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ET-505

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

00996

Term-End Examination

December, 2017

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 : *2×5=10*

(a) What are the major guidelines followed in selecting the alignment and route for a highway ?

(b) Derive the formulae for determining the safe distance if the vehicle is travelling on a gradient.

(c) What is PIEV ? What is Reaction Time ? State its values for a simple situation and a complex situation.

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

(a) Observation for a Direct Shear test on a soil sample gives the following values :

Compressive force	Maximum Shear force
5 kg	6·5 kg
10 kg	9·0 kg
15 kg	11·40 kg
20 kg	13·90 kg

Loaded area of the sample is 36 sq. cm.

Determine the value of cohesion and internal friction.

(b) Write a short note on CBR.

(c) Explain the need for a camber. How is it provided on hill roads ?

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

(a) Discuss about various aspects of traffic acts and rules in India.

(b) Explain mechanical stabilisation of soils.

(c) Find out the radius of contact area of the tyre subjected to an axle load of 140 kN with tyre pressure as 0·7 MN/m^2.

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

(a) What are the factors that govern traffic growth ?

(b) Write briefly on Atterberg Limits.

(c) Explain various problems of parsing and parsing geometry.

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

(a) What are the functions of a track ballast ? What are the requirements of a good ballast material ?

(b) What are the facilities to be provided at railway stations ?

(c) Draw a sketch of the cross-section of a BG railway track in embankment showing the different elements with dimension. Define Cant in a railway track.

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

(a) What are the functions of the following in an airport ?

(i) Hangar

(ii) Apron

(iii) Runway

(iv) Taxiway

(v) Holding apron

(b) What are Breakwaters ? Briefly describe.

(c) How is the runway orientation decided ? What are the factors that influence runway length ?

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

(a) What is a Dry-dock ? What are the forces for which a dry-dock is designed ?

(b) Discuss briefly, Inland Water Transport.

(c) Write briefly on :

(i) Bi-cable Ropeways

(ii) Passenger Conveyor Systems