(Pages : 2)

Reg. No..................................

Name.................

B.TECH. DEGREE EXAMINATION, MAY 2014

Eighth Semester

Branch : Civil Engineering

TRAFFIC AND TRANSPORTATION PLANNING—Elective III (C)

(Old Scheme—Supplementary/Mercy Chance)

[Prior to 2010 Admissions]

Time : Three Hours

Maximum : 100 Marks

Use of Statistical tables is permitted.

Part A

Answer all questions.
Each question carries 4 marks.

1. Discuss the application of probability and statistics in traffic engineering.

2. If 10% of the cars approaching an intersection leg turns left, what is the probability that at least one out of three cars chosen at random will turn left ?

3. Explain briefly the four step process in transportation planning.

4. What are the assumptions in category analysis ?

5. List the factors affecting trip distribution.

6. What are the common techniques of trip assignment ?

7. Discuss the common parking problems faced in an urban area.

8. Define the following terms :—

    (i) Parking index.

    (ii) Parking turn-over.

9. Differentiate between fixed and variable costs in economic analysis of transportation projects.

10. Briefly explain the rate of return method of economic analysis.

(10 × 4 = 40 marks)

Part B

Answer all questions.
Each question carries 12 marks.

11. Vehicles arrive at an isolated intersection according to Poisson distribution. Given that the mean arrival rate is 600 veh/h, calculate :

    (i) The probability that zero vehicles will arrive during a 15 sec interval,

    (ii) The probability that at least 10 vehicles will arrive during a 15 sec interval ; and

    (iii) The probability that exactly 3 vehicles will arrive in an interval of 15 secs.

Or

Turn over

12. Given the following measurements of traffic speed u and concentration k, apply the method of least squares to find the best-fitting straight line $u = a + bk$.

u	...	60	50	40	30	25
k	...	8	15	30	40	80

13. With the help of a flow chart, explain the systems approach in transportation planning process.

Or

14. (a) Enumerate the factors affecting trip generation and trip attraction.

    (b) Discuss the significance of mode split analysis in transportation planning process.

15. Estimate the future year trip distribution from the following base year data using average growth factor method.

Zone		A	B	C	Growth factor
A	...	0	50	100	2
B	...	50	0	150	3
C	...	100	150	0	4

Or

16. Explain the minimum path algorithm used in traffic assignment through an example.

17. Discuss the desirable parking space standards for different land uses.

Or

18. Write a note on lighting layout on straight roads and junctions.

19. Explain briefly various factors affecting the vehicle operation cost.

Or

20. (a) Explain the principles of economic evaluation.

    (b) Discuss the advantages and disadvantages of benefit cost ratio method of economic evaluation.

$(5 \times 12 = 60 \text{ marks})$