T.E. Sem-VI (IKT)(EXTC) (Rev-19) winter 2025

18/12/2025

Time: 3 Hours MARKS: 80

NOTE: 1. Question no. 1 is compulsory.
2. Attempt any 3 questions out of 5 questions.
3. Each question carries 20 marks.

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| Q.1 | Attempt any four questions out of five questions | 20 |
| a | Compare connection oriented and connectionless communication. | |
| b | Explain ICMP protocol. | |
| c | Compare RIP and OSPF | |
| d | Compare IPv4 and IPv6 | |
| e | Draw and explain UDP Header. | |
| Q.2A | Explain connection establishment, data transfer and connection termination in TCP three-way handshaking. | 10 |
| Q.2 B | Explain Go back N and Selective Repeat technique of sliding window ARQ. | 10 |
| Q.3 A | Suppose the network with IP address 192.16.0.0 is divided into two subnets. Find i) Number of host per subnet, ii) First address, iii) Last address | 5 |
| Q.3 B | Compare Pure ALOHA and Slotted ALOHA. | 5 |
| Q.3 C | Explain CSMA mechanisms. Compare CSMA/CD and CSMA/CA protocols. | 10 |
| Q.4 A | Draw IP datagram header and explain each field. | 10 |
| Q.4 B | Explain DHCP protocol in details | 10 |
| Q.5 A | Classify and explain different transmission media | 10 |
| Q.5 B | Explain HDLC frame format and its response modes. Explain bit stuffing and destuffing with example. | 10 |
| Q.6 | Write a short note on any four of the following:<br>1. HTTP<br>2. BGP routing protocol<br>3. Flow control in transport layer<br>4. IPv4 to IPv6 transition<br>5. Fragmentation and Reassembly | 20 |