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BCS502

**Fifth Semester B.E./B.Tech. Degree Examination, June/July 2025**  
**Computer Networks**

Max. Marks: 100



Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.  
 2. M : Marks , L: Bloom's level , C: Course outcomes.

| Module – 1 |    |                                                                                                                   | M  | L  | C   |
|------------|----|-------------------------------------------------------------------------------------------------------------------|----|----|-----|
| Q.1        | a. | Explain different data flow (simplex, half-duplex, and full-duplex) modes with suitable examples.                 | 10 | L4 | CO1 |
|            | b. | With a neat diagram explain functionalities of TCP/IP reference model architecture.                               | 10 | L2 | CO1 |
| OR         |    |                                                                                                                   |    |    |     |
| Q.2        | a. | Briefly explain types of Guided Media (Twisted pair, Coaxial cable, and Fiber optics) with suitable applications. | 10 | L2 | CO1 |
|            | b. | Explain datagram networks with suitable diagrams.                                                                 | 10 | L2 | CO1 |
| Module – 2 |    |                                                                                                                   |    |    |     |
| Q.3        | a. | What are the types of errors, explain Hamming distance and minimum hamming with suitable examples.                | 10 | L2 | CO2 |
|            | b. | Define linear block coding and CRC algorithm with suitable examples.                                              | 10 | L2 | CO2 |
| OR         |    |                                                                                                                   |    |    |     |
| Q.4        | a. | Example HDLC protocol with suitable diagrams.                                                                     | 10 | L2 | CO2 |
|            | b. | Explain flow diagram for the CSMA/CD protocol.                                                                    | 10 | L2 | CO2 |
| Module – 3 |    |                                                                                                                   |    |    |     |
| Q.5        | a. | Explain virtual-circuit packet switched network with suitable diagram.                                            | 10 | L2 | CO3 |
|            | b. | Explain DHCP message format and option format with suitable diagrams.                                             | 10 | L2 | CO3 |
| OR         |    |                                                                                                                   |    |    |     |
| Q.6        | a. | Describe open-loop congestion control (prevention) and closed-loop congestion control (removal) in detail.        | 10 | L2 | CO3 |
|            | b. | Explain message format of RIP and its performance.                                                                | 10 | L2 | CO3 |
| Module – 4 |    |                                                                                                                   |    |    |     |
| Q.7        | a. | Discuss difference between Go-Back-N and selective repeat protocols.                                              | 10 | L2 | CO4 |
|            | b. | Explain TCP three - way Handshaking process with suitable diagram.                                                | 10 | L2 | CO4 |
| OR         |    |                                                                                                                   |    |    |     |
| Q.8        | a. | Explain TCP segment format with suitable diagrams.                                                                | 10 | L2 | CO4 |
|            | b. | Explain congestion avoidance additive increase with suitable diagram.                                             | 10 | L2 | CO4 |
| Module – 5 |    |                                                                                                                   |    |    |     |
| Q.9        | a. | Explain types of network application architectures with a suitable diagrams.                                      | 10 | L2 | CO5 |
|            | b. | Explain HTTP protocol formats of the request and response messages.                                               | 10 | L2 | CO5 |
| OR         |    |                                                                                                                   |    |    |     |
| Q.10       | a. | Write short notes on cookies.                                                                                     | 10 | L2 | CO5 |
|            | b. | Explain components of SSH and its packet format with suitable diagram.                                            | 10 | L2 | CO5 |