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ET-505

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

Term-End Examination

June, 2012

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 : **2x5=10**

(a) Explain in detail about 'Urban Transportation Planning Process (UTPP)

(b) An express Highway is to be constructed by a private financier who raises a capital of Rs. 100 crores, in open market. The interest rate is 15%. 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 ten years ?

(c) What is the importance of transport planning ? Draw the schematic diagram showing systems approach to transport planning.

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

(a) What are the short comings of Nagpur Road Plan and Bombay Plan ? How is it taken care in Lucknow Plan ?

(b) What is PIEV ? Explain its use in geometrical design of highways. What are the other factors that govern geometrical design ?

(c) What is the purpose of widening of carriage way on curves ? Explain the concept of transition curve, and method of finding the length of transition curve.

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

(a) Differentiate between rigid and flexible pavements.

(b) Determine the warping stresses at the interior and edge of a concrete pavement, 28 cm thick having transverse joints at 4.5m intervals. The Width of the slab is 3.75m. The maximum daily temperature variation is 15° C. The modulus of elasticity is $30,000 MN/m^2, \mu = 0.15, K = 70 MN/m^3$, $\alpha = 10 \times 10^{-6}$ per °c.

(c) Explain Lime-Soil Stabilization Method.

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

(a) Discuss the role of railways in catering the needs of the public.

(b) Discuss in detail about functions, requirements, maintainance, thickness of ballast used in railways.

(c) The mean speed of cars at a point is 80Kmph. The standard deviation is 8Kmph. Calculate proportion of cars with speed above 96Kmph.

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

(a) Discuss in detail about the forecasting methods of traffic volume.

(b) Discuss briefly about traffic management.

(c) What are the measures to be taken for prevention of accidents?

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

(a) Discuss about various characteristics of aircrafts.

(b) Discuss in detail about components of Airport Layout.

(c) Discuss about airport facilities, aids and controls.

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

(a) What are the advantages and disadvantages of water transportation ?

(b) What are the preliminary and detailed Engineering investigations for construction of Water transportation systems ?

(c) Discuss the transportation of goods and passengers using belt conveyors. What are the various parts in it ? Where are they used ?