JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech III Year II Semester Examinations, May - 2017
TRANSPORTATION ENGINEERING – I
(Civil Engineering)

Time: 3 hours   Max. Marks: 75

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART - A

(25 Marks)

1.a)	List the various types of road patterns.	[2]
b)	List the various requirements of Highway Ideal Alignment	[3]
c)	List the various assumptions in the analysis of safe Overtaking Sight Distance.	[2]
d)	Calculate the extra width required for a two lane highway having a horizontal curve of radius 200m, if the design speed is 80 Kmph.	[3]
e)	Draw a neat sketch of Condition and Collision diagram.	[2]
f)	Define traffic volume and traffic density and speed.	[3]
g)	List the factors to be considered in the design of intersection at grade.	[2]
h)	List the various types of on street and off street parking facilities.	[3]
i)	List the various tests to be conducted to evaluate the strength properties of soils	[2]
j)	Differentiate between Tack Coat and Prime Coat.	[3]

PART - B

(50 Marks)

2.a)   Discuss in detail ,the various factors controlling the highway alignment with sketches.
  b)   What is the necessity of Realignment? List and explain the various steps in Realignment.   [5+5]

OR

3.a)   What are the various recommendations of Jayakar Committee? How were these implemented?
  b)   What are the various methods of classifying roads? Briefly outline the classification of urban roads.   [5+5]

4.a)   Explain PIEV Theory and the total reaction time of driver.
  b)   Calculate the length of transition curve using the following data:
Design speed =65 Kmph, Radius of circular curve = 220m, pavement width including extra widening = 7.5 m, allowable rate of introduction of super elevation (pavement is rotated about the centerline) is 1 in 150.   [5+5]

OR

5.a)   With the help of a neat sketch, explain the attainment of super elevation in the field.
  b)   Calculate the length of vertical valley curve required between -1/30 and +1/25 grades for a speed of 80 Kmph to satisfy comfort and headlight sight distance requirements.
                                                                                              [5+5]