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Total Number of Pages : 02

B.Tech.
PECI5410

8th Semester Regular / Back Examination 2017-18
TRAFFIC ENGINEERING AND TRANSPORTATION PLANNING

BRANCH : CIVIL

Time : 3 Hours

Max Marks : 70

Q.CODE : C112

Answer Question No.1 which is compulsory and any five from the rest.
The figures in the right hand margin indicate marks.

Q1 Answer the following questions : (2 x 10)

- a) What is 85th, 15th, 50th and 98th percentile speed?
- b) Differentiate between running speed and journey speed.
- c) Differentiate between basic capacity and practical capacity.
- d) Draw the relationship between traffic density and traffic volume.
- e) The free mean speed on roadway is found to be 60 kmph, under stopped condition the average spacing between vehicles is 6.5 m, determine the capacity of flow.
- f) What is thirteenth highest hourly traffic volume?
- g) What is trip generation?
- h) Define Jam density?
- i) Define parking index.
- j) Define merging, diverging and weaving conflicts?

Q2 a) A passenger car weighing 3.5 tones is required to accelerate at a rate of 3 m/sec² in the first gear from a speed of 12 kmph. The gradient is +1.5 percent and the road have a black topped surface. The frontal projection area of the car is 2 m². The car tyres have radius of 0.33 m. the rear axle gear ratio is 3.5:1 and transmission gear ratio is 2.5:1. Calculate the engine horse power needed and the speed of the engine. (7)

Coefficient of rolling resistance = 0.02

Coefficient of air resistance = 0.4

Tyre deformation factor $\lambda = 0.94$

b) What are the factors on which PCU value depends? (3)

Q3 a) What are the needs of spot speed studies and write different methods of measuring spot speeds? Explain Floating car or Riding check method. (7)

b) What are the purposes of traffic assignment? (3)

Q4 a) Briefly explain the importance of highway economy studies? (5)

b) What are the various types of parking facilities designed for traffic needs in India? Briefly explain Multi-storey car parks. (5)

- Q5** a) What are the factors governing trip generation? **(5)**
 b) What are the guidelines for selecting a rotary type of intersection? **(5)**

- Q6** a) What are the different method of trip distribution and explain any one method? **(6)**
 b) What are the needs of origin-destination survey? **(4)**

Q7 The width of approaches for a rotary intersection is 14 m. The entry and exit width at the rotary is 11 m. Table below gives the traffic from the four approaches, traversing the intersection. Find the capacity of the rotary. Assume suitable data. **(10)**

Approach	Left turn	Straight	Right turn
North	455	680	345
South	340	520	530
East	400	350	400
West	210	420	520

- Q8** Write short notes on : **(2.5 x 4)**
- a) Mini-roundabout
 - b) Traffic regulation
 - c) Characteristics of slow moving traffic in India
 - d) Level of service