Registration no:

Total Number of Pages: 2   **B.Tech**
                                                                                                PECI5410

8th Semester Regular / Back Examination 2016-17
TRAFFIC ENGINEERING &TRANSPORTATION PLANNING
BRANCH: CIVIL
Time: 3 Hours
Max Marks: 70
Q.CODE: Z165
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 x10)**
a)   What is traffic rotary?
b)   What are the ill effects of parking?
c)   Differentiate between basic capacity and practical capacity.
d)   Draw the relationship between traffic density and traffic volume.
e)   Five spot speed observation were taken i.e.55, 45, 60, 54 and 75 kmph. Calculate Time mean speed and Space mean speed.
f)   What is thirteenth highest hourly traffic volume?
g)   What is trip generation?
h)   Define Jam density?
i)   Differentiate between home-base and non home-base trip
j)   Define Origin and Destination survey?

Q2 **a)** A passenger car weighing 3 tones is required to accelerate at a rate of 3 m/sec^2 in the first gear from a speed of 10 kmph. The gradient is +1 percent and the road has a black topped surface. The frontal projection area of the car is 2 m^2. 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= 0.39
Tyre deformation factor λ = 0.935

b) What are the object and scope of traffic engineering? Explain briefly.   **(3)**

Q3 **a)** Enumerate the different methods of charring out traffic volume studies. Indicate the principle of each   **(7)**
b) What are the human factors governing road user behaviour?   **(3)**

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

   b) Briefly explain the Multiple regression analysis. **(5)**

Q5 **a)** Explain the various aspects investigated during parking studies. What are the uses of these studies? **(6)**

   b) What are the purposes of traffic assignment? **(4)**

Q6 **a)** What is trip distribution? What are the different method of trip distribution and explain any one method. **(6)**

   b) Explain traffic capacity, basic capacity, possible capacity and practical capacity. **(4)**

Q7 Traffic flow data are taken at the intersection of two roads at Delta square, Bhubaneswar as shown in the table below. The width of a carriage way approaching an intersection is given as 15 m. Design a rotary intersection. Assume suitable data as per IRC. **(10)**

Appr-oach	Left turning			Straight ahead			Right turning		
	Cars	Heavy commercial vehicle	Scooters	Cars	Heavy commercial vehicle	Scooters	Cars	Heavy commercial vehicle	Scooters
N	150	50	100	200	100	125	150	50	50
E	150	60	70	200	50	100	180	40	100
S	250	80	100	125	60	100	160	70	90
W	220	50	120	150	70	120	230	40	100

PCU of Car, heavy commercial vehicle and scooters are 1, 2.8 and 0.75 respectivelly.

Q8 **Write short notes on:** **(2.5 x 4)**

   a) Mini-roundabout

   b) Traffic regulation

   (c) Characteristics of slow moving traffic in India

   (d) PCU