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SF-7682

B. E. IV (Sem - VIII) (Civil) Examination

May/June – 2011

Urban Transportation Planning : Elective - I

Time : Hours] [Total Marks : **100**

Instructions :

(1)

નીચે દર્શાવેલ ☛ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fillup strictly the details of ☛ signs on your answer book.

Name of the Examination :

☛ **B. E. 4 (Sem - 8) (Civil)**

Name of the Subject :

☛ **Urban Transportation Planning (Elec.-1)**

☛ Subject Code No. : **7 6 8 2** ☛ Section No. (1, 2,.....) : **Nil**

Seat No. :

Student's Signature

(2) Attempt all questions.
(3) Figure to the right indicate full marks.
(4) Assume suitable data if necessary and mention it clearly.
(5) Draw neat and labelled diagrams wherever necessary.

1 (a) Explain land use and traffic interrelation. **6**

(b) Discuss inventary of transport facilities in detail. **6**

(c) How to do planning and scheduling of bus route network. **6**

OR

(c) What are the issues of public transportation in India.

2 (a) Distribute the trips for following data using Fratar method. Future values are expected to be 80, 114, 48, 38 for zones A, B, C and D respectively. **15**

O \ D	*A*	*B*	*C*	*D*
A	–	10	12	18
B	10	–	14	14
C	12	14	–	6
D	18	14	6	–

(b) A single lane road 60 km long is to be widened to two lanes at a cost of Rs. 10.00 lakhs per km, including all improvements. The cost of operation of vehicles on the single lane road is Rs. 1.5 per vehicle km, whereas it is Re. 1.0 per vehicle km on the improved facility. The average traffic may be assumed 2700 vehicles per day over a design period of 20 years. The interest rate is 12% per annum. The cost of maintenance is Rs. 5500 per km on the existing road and Rs. 10,500 per km on improved road. Is the investment in the improvement scheme worth while. **6**

OR

(b) Explain classification of public transportation system.

3 (a) Attempt any two of following : **6**

(1) Explain sampling and expansion factor.

(2) Discuss environmental impart air pollution in transportation planning.

(3) A city bus services operating standard buses is required to carry 17,000 passengers during peak hours of 9.00 AM to 11.00 AM. For a round trip time of 30 minutes and an average bus occupancy of 70 passengers. Calculate the hourly flow and the fleet size corresponding to this flow.

(b) Explain system approach to transportation planning. **5**

4 Explain in brief : (any three) **6**

(1) Home and Non-home based trips

(2) Minimum path tree

(3) Diversion curve

(4) Travel time ratio

5 Solve any three : **24**

(1) The total trips produced in and attracted to the three zones A, B and C of a survey area in the design year are tabulated as :

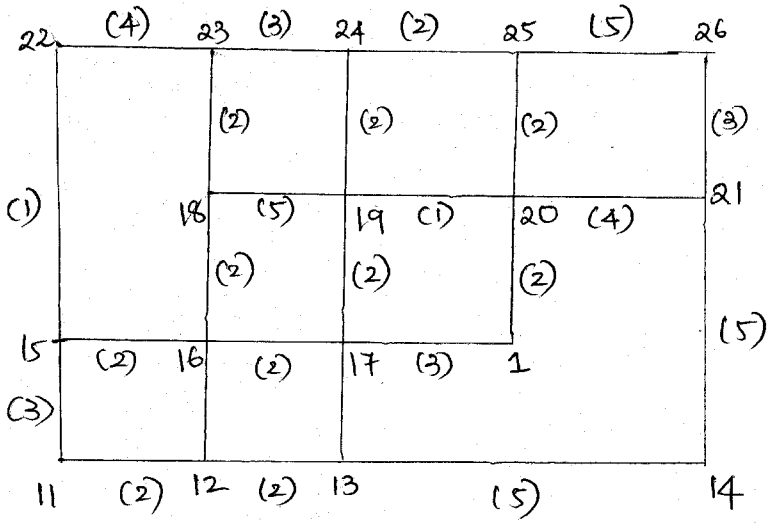
Zone	Trips produced	Trips attracted
A	2000	3000
B	3000	4000
C	4000	2000

It is known that the trips between two zones are inversely proportional to the second power of the travel time between zones, which is uniformly 20 minutes. If the trip interchange between zones B and C is known to be 600. Calculate the trip interchange between zones A and B, A and C, B and A, C and B.

(2) Derive the design year trip interchanges if the trip generations are expected to be 525, 1475, 2800 for the three zones 1, 2 and 3 respectively. The base year trip distribution is as follows : (use uniform factor method)

O \ D	1	2	3
1	40	90	195
2	90	65	305
3	195	305	30

(3) Develop minimum path tree for following fig.



(4) In order to relieve congestion on an urban street network a motorway is proposed to be constructed. The travel time from one zone centroid to another via the proposed motorway is estimated to be 10 minutes whereas the time for the same travel via the existing streets is 18 minutes. The flow between the two zone centroids is 1000 vehicles per hour. Assign the flow between the new motorway and existing streets.

6 Attempt any four : **20**

(1) Discuss factors governing trip generation and attraction rates.

(2) Enlist traffic assignment techniques. Explain any one in detail.

(3) Write short note on :
pre-distribution modal split

(4) Explain structure of lowry model with flow diagram.

(5) Write short note on :
Category Analysis