



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 $R_1 = 73.1$ 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)