B.Tech. Civil (Construction Management)/ B.Tech. Civil (Water Resources Engineering)

Term-End Examination

June, 2015

00091

ET-505 : TRANSPORTATION AND TRAFFIC ENGINEERING

Time : 3 hours   *Maximum Marks : 70*

*Note : Attempt **all** questions. All questions carry equal marks.*

1. Answer any **two** of the following questions :   *2×5=10*

    (a) What are the various modes of transport in India ? Explain BOT and BOLT.

    (b) A bypass road project is to be taken up by a private entrepreneur who raises a capital of ₹ 120 crores from open market at 18 percent interest per annum. What should be the yearly collection of toll of equal amount so that he is able to wipe off the loan at the end of 8 years ?

    (c) What are the issues to be considered while selecting the horizontal alignment of roads ?

2. Answer any *two* of the following questions : *2×5=10*

(a) Draw a sketch and explain about the forces to be overcome by a moving vehicle.

(b) Write briefly on widening of carriageway on curves.

(c) Calculate the superelevation needed on a curve of radius 30 m in a snow-bound hilly region for a design speed of 40 km/hour.

3. Answer any *two* of the following questions : *2×5=10*

(a) What is Coulomb's law in determining soil strength ? How is soil strength measured ?

(b) What are the various types of binders available for road construction ? Write briefly on any one of them.

(c) Describe the scope of Highway maintenances.

4. Answer any *two* of the following questions : *2×5=10*

(a) State the force equation for rolling resistance and air resistance with the help of a sketch.

(b) A vehicle travelling at 90 km/hour speed is brought to a halt by braking. What is the braking distance, if the coefficient of friction that develops between the tyres and road surface is 0·45 ?

(c) (i)   State the parking space required for
           various vehicles.

     (ii) Draw sketches for various types of
           "on street" parking.

5. Answer any *two* of the following questions :   *2×5=10*

    (a) Describe briefly the role of Railways in the
         field of "Bulk Carrier" and "Passenger
         Carrier for long distance".

    (b) Draw a list of advantages and disadvantages
         of wooden sleepers used in Rails.

    (c) Define 'Railway Station' and 'Yards'.
         Describe briefly about different types of
         Railway Stations.

6. Answer any *two* of the following questions :   *2×5=10*

    (a) What is 'Aerodrome' ? Give a detailed
         classification of Airports.

    (b) What are the different forms of Water
         Transport ? List out the advantages and
         disadvantages of Water Transport.

    (c) What is the role of pipelines in modern
         Transport System ?

7. Write short notes on any *four* of the following : $4 \times 2\frac{1}{2} = 10$

   (a) Ballast

   (b) Lock Gate

   (c) Traffic Signals

   (d) Public Transport

   (e) Rigid Pavement

   (f) California Bearing Ratio

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