

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

**Term-End Examination**

**June, 2010**

**ET-505 : TRANSPORTATION & TRAFFIC  
ENGINEERING**

*Time : 3 hours*

*Maximum Marks : 70*

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

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1. Answer *any two* of the following : 2x5=10
- (a) Explain the role of Transport in :
- (i) Defence and Strategic needs.
- (ii) Disaster Management.
- (b) Briefly discuss about Intermodal transport.
- (c) A highway is to be constructed by a firm who shall collect Rs. 80 crores as capital from open market. The prevailing rate of interest is 12%. What should be the yearly toll-collection of equal amount so that the firm is able to wipe off the loan amount at the end of 10 years ?

2. Answer *any two* of the following : **2x5=10**

- (a) What are the criteria that should be kept in view while fixing the horizontal alignment of a Road.
- (b) When does an intersection become necessary? Illustrate with sketches different form of 'at grade' and 'grade-separated' intersections.
- (c) Calculate the superelevation needed on a curve of radius 30 m in a snow bound hilly region for design speed of 40 km/hour.

3. Answer *any two* of the following : **2x5=10**

- (a) What are the factors that affect soil strength? How soil strength is measured?
- (b) An axle load of 130 kN is transmitted to a pavement through a tyre, which is inflated to a pressure of  $0.7 \text{ MN/m}^2$ . Assuming Boussinesq's conditions to hold and  $E = 20 \text{ MN/m}^2$ , calculate the deflection at the pavement surface.  $\mu = 0.4$
- (c) Write short notes on water bound macadam.

4. Answer *any two* of the following : **2x5=10**

- (a) What are traffic signs? Describe various types of traffic signs with illustrative example of each.
- (b) Write briefly on Light Rail Transit and Mass Rapid Transit.
- (c) State various measures to enhance Pedestrian Safety.

5. Answer *any two* of the following : **2x5=10**
- (a) What is meant by 'Permanent Way' ? What are 'check rails' and 'guard rails' ?
  - (b) Define platform and illustrate its requirements for BG line with a sketch of its cross-section.
  - (c) Write briefly on :
    - (i) Buffer stop
    - (ii) Tunnels
6. Answer *any two* of the following : **2x5=10**
- (a) State briefly the role of Helicopters in Air Transport System. Draw a layout of Heliport and label it.
  - (b) Compare Airport Pavements with Highway Pavements.
  - (c) Describe briefly the features of Transit Sheds and Warehouses.
7. Answer *any two* of the following : **2x5=10**
- (a) What are the various Cargo handling facilities available in major port ?
  - (b) Draw and label a typical Harbour Layout and discuss briefly about entrance channel.
  - (c) Describe briefly on the role of pipelines for transportation of materials.
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