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Roll No. to be filled in your Answer Book

Roll No. | | | | | | | | | | | |

B.Tech. (CE) (VI Semester) Examination, 2015

TRANSPORTATION ENGINEERING-I

Time: 3.00 Hrs] **[Max. Marks: 100**

Note: Attempt all questions. Each question carry equal marks.

Q1. Attempt any Four of the following:

(a) Why is it important for a highway engineer to study the behaviour of soil? Enumerate the identification and classification test of soil?

(b) Explain various types of failures of cement concrete pavement and their causes.

(c) What are the factors on which stopping sight distance depends? Explain briefly.

(d) What are scopes of traffic engineering in India?

(e) Enumerate the steps for practical design of super elevation?

Q2. Attempt any four of the following:

(a) Explain briefly the various stages of works in a new highway project.

(b) Write characteristic of five important Early Road.

(c) What is the importance of Nagpur road plan in highway planning ? Explain briefly.

(d) Explain Overtaking Sight Distance?

(e) Discuss the methods of earth excavation for road construction and the user of various equipment

Q3. Attempt any two of the following:

(a) Design the rate of super elevation for a horizontal curve of radius 500mand speed 100kmph. Enumerate the step for practical design of super elevation.

(b) The speeds of overtaking and overtaken vehicles are 70 and 40 kmph respectively on two way traffic road. If the acceleration of overtaking vehicle is 0.99m/sec2.

(c) List various types of transition curves used in highways. What is an ideal transition curve? Explain.

Q4. Attempt any Two of the following:

(a) Compute the radius of relative stiffness of 15cm thick cement concrete slab from the following data Modulus of elasticity of concrete (E)= 2,10,000kg/cm2

Poisson Ratio, u=0.13

Modulus of sub grade K= (i) 3.0kg/ cm2,(ii) 7.5kg/cm2

(b) Write the procedure for ductility test for bitumen.

(c) Write short note on flexible pavements failures? Write advantage and disadvantage.

Q5. Attempt any two of the following:

(a) The following data were collected for planning the road development program of a backward district:

(i) Total are = 9600 km^2

(ii) Agricultural and development are=3200 km^2

(iii) Existing railway track length =105 km

(iv) Existing length of mettalled road =322 km

(v) Existing length of un mettalled road =450 km

(vi) Number of towns or villages in different population ranges is as below:

Population	>5000	2001-5000	1001-2000	501-1000	<500
Number of villages and towns	8	40	130	280	590

(b) List various types of transition curves used in highways. What is ideal transition curve? Explain.

(c) Write short notes on

(i) Seal coat

(ii) Warping joints

(iii) Mastic asphalt

(iv) GSB

(v) Interface treatment

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