**Total No. of Questions : 10]**

**SEAT No. :**

**P5138**

**[Total No. of Pages : 2**

# [5561]-502
# B.E. (Civil)
# TRANSPORTATION ENGINEERING
# (2015 Pattern)

***Time : 2½ Hours]*** ***[Max. Marks : 70***

***Instructions to the candidates:***

1) ***AnswerQ. 1 orQ. 2, Q. 3orQ. 4, Q. 5orQ. 6, Q.7or Q.8, Q.9orQ.10***
2) ***Figures to the right indicate full marks.***
3) ***Use of logarithmic tables, slide rule, Mollies charts, electronics pocket calculator and steam tables is allowed.***
4) ***Assume suitable data if necessary.***
5) ***Neat diagrams must be drawn wherever necessary.***

***Q1)*** a) Define Alignment. Enlist the basic requirements of an ideal alignment between two terminal stations. **[5]**

b) What are the objectives of carrying out spot speed studies? **[5]**

OR

***Q2)*** a) With the help of a neat sketch explain the Macadam method of road construction. **[5]**

b) The radius of a horizontal circular curve is 100 m. The design speed is 80 kmph and the design coefficient of lateral friction is 0.15. Calculate the Superelevation required if full friction is assumed to develop. **[5]**

***Q3)*** a) Enumerate the salient features of Third Road Development Plan. **[5]**

b) What do you mean by camber? Discuss the factors on which the amount of camber to be provided depends. **[5]**

OR

***Q4)*** a) Explain any two important pavement surface characteristics with respect to highway geometric design. **[5]**

b) With neat sketches, explain the various types of regulatory signs. **[5]**

***Q5)*** a) What are the desirable properties of the sub grade soil? **[5]**

b) What is Foamed Bitumen? How foamed bitumen is prepared and where it is used**.** **[5]**

c) Describe briefly the Marshall Method of preparing the mix design. **[7]**

***P.T.O.***

OR

***Q6)*** a) Explain cutbacks and its types. What are its advantages over conventional bitumen? **[6]**

b) Explain how Impact Test on aggregates is done in the laboratory. How are the results of the test interpreted? **[7]**

c) Write a note on Crumb Rubber Modified Bitumen (CRMB)**.** **[4]**

***Q7)*** a) What are the factors to be considered for the design of flexible pavements? Discuss significance of each. **[7]**

b) Explain the importance of dowel and tie bars in rigid pavements. **[5]**

c) How is the design traffic computed during the design of flexible pavements? **[5]**

OR

***Q8)*** a) Differentiate between a flexible and rigid pavement. **[6]**

b) Define 'Vehicle Damage Factor' and explain its importance. **[6]**

c) Explain the concept of ESWL. **[5]**

***Q9)*** a) Mention the specifications of material used and construction steps for WBM course. **[8]**

b) Explain in brief wheel load stresses and Temperature stresses in rigid pavement. **[8]**

OR

***Q10)***a) Enlist the advantages of Recycled Asphalt Pavements (RAP). **[5]**

b) Describe the importance of prime coat, tack coat and seal coat during the road construction process. **[6]**

c) Write a note on Built Up Spray Grout.(BUSG) **[5]**