Reg. No.										

Manipal Institute of Technology, Manipal

(A Constituent Institute of Manipal University)

VI SEMESTER B.TECH (CIVIL ENGINEERING)

END SEMESTER EXAMINATIONS, 2016

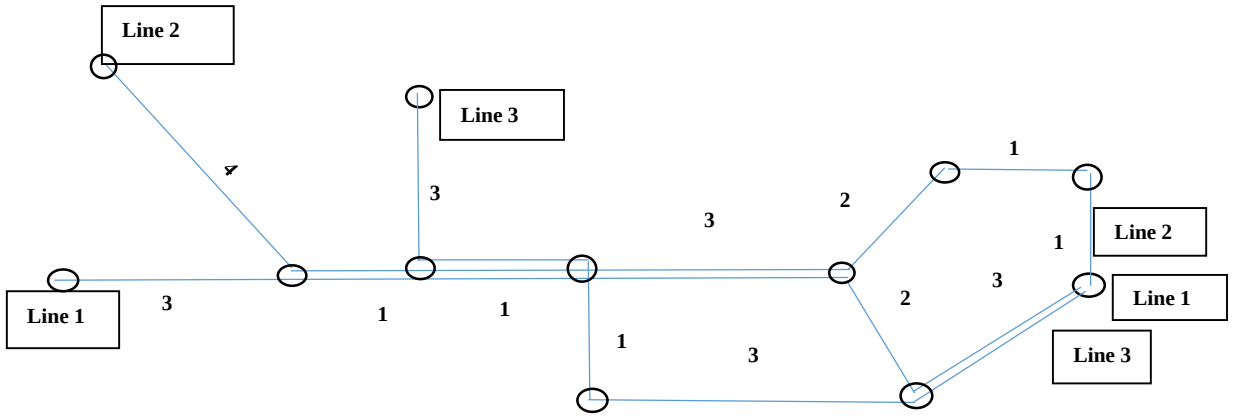
SUBJECT: URBAN TRANSPORTATION SYSTEMS [CIE 320]

REVISED CREDIT SYSTEM

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

- Answer **ANY FIVE FULL** questions.
- Missing data may be suitably assumed.

1A.	What is ITS? List out the applications and benefits.	**6**
1B.	Define the following: a) Trolley bus b) Sustainable Transportation c) Ride Check d) Maximum Load Point	**4**
2A.	Discuss briefly about the rail based public transportation.	**6**
2B.	A bus system needs to be setup between two places A and B which are 13.5 km apart. The operating time is 40 minutes. It has been estimated that the peak hour demand is 600passengers/hour and 50 seater buses are available, which can safely accommodate 20 standees. Design the basic system and determine the fleet size, assuming that the policy headway is 30 min and the minimum terminal time is 7.5min, which may be revised if necessary.	**4**
3A.	Write a note on Timed transfer network.	**2**
3B.	Find the network size and its form for the following network. Also determine its topology indicators. 	**8**

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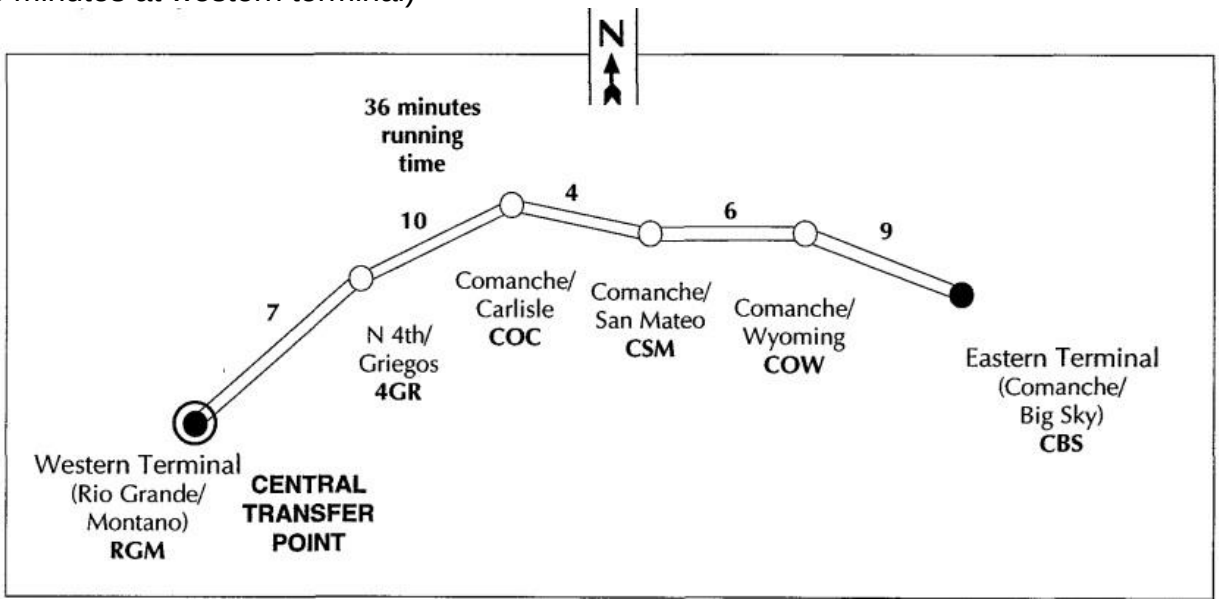
4A.	Define the following: a) Collector streets b) Density of metro network c) Crush capacity d) Para-transit e) Dwell time	**5**
4B.	Define Transit Scheduling and discuss briefly about the components of transit scheduling.	**5**
5.	Prepare the Master Schedule and Blocking Sheet for the evening peak hour with the help of the given data for the network shown below: Headway = 30 minutes Peak Service Hours: 6:00 am – 10:30 and 16:00 – 20:30 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)  	**10**
6A.	What is importance of blocking in transit scheduling?	**2**
6B.	Explain the service requirements for transit scheduling.	**4**
6C.	With the help of a neat sketch describe the different types of bus layouts	**4**