following: **10 × 1 = 10**

(i) In which topology there is a central controller or hub?
(a) Star (b) Mesh (c) Ring (d) Bus.

(ii) The network layer concerns with
(a) bits (b) frames
(c) packets (d) none of the mentioned.

(iii) Bits can be send over guided and unguided media as analog signal by
(a) digital modulation (b) amplitude modulation
(c) frequency modulation (d) phase modulation.

(iv) The packet of information at the application layer is called _____
(a) Packet (b) Message (c) Segment (d) Frame.

(v) Data communication system within a building or campus is_____
(a) LAN (b) WAN
(c) MAN (d) None of the mentioned.

(vi) Network addresses are very important concepts of
(a) Routing (b) Mask
(c) IP Addressing (d) Classless Addressing.

(vii) User datagram protocol is called connectionless because
(a) all UDP packets are treated independently by transport layer
(b) it sends data as a stream of related packets
(c) both (a) and (b)
(d) none of the mentioned.

(viii) Which one of the following is a transport layer protocol used in networking?
(a) TCP (b) UDP
(c) Both TCP and UDP (d) None of the mentioned.

(ix) Which of these is not applicable for IP protocol?
(a) Connectionless (b) Offer reliable service
(c) Offer unreliable service (d) None of the mentioned.

(x) What is data encryption standard (DES)?
(a) Block cipher (b) Stream cipher
(c) Bit cipher (d) None of the mentioned.

Group – B

2. (a) What is OSI Model? Briefly explain.

(b) Explain the utility of layered network architecture. What is meant by protocol?

8 + (2 + 2) = 12

3. (a) Differentiate between connectionless and connection-oriented services in Data networks.

(b) A 4-bit data block 0111 is to be sent using the hamming code for error detection and correction. Show how the receiver corrects an error that occurs in 3rd bit position from the right.

(c) How are ISO-OSI and TCP/IP models related to each other?

3 + 6 + 3 = 12

Group – C

4. (a) Explain the Parity checking Process in error detection with proper block diagram.

(b) Explain the functionality of GO-Back-N ARQ for lost frame and lost Acknowledgement case.

6 + 6 = 12

5. (a) Define framing and the reason for its need.

(b) Compare and contrast the stop-and-wait ARQ protocol with Selective-repeat ARQ.

(2 + 2) + 8 = 12

Group – D

6. (a) Define controlled-access and list three protocols in this category.

(b) Explain the procedure of Pure ALOHA protocol.

(c) Define Vulnerable time. What is the Vulnerable time for Pure ALOHA protocol?

3 + 7 + 2 = 12

7. (a) Compare CSMA/CD and CSMA/CA with a proper flow chart.

   (b) Give a brief description of Distance Vector Routing protocol.

6 + 6 = 12

Group – E

8. (a) Explain the UDP datagram with a short description of each field.

   (b) Explain the connection termination using Three-Way-Handshaking in TCP.

6 + 6 = 12

9. Write short notes on any *three* of the following: **(4 × 3) = 12**
   (i) IEEE 802.11
   (ii) Port Number
   (iii) Token Bucket Algorithm
   (iv) Point-to Point Protocol
   (v) HDLC

Department & Section	Submission Link
ECE	https://classroom.google.com/c/MzY0NTI0Njg1MTc1?cjc=vpyprfr