Student Exam No_____

GANPAT UNIVERSITY

B.TECH- SEMESTER-VIII CIVIL ENGINEERING

REGULAR EXAMINATION MAY/JUNE- 2016

SUBJECT: 2CI: 811- TRANSPORTATION ENGINEERING –II

Time: 3 Hours

Max Marks: 70

Instructions: - (1) Answer to the two sections must be written in separate answer books.

(2) Figures to the right indicate full marks.

(3) Assume suitable data if required.

SECTION – I

Que 1 (A) Briefly discuss the four different stages of the incident management process. (6)

(B) Explain the following: (6)

(i) Present value of uniform series

(ii) Sinking fund factor

(iii) Capital recovery factor

(iv) Annuity

(v) Capacity Headway

(vi) Optimum Headway

OR

Que 1 (A) Describe the four basic components of a traffic surveillance system. (6)

(B) Describe the Classification for Transit Mode. (6)

Que 2 (A) Discuss the advantages and disadvantages of Metro rail project in Ahmedabad city? Give your suggestions for improving it. (5)

(B) Explain the factors affecting the Transit Capacity. (6)

OR

Que 2 (A) Explain the various factors affecting the vehicle operation cost. (5)

(B) Write down advantages of co-ordination of transportation and also describe limitation of co-ordination. (6)

Que 3 (A) Calculate the annual cost of a stretch of highway from the following particulars: (6)

Item	Total costs Rs. In Lakhs	Estimated Life Years	Rate of Interest(%)
Land	12	100	5
Earthwork	9	40	5
Bridges & Culverts	7.5	60	7.5
Pavement	14	15	10

The average cost of maintenance of the road is Rs. 1.5 lakhs per year.

(B) A single lane road stretch of 60 km is to be widened to two lanes at a cost of Rs. 10 lakh kilometer. The reduction in cost of operation of vehicle on improved facility as found out be Rs. 0.50 less than the previous facility, which was Rs. 2.5 earlier. The average traffic may be assumed 3000 vehicles per day for a design period of 20 years. The interest rate is 12 % per annum and cost of maintenance on existing road is Rs. 10000 per kilometer and Rs 20000 per kilometer on the improved road. Is the investment in the improvement scheme worthwhile?

SECTION – II

Que 4 (A) Explain the components of comprehensive planning of transportation system. (6)

(B) What is transport planning? Discuss the role of transportation in the economic and social activities of the country. (6)

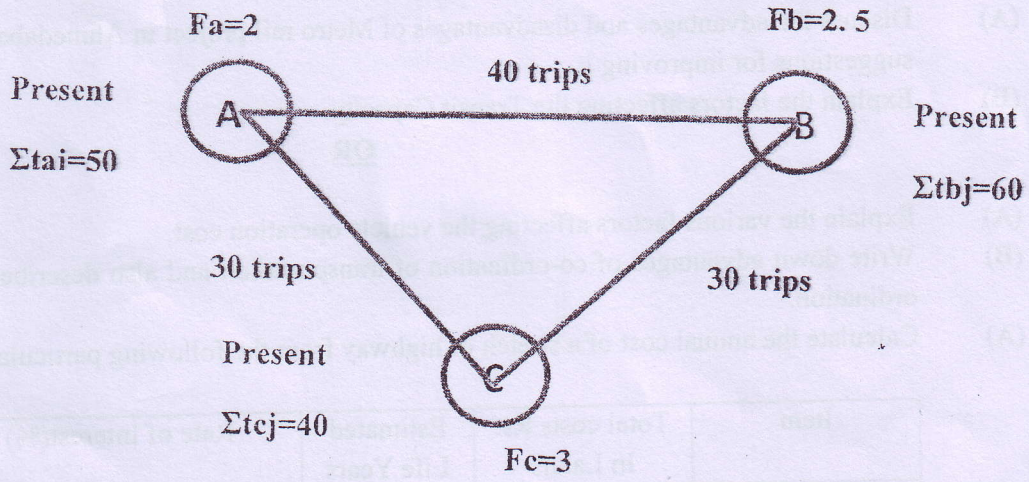
OR

Que 4 (A) What are the various steps involved in travel demand analysis process? Discuss the significance of each stage. (6)

(B) The table shows data for vehicle per day, as related to income in the household, for one zone of the study area. Develop the trip generation equations. (6)

Income (Thousand of units)	Trips per day
50	2
100	4
150	5
200	6
250	8

Que 5 (A) Three zones A, B, C are shown in figure with interchanges between A and B=40, between B and C=30 and between C and A=30. These are non-directional interchanges. Growth factors of 2, 2.5 and 3 are forecasts for the zones A, B and C respectively. Using the fratar method computes the zonal interchanges in the forecast year. (6)



Figure

(B) Explain the levels of urban transport planning? (5)

OR

Que 5 (A) Enlist methods of trip generation analysis. Describe briefly category analysis method. (6)

(B) What is modal split analysis? What are the factors affecting it? (5)

Que 6 (A) The total trip volumes from zone 1 to 2 are 3000. Find the volumes on each route, connecting the two zones. Using the particulars given in table below. Use TRC trip assignment model. (6)

Route No.	Lengths in (kms)	Speed (km/hr.)
1	3	40
2	1.9	25
3	2.5	10
4	1.2	20

(B) Enlist methods of trip distribution and explain any two of them. (6)

End of Paper