Printed Pages: 4 | 339/352 | ECE/NCE502

(Following Paper ID and Roll No. to be filled in your Answer Book)

Paper ID :100512 | Roll No. | | | | | | | | | |

B.Tech.

(SEM. V) THEORY EXAM, 2015-16

TRANSPORTATION ENGINEERING-I

[Time:3 hours] [Total Marks:100]

Section-A

1. Attempt **All** questions. (10x2=20)

a) Explain different types of roads in third twenty year road plan.

b) What are the stages of engineering survery for higway locations?

c) What is camber? What are the different shapes of camber used?

(d) Write down the formula for overtaking sight distance and expalin each term.

(e) How can we coount traffic volume?

(f) What are the different regulatory signs? Explain with neat sketch.

(g) List out the various tests on road mateerials.

(h) What are the different bituminous materials?

(i) What are the design parameters for rigid pavements?

(j) What do you understand by surface dressing?

Section B

Attempt **any five.** (10x5=50)

2. Discuss any three methods of historical development of road construction.

3. Explain the procedure for preparation of Detailed project Report.

4. Calculate the stopping sight distrance and overtaking sight distance for a design speed of 80 kmph. Take A =2.5 kmph/sec, ascending slope of 2%

5. Explain origin and destination study. What are the various uses of O&D studies.

6. Explain different tests on road aggragates.

7. Calculate the stresses at interior, edge and corner of a cement concrete pavement by:

Westergaard's stess equations

Modulus of elasticity of concrete = 3.0×10^5 kg/cm^2

Poisson's ratio of concrete =0.15

Pavement thickness h = 18 cm

Modulus of subgrade reaction, k= 6.0kg /cm

Radius of contact area = 15 cm

Wheel load P = 5100 kg

8. Write short notes on - prime coat, Bituminous Surface Dressing , Construction Joints in rigid pavement

9. List defferentg methods of roads construction. Discuss their advantages limitations.

Section-C

Attempt **any two**. (15x2=30)

10. Write the notes on (i) NHAI Act (1988) (ii) Expressway Master Plan (iii) PMGSY

11. What do you understand by vertical curves? An ascending gradient of 1 in 50 ,rryd a descending gradient of 1 in 80 Determine the length of summit curve to provide (a) SSD

(b) OSD, for design speed of 80kmph. Assume all othr data.

12. What are the design factors are considered in design of pavements? Explain CBR method and IRC recommendations for the CBR method of deign.