USN | | | | | | | | | | |

10CV63

Sixth Semester B.E. Degree Examination, June/July 2016
Transportation Engineering – II

Time: 3 hrs. Max. Marks:100

Note: 1. *Answer FIVE full questions, selecting at least TWO questions from each part.*
2. *Missing data can be suitably assumed.*

PART – A

1 a. What are the political, social and economical advantages of railways? **(06 Marks)**

b. Draw a neat sketch showing the details of double line B.G. track with electrical traction. **(06 Marks)**

c. Draw a typical cross section of a permanent way. Discuss in brief the basic functions of various components of railway track. **(08 Marks)**

2 a. What are the requirements of the good ballast? Mention the different types of ballast used in permanent way. **(08 Marks)**

b. For rail of 11.89 m length, calculate the quantity of material per km length of track. Assume sleeper density to be equal to [1.093n + 4]. **(06 Marks)**

c. A locomotive on MG track has three pair of driving wheels each carrying 20 tones. What maximum load can it pull on level track with curvature of 2° at 50 kmph? **(06 Marks)**

3 a. Explain the following: (i) Ruling gradient; (ii) Momentum gradient; (iii) Grade compensation on curve. **(06 Marks)**

b. What is super elevation? List objects of providing super elevation on curves. **(06 Marks)**

c. What would be the equilibrium cant on a M.G. curve of 5° for an average speed of 60 kmph? Also find the maximum permissible speed after allowing the maximum cant deficiency. **(08 Marks)**

4 a. Draw a neat, line diagram of a right hand turn out and show its various components. **(06 Marks)**

b. With a neat sketch, explain the working of a semaphore signal. **(08 Marks)**

c. Write short notes on: (i) Turn table, (ii) Water column. **(06 Marks)**

PART – B

5 a. Explain the factors which influence selection of sites for an airport. **(08 Marks)**

b. Draw a neat sketch cross section of runway. **(06 Marks)**

c. Mention the various assumptions made in the basic length of runway. **(06 Marks)**

6 a. Explain the various factors which affect the locations of exist taxiway. **(08 Marks)**

b. Design an exist taxiway joining a runway and a parallel main taxiway. The total angle of turn is 30° and the turn off speed is 80 kmph. Draw a neat sketch and show there in all design elements. [Assume R_l = 73.1 m for 80 kmph, speed] **(12 Marks)**

7 a. Explain various shape of tunnels with neat sketch. **(06 Marks)**

b. Explain with neat sketch the operations involved in needle beam method of constructing a tunnel. **(06 Marks)**

c. Write short notes on: (i) Tunnel lining; (ii) Tunnel drainage. **(08 Marks)**

8 a. What are factors to be considered while selecting a site for a harbour? **(06 Marks)**

b. What is dry dock? Explain the construction and use of dry dock. **(06 Marks)**

c. What is break water? Explain with a neat sketch wall breakwater. **(08 Marks)**