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CBCS SCHEME

USN | | | | | | | | | | |

21CS52

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

Time: 3 hrs. Max. Marks: 100

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

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

Module-1

1 a. List and explain the six service primitives that provide a simple connection-oriented service using a simple client-server interaction. **(10 Marks)**

b. Illustrate the concept of total internal reflection in an optical fiber and explain the structure of fiber cables. **(10 Marks)**

OR

2 a. Explain the operation of seven layers of an OSI reference model using diagram. **(10 Marks)**

b. Explain the electromagnetic spectrum and its uses for communication with respect to wireless transmission. **(10 Marks)**

Module-2

3 a. List the different Error-Correcting codes and Hamming code correction using suitable example. **(10 Marks)**

b. Explain Cyclic Redundancy Check (CRC) using an example. **(10 Marks)**

OR

4 a. List and explain the assumptions for Dynamic Channel Allocation. **(10 Marks)**

b. Explain Carrier Sense Multiple Access (CSMA) with Collision Detection (CD) – CSMA/CD using suitable figure. **(10 Marks)**

Module-3

5 a. Illustrate shortest path algorithm for the given network from A to D. **(08 Marks)**

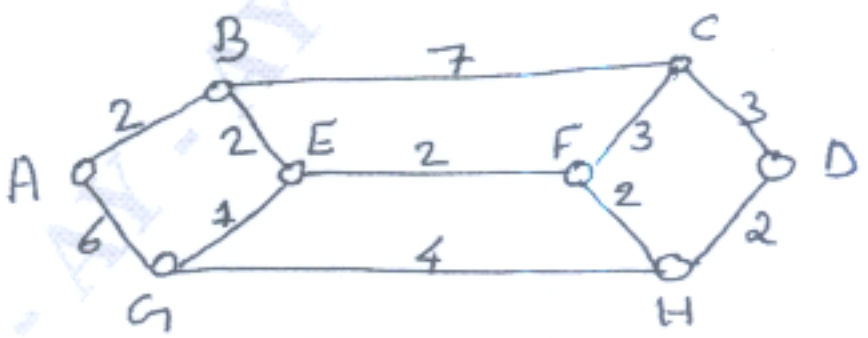

Fig.Q.5(b) Network diagram

b. Explain Distance Vector Routing using an example. Illustrate count-to-infinity problem. **(12 Marks)**

OR

6 a. List and explain the different approaches used for congestion control. (10 Marks)
b. Define Traffic shaping and explain Leaky and Token Buckets using diagram. (10 Marks)

Module-4

7 a. Explain the steps involved in making a remote procedure call using diagram. (08 Marks)
b. Explain Real-Time transport protocols and packet nesting with respect to RTP. (12 Marks)

OR

8 a. Explain TCP header using diagram. (10 Marks)
b. Illustrate TCP sliding window protocol using flow diagram. (10 Marks)

Module-5

9 a. Explain the fields of HTTP request and response message formats using diagram. (12 Marks)
b. Illustrate web Caching using suitable diagram. (08 Marks)

OR

10 a. Illustrate the process of file transfer in an FTP protocol between local and remote file systems. (10 Marks)
b. Illustrate the basic operations of SMTP to transfer a simple ASCII message using suitable diagram. (10 Marks)

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