MANIPAL INSTITUTE OF TECHNOLOGY
MANIPAL
(A constituent unit of MAHE, Manipal)

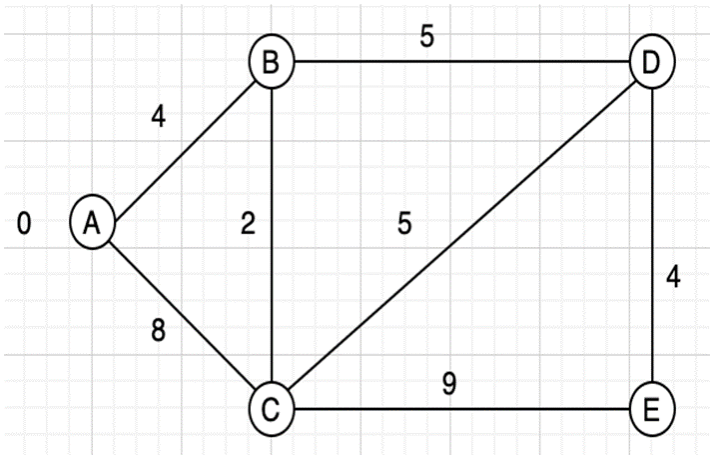
I SEMESTER M. TECH (INTERNET OF THINGS)
END SEMESTER EXAMINATION DECEMBER 2023
Industrial and computer communication networks (ICE 5118)

Note: Answer All questions.

Time:3 Hours **02-12-2023** **MAX. MARKS: 50**

Instructions to Candidates:

- Answer **ALL** the questions.

Q.No.	Description	M	CO	PO	BL
1A	What is the differnce between signal element and data element in a line coding scheme. Draw the signal pattern for data element r=1, r= 2, r= 4 and r = ½.	**3M**	**01**	**PO2**	**03**
1B	Differentiate between Internal and external noise. What are the different type of Internal noise that impact on the signal over a wire or wireless transmission line?.	**3M**	**01**	**PO1**	**03**
1C	Analyse significance of syndrom in CRC? Justify your answer and identify the syndrom by taking a code word **n'=1001110** and the divisor **k= 1011.**	**4M**	**02**	**PO1**	**03**
2A	Write down the significance of MAC protocal in computer network. What are the different techniques used in CSMA/CA method for the avoidance of collision over a transmission line?.	**4M**	**02**	**PO1**	**03**
2B	What is Dijkstra' shortest path Algorithm? How is it different from the Bellman-ford algorithm? Illustrate Dijkstra' shortest path algorithm to find out the shortest path between node A and D, shown in Figure below**.** 	**6M**	**03**	**PO2**	**04**
3A	Compare and contrast SONET and FDDI in term of its application? Explain the different entities of SONET with block diagram.	**5M**	**02**	**PO2**	**03**
3B	What is the difference between adaptive and non-adaptive routing? Classify and explain the working of different type of adaptive routing technique used in computer network.	**5M**	**O3**	**PO4**	**03**

4A	Analyze the need for a transport layer in a process-to-process packet delivery model? Differentiate the UDP and TCP protocol in terms of their packet format, use cases and connection reliability.	**5M**	**04**	**PO1**	**04**
4B	What is DDoS attack in a computer network. Write down the different types of DDoS attack that related to CIA triad. Highlight different possible DDoS attack mitigation techniques.	**5M**	**04**	**PO3**	**03**
5A	What is LoRa? Briefly explain how the LoRa achieves long distance transmission over a limited bandwidth and power supply. Justify the need of LoRa for IoT application.	**5M**	**05**	**PO3**	**03**
5B	What is the publish-subscribe model? Describe how MQTT solves multiple client problems in a network with limited resources.	**5M**	**05**	**PO1**	**02**