VIT
Vellore Institute of Technology
CHENNAI

Reg. Number:	23MCA1030

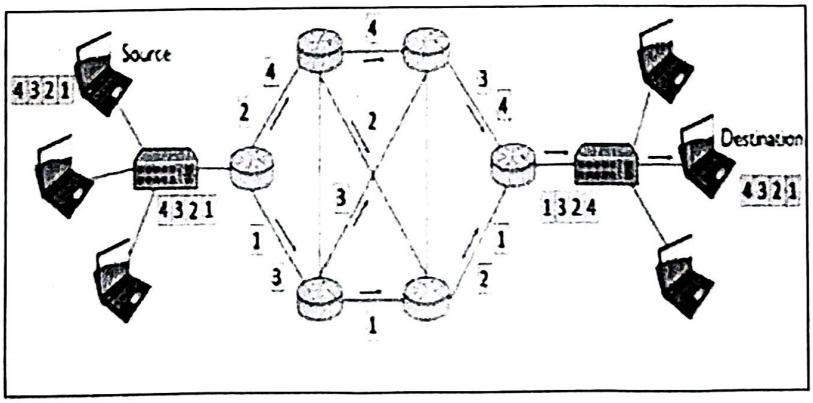
Continuous Assessment Test (CAT) – II - APR 2024

Programme	:	MCA	Semester	:	WIN 23-24
Course Code & Course Title	:	PMCA505L / Data Communication and Networking	Class Number	:	CH2023240501382
Faculty	:	Dr. R. Sendhil	Slot	:	C2+TC2
Duration	:	1 hr 30 mins	Max. Mark		50

General Instructions:

- Write only your registration number on the question paper in the box provided and do not write other information.
- Use statistical tables supplied from the exam cell as necessary
- Use graph sheets supplied from the exam cell as necessary
- Only non-programmable calculator without storage is permitted.

Answer all questions

Q. No	Sub Sec.	Description	Marks
1		A telecommunications service provider wants to offer high-speed internet access to residential customers in a densely populated urban area. However, the available bandwidth is limited, and they need to maximize the utilization of their network infrastructure. Identify suitable methods for optimizing bandwidth and delivering reliable internet services to customers.	10 Marks
2		Identify the switching technique used in the network given below, where data communication takes place. Explore the identified switching technique in detail and also discuss the merits and demerits with the help of given diagram. 	10 Marks

3		A 7-bit hamming code is received as 1011011. Assume even parity and state whether the receiver code is correct or wrong. If the received code is found to be incorrect, write the procedure to locate the bit in error.	10 Marks
4		A small business is looking to establish a network connection between its main office and a remote branch office located 5 K.M. away. They want a cost-effective solution that offers decent bandwidth and reliability. Suggest the transmission media with the pros and cons in this scenario?	10 Marks
5		A logistics company uses a barcode scanning system for inventory management in warehouses. The handheld scanners communicate with the central inventory database over a wireless network, which may experience interference and signal fluctuations. Identify the suitable protocol to implement efficient data transmission mechanisms to maximize bandwidth utilization, avoiding the interference and minimize latency. Justify your answer.	10 Marks

**********All the best **********