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Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(CSE) (Sem.-4)  
COMPUTER NETWORKS-I  
Subject Code : BTCS-403  
M.Code : 56606  
Date of Examination : 04-01-23

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt ANY FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt ANY TWO questions.

#### SECTION-A

1. Answer briefly:
  - a) Differentiate broadcast and point to point networks.
  - b) What are transmission impairments?
  - c) What is HDLC protocol and what is its role in networking?
  - d) Draw 802.3 frame format.
  - e) What are the classless IP addresses?
  - f) What are the features of UDP protocol?
  - g) What is WWW?
  - h) What is network security?
  - i) A telephone line normally has bandwidth of 3000Hz assigned for data communication. The SNR ratio for the channel is 3db. Calculate the channel capacity.
  - j) List the categories of co-axial cables along with their applications.

### SECTION-B

2. What is topology? What are its types? How much total number of cables and ports are needed on each device in mesh topology of 5 devices?
3. Write a note on time division multiplexing and frequency division multiplexing.
4. With the help of an example explain how checksum is used to detect errors.
5. Define congestion and explain various techniques used to control the congestion.
6. Write and explain the design issues of transport layer.

### SECTION-C

7. Write and explain the functions of different layers of OSI Model.
8. With the help of diagrams explain the working of following sliding window protocols.
  - a) Go-Back-to-N ARQ
  - b) Selective-Repeat ARQ.
9. Explain the working of following Random Access and Controlled Access Protocols.
  - a) CSMA and ALOHA
  - b) Polling and Token Passing.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.