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Enrollment No.....



Faculty of Engineering  
End Sem Examination Dec-2023  
IT3CO39 Computer Networks

Programme: B.Tech.

Branch/Specialisation: IT

Duration: 3 Hrs.

Maximum Marks: 60

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d. Assume suitable data if necessary. Notations and symbols have their usual meaning.

- Q.1 i. Which one of the following is not a function of network layer? **1**  
(a) Congestion control (b) Error control  
(c) Routing (d) Inter-networking
- ii. Which topology requires a multipoint connection? **1**  
(a) Ring (b) Bus (c) Star (d) Mesh
- iii. Which of the following is a data link protocol? **1**  
(a) Ethernet (b) Point to point protocol  
(c) Hdlc (d) All of these
- iv. Which of the following tasks is not done by data link layer? **1**  
(a) Framing (b) Error control  
(c) Flow control (d) Channel coding
- v. Multiple access protocol for channel access control- **1**  
(a) CSMA/CA (b) CSMA/CD  
(c) Both (a) and (b) (d) None of these
- vi. The maximum throughput for pure ALOHA is \_\_\_\_\_ per cent. **1**  
(a) 12.2 (b) 18.4  
(c) 36.8 (d) None of these
- vii. A 4-byte IP address consists of \_\_\_\_\_. **1**  
(a) Only network address  
(b) Only host address  
(c) Network address & host address  
(d) Network address & MAC address
- viii. Which one of the following is not a function of network layer? **1**  
(a) Routing (b) Inter-networking  
(c) Congestion control (d) Error control

[2]

- ix. Which of the following are transport layer protocols used in networking? **1**  
(a) TCP and FTP (b) UDP and HTTP  
(c) TCP and UDP (d) HTTP and FTP
- x. User datagram protocol is called connectionless because \_\_\_\_\_. **1**  
(a) All UDP packets are treated independently by transport layer  
(b) It sends data as a stream of related packets  
(c) It is received in the same order as sent order  
(d) It sends data very quickly
- Q.2 i. Describe connectionless and connection-oriented services. **2**  
ii. Explain types of network topologies. **3**  
iii. Explain ISO-OSI model in brief. **5**  
OR iv. Explain TCP/IP model in brief. **5**
- Q.3 i. Explain Design issues of datalink layer. **4**  
ii. 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. **6**  
OR iii. What is HDLC? Explain the operation of the HDLC with required frames. **6**
- Q.4 i. Write differences between static and dynamic channel allocation. **2**  
ii. What is Aloha? Explain Pure and Slotted Aloha. **3**  
iii. In a CSMA / CD network running at 1 Gbps over 1 km cable with no repeaters, the signal speed in the cable is 200000 km/sec. What is minimum frame size? **5**  
OR iv. What is Ethernet? Explain frame format of ethernet in brief. **5**
- Q.5 i. Explain the function of ARP & RARP. **4**  
ii. Explain distance vector routing in detail. **6**  
OR iii. Explain IPv4 header format in brief. **6**
- Q.6 Attempt any two: **5**  
i. Discuss TCP and its various operations. **5**  
ii. Discuss the features of HTTP and also discuss how HTTP works. **5**  
iii. Explain the working of electronic mail. How SMTP used in Email applications? **5**

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P.T.O.