P51

OCT. -16/BE/Insem. - 102
B.E. (Civil)
TRANSPORTATION ENGINEERING
(2012 Course) (Semester - I)

Time : 1 Hour]

[Max. Marks :30

Instructions to the candidates:

1) *Answer Q.1 or Q.2, Q.3 or Q.4, and Q.5 or Q6.*
2) *Figures to the right indicate full marks.*
3) *Use of logarithmic tables, slide rule, Mollier 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) The area of one of the district in Maharashtra state is 10,000 sq.km and there are 10 towns as per 2001 census. Determine the lengths of various categories of roads to be provided in this district by the method suggested during the 3rd 20 yr development plan period. You may assume any additional data suitably if required. **[5]**

b) What are the objectives of carrying out traffic volume studies? **[5]**

OR

Q2) a) State the reason for the appointment of an expert committee under the chairmanship of Mr. Jayakar in 1927. Enlist any four recommendations of his report clearly. **[5]**

b) Explain by any one method how the speed and delay study is carried out. **[5]**

Q3) a) The speed of overtaking and over taken vehicles is 80 and 60 kmph respectively on a one way traffic road. If the acceleration of overtaking vehicle is 0.99 m/sec^2. Calculate the safe overtaking sight distance. **[5]**

b) Explain with an example the PIEV theory. **[5]**

OR

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Q4) a) Design the rate of super elevation for a horizontal highway curve of radius 550 m and speed 100 kmph. Assume suitable data. **[5]**

b) Explain briefly how obligatory points control the alignment of roads. **[5]**

Q5) a) State the various desirable properties of aggregates used in road construction. Explain in brief the procedure of determining the Flakiness Index of aggregate. **[5]**

b) Differentiate between Flexible Pavement and Rigid Pavement. **[5]**

OR

Q6) a) Explain the following terms: **[5]**

i) Radius of Relative Stiffness.

ii) Radius of Resisting Section.

b) What are the different types of bituminous materials used in road construction? Discuss the penetration test on Bitumen. **[5]**

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