Vellore Institute of Technology
(Deemed to be University under section 3 of UGC Act, 1956)

SCHOOL OF ELECTRICAL ENGINEERING
CONTINUOUS ASSESSMENT TEST - I
WINTER SEMESTER 2024-2025

SLOT: B1 + TB1

Programme Name & Branch	**: B.Tech & Electrical and Computer Science Engineering**
Course Code and Course Name	**: BCSE308L Computer Networks**
Faculty Name(s)	**: Prof. Srihari Mandava**
Class Number(s)	**: VL2024250503834**
Date of Examination	**: 28/01/2025**
Exam Duration	**: 90 minutes**

General instruction(s): **Maximum Marks: 50**

- Answer All Questions
- M - Max mark; CO – Course Outcome; BL – Blooms Taxonomy Level (1 – Remember, 2 – Understand, 3 – Apply, 4 – Analyse, 5 – Evaluate, 6 – Create)

Course Outcomes

1. Interpret the different building blocks of Communication network and its architecture.
2. Contrast different types of switching networks and analyze the performance of network

Q. No	Question	M	CO	BL
1.	a) Write a short note on the key elements of protocol and the network protocols?	5	1	1
	b) State any three pros and three cons of computer networks?	5	1	2
2.	Compare and contrast the OSI model and the TCP/IP model in terms of layers and functionality.	10	1	4
3.	Discuss the three phases of communication in a virtual-circuit network with neat diagrams: setup, data transfer, and teardown.	10	2	2
4	A path in a virtual-circuit network has a data rate of 1.5 Mbps. The exchange of 1500 bits is required for the setup and teardown phases. The distance between two communicating devices is 8000 km. The propagation speed of the network is ~~2 x 108 m/s.~~ 2×10^8 m/s. Answer the following questions: a) What is the total delay if 1500 bits of data are exchanged during the data-transfer phase? b) What is the total delay if 250,000 bits of data are exchanged during the data-transfer phase? c) What is the total delay if 1,500,000 bits of data are exchanged during the data-transfer phase? d) Find the delay per 1500 bits of data for each of the above cases and compare the results. What can you conclude from the comparison?	10	2	3
5	a) What is latency in a network? Discuss the different types of latency and their impact on network performance.	5	2	2
	b) Define the bandwidth-delay product and explain its significance in network performance. How is it calculated?	5	2	2