H Roll No. .....

TCS–604

B. TECH. (CSE) (SIXTH SEMESTER)
MID SEMESTER
EXAMINATION, April, 2023

COMPUTER NETWORK—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) Explain OSI reference model with the proper functionality of each layer. (CO1)

OR

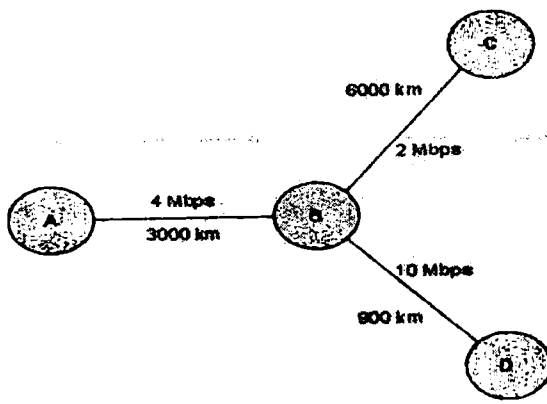
(b) Explain the working and significant difference between packet switching and circuit switching. Also, define the Bandwidth distribution using TDM, and FDM. (CO1)

P. T. O.

2. (a) Explain the involved 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) What will be the latency of the network for a data packet size of 20 MB, If the bandwidth of the network is 2 Gbps ? Assume that the total 20 number of routers found between source to destination and signal travels with the speed of 2×10^8 meter per second. The queuing delay for first 5 routers is 20 MS and remaining has 10 MS and information processing time for each router in 10MS. (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. What is Peer architecture, explain with the help of bit torrent and a diagram ? (CO2)

4. (a) Explain the working of cookies with the help of examples and suitable diagrams. (CO2)

OR

(b) How can we send an email ? Explain with help of SMTP and a suitable diagram. What is the significance of POP3 and IMAP protocol ? (CO2)

5. (a) Explain the working of HTTP protocol with help of the Persistent and non-persistent methods. (CO2)

OR

(b) Explain the different services provided by the Transport layer. (CO2)