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Fifth Semester B.E./B.Tech. Degree Examination, Dec.2025/Jan.2026 Computer Networks and Security

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. What are the different transport services available to applications? Explain. (07 Marks)
- b. How do cookies maintain user state? Write a note on web caching. (05 Marks)
- c. Write a note on FTP and discuss about FTP command and Replies. (08 Marks)

OR

- 2 a. Explain HTTP request and response message format in detail. (07 Marks)
- b. Consider distributing a file of $F = 15$ Gbits to N peers. The server has an upload rate of $U_S = 30$ mbps and each peer has a download rate $d_i = 2$ mbps and an upload rate of u . For $N = 10, 100, 1000$ and $u = 300$ Kbps, 700Kbps, 2 mbps. Calculate the minimum distribution time for each of the combination of N and u in client server distribution. (05 Marks)
- c. Describe in detail the services offered by DNS and explain the DNS message format. (08 Marks)

Module-2

- 3 a. Describe the various fields of UDP segment structure and explain UDP checksum with example. (10 Marks)
- b. Draw and explain FSM model for sender and receiver side in rdt 2.1. (10 Marks)

OR

- 4 a. Explain all the fields of TCP segment. (10 Marks)
- b. What is Congestion? Explain how TCP provides congestion control. (10 Marks)

Module-3

- 5 a. Explain input processing and output processing in a router with appropriate diagrams. Also explain switching methods. (10 Marks)
- b. Write and demonstrate the operation of distance vector routing algorithm with example. (10 Marks)

OR

- 6 a. With a neat diagram, explain IPV6 datagram format. (10 Marks)
- b. Write a short note on the working of
- i) RIP
 - ii) OSPF
- (10 Marks)

Module-4

- 7 a. Classify the different network attacks and explain denial and service attack. (10 Marks)
- b. Write steps involved in data encryption standard along with neat diagram. (10 Marks)

OR

- 8 a. Explain RSA algorithm with suitable example. (10 Marks)
- b. Discuss about packet filtering and proxy servers with respect to firewalls. (10 Marks)

Module-5

- 9 a. Explain streaming stored video using UDP and HTTP. (10 Marks)
- b. What are the types of loss anticipation schemes? Explain any 2 with example. (10 Marks)

OR

- 10 a. Write a short note on :
- i) Properties of Audio
 - ii) Properties of Video
- (10 Marks)
- b. With a neat diagram, explain the RTP header fields. Also mention application of RTP. (10 Marks)

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