Reg. No.

Manipal Institute of Technology, Manipal

(A Constituent Institute of Manipal University)

VI SEMESTER B.TECH (CIVIL ENGINEERING)

END SEMESTER EXAMINATIONS,   2016

SUBJECT: URBAN TRANSPORTATION SYSTEMS [CIE 320]

REVISED CREDIT SYSTEM

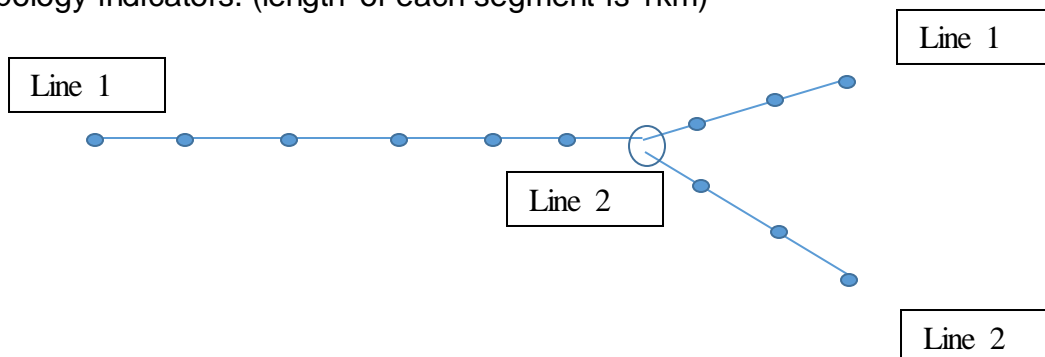Time: 3 Hours   MAX. MARKS: 50

Instructions to Candidates:

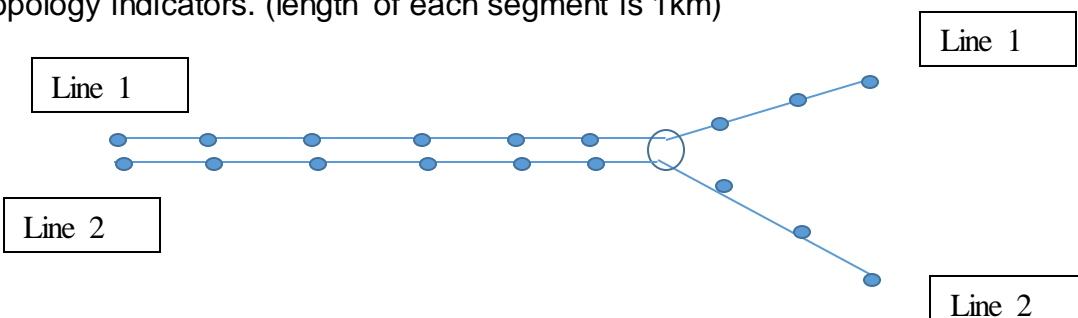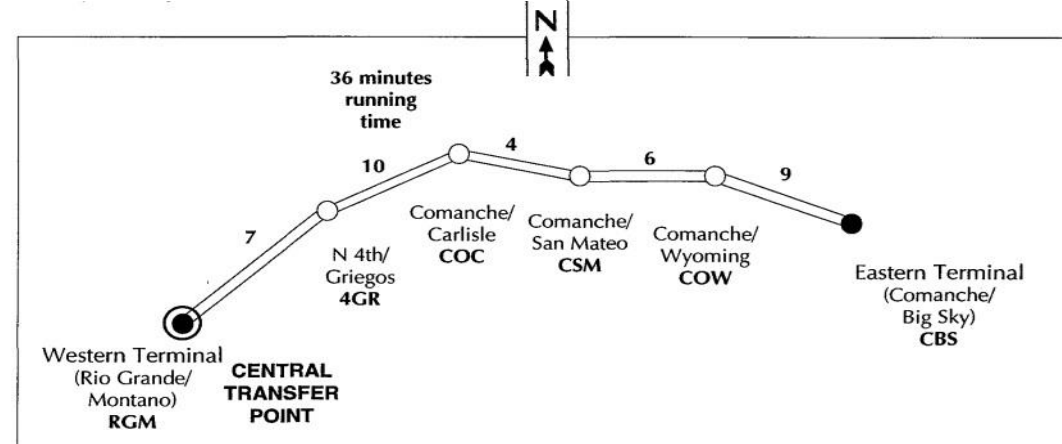❖ Answer **ANY FIVE FULL** the questions.

❖ Missing data may be suitable assumed.

1A.	Explain the various role played by Urban Transportation.	**5**
1B.	What are the general classification of Urban Transportation? Explain different types of buses used for the public service.	**5**
2A.	What are the different types of data collection techniques for public transit? Explain them.	**5**
2B.	A transit authority needs to design a rapid rail line to meet peak-hour demand of 10000 passengers/hr, with a required of speed of 35 to 40 ft/sec. Following are the assumptions made: Deceleration 2ft/sec2, safety factor k=1.35, min headway= 120sec, max headway= 240sec, load factor=0.9, guideway utilization factor=0.6, station platform limit=10 vehicles, car length=70ft, car capacity=130 passengers. How many cars should a train consist of to provide adequate passenger volume capacity? What will be the corresponding headway?	**5**
3A.	Find the network size and its form for the following network. Also determine its topology indicators. (length of each segment is 1km) 	**5**

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3B.	Find the network size and its form for the following network. Also determine its topology indicators. (length of each segment is 1km) Line 1 Line 1 Line 2 Line 2	**5**
4A.	With the help of a neat sketch mention the different types of transit lines	**5**
4B.	Define Rostering and discuss in detail the different types of rostering	**5**
5.	Prepare the Master Schedule and Blocking Sheet for the morning peak hour with the help of the given data for the network shown below: Headway = 30 minutes Peak Service Hours: 6:00 am – 10:30 am Round Trip Time = 72 minutes Other routes converge on the western terminal at :04 and :34 past the hour Layover time for 30 minute headway = 18 minutes (10 minutes at eastern terminal and 8 minutes at western terminal) N 36 minutes running time 10 4 6 9 7 Comanche/ Carlisle COC Comanche/ San Mateo CSM Comanche/ Wyoming COW N 4th/ Griegos 4GR Eastern Terminal (Comanche/ Big Sky) CBS Western Terminal (Rio Grande/ Montano) RGM CENTRAL TRANSFER POINT	**10**
6A.	Define Run-cutting and list out the information which is required for a scheduler to prepare Run-cutting.	**3**
6B.	Write a short note on Heavy Rail Stations and light rail stations.	**4**
6C.	Explain the design principle for a good bus terminal.	**3**

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