H Roll No. .....

TCS–604

B. TECH. (CSE) (SIXTH SEMESTER)
MID SEMESTER
EXAMINATION, March, 2024

COMPUTER NETWORKS—I

Time : 1½ Hours

Maximum Marks : 50

Note : (i) Answer all the questions by choosing any *one* of the sub-questions.

(ii) Each sub-question carries 10 marks.

1. (a) Briefly discuss the layering concept using TCP/IP stack. (CO1)

OR

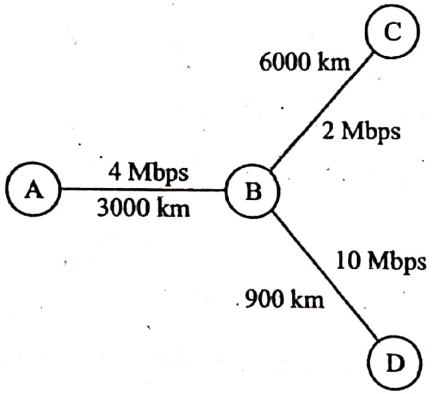
(b) Explain the working and significant difference between packet switching and circuit switching. (CO1)

P. T. O.

2. (a) Explain the various types of packet delays in computer networks having n number of routers between source to destination. (CO1)

OR

(b) Consider the following figure and assume data travels through the links at the speed of light : (CO1)



Problem 1 : What is the transmission delay, if :

- A sends a 500-byte packet to B
- B sends a 125-byte packet to D

Problem 2 : What is the propagation delay between :

- A to B
- B to D

3. (a) (i) If a packet travels from a source to a destination across a network with an average propagation speed of 2.5×10^8 metres per second and a distance of 5000 kilometres, what is the propagation delay ?

(ii) A network link has a transmission rate of 10 Mbps. If the size of a packet is 1500 bytes, what is the transmission delay on this link ? (CO2)

OR

(b) How peers' architecture is different from client-server architecture ? Compare the performance for both architectures having n number of active hosts for data frame of size F bits in terms of delay. (CO2)

4. (a) Write short notes on the following : (CO2)

(i) Proxy Server

(ii) Conditional GET

OR

(b) Describe the process of establishing a connection and transferring files using FTP accompanied by suitable diagram. (CO2)

5. (a) Describe the process of sending an e-mail, incorporating the SMTP protocol, accompanied by an illustrative diagram. Additionally, discuss the importance of POP3 and IMAP protocols in e-mail communication. (CO2)

OR

(b) What is DNS and what purpose does it serve in computer networks ? Explain the overall working of DNS with a neat diagram. (CO2)