Total No. of printed pages = 3

2022

TRANSPORTATION ENGINEERING - II

Full Marks – 100

Time – Three hours

The figures in the margin indicate full marks
for the questions.

Answer *any five* questions.

1. (a) Explain the role of rail transportation in the development of rural India. 5

   (b) Give the characteristics of rail transportation. 5

   (c) What are the requirements of an Ideal rail joint ? Explain the different types of rail joints. 10

2. (a) What are the functions of sleepers ? 5

   (b) If the wheel base of a vehicle moving on a B.G. track is 6 m, the diameter of wheel is 1.5 m and the depth of flanges below the top of rail is 3.17 cm. Determine the extra width required to be provided on gauges for an 8^0 curve. 5

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(c) What are the requirements of an ideal ballast material ? Explain the different types of ballast. 10

3. (a) What is the equilibrium cant on a 2^0 curve on a B.G. if 15 trains, 10 trains, 5 trains and 2 trains are running at speeds of 50 kmph, 60 kmph, 70 kmph and 80 kmph respectively ? 5

(b) What would be the permissible speed on an 8^0 M.G. track, if the average speed of different trains is 50 kmph and allowable cant deficiency is half of maximum cant deficiency ? 5

(c) Calculate the materials required for 5 km length of railway track. Assume the required data suitably. 10

4. (a) Explain the different types of gradients adopted on Indian railways. 5

(b) State the comparison between wooden sleeper and concrete sleeper. 5

(c) Briefly explain the construction procedures for new railway track specific to India. 10
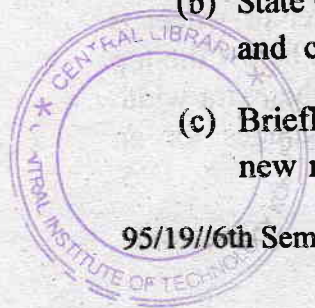
5. (a) Draw the layout of an airport and mention the role of its various components. 5

   (b) What are the limitations of air transportation ? 5

   (c) Explain the factors to be studied before selecting the site for an airport. 10

6. (a) What are the assumptions made in arriving at the basic runway length ? 5

   (b) What are the factors governing layout of taxiway ? 5

   (c) The length of runway under standard conditions is 1620 m. The airport site has an elevation of 270 m. Its reference temperature is 32.9°C. If the runway is be constructed with an effective gradient of 0.2%, determine the corrected runway length. 10