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Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Seventh Semester B.Tech Degree Supplementary Examination August 2021



Course Code: CE407

Course Name: TRANSPORTATION ENGINEERING II

Max. Marks: 100

Duration: 3 Hours

PART A

Answer any two full questions, each carries 15 marks.

Marks

- 1 a) Draw the cross section of a permanent way on embankment. List the component parts of a railway track and explain their function. (7)
b) What is coning of wheels? Why it is necessary? (5)
c) The ruling gradient is 1 in 200 on a particular section of a BG track. If a curve of 4 degree is situated on this ruling gradient, what should be the actual ruling gradient? (3)
- 2 a) Enumerate the roles of Indian Railway in national development. (7)
b) What is creep? How we can prevent creep? (4)
c) Find out the length of curve for a BG curved track having 5 degree curvature and a cant of 12 cm. The maximum permissible speed on the curve is 90kmph. (4)
- 3 a) What are the factors affecting the selection of a good alignment? (4)
b) List out the various Mass Rapid Transit Systems in India. Explain the features of metros which differentiate it from other systems. (4)
c) What is negative super elevation? (3)
d) What is the equilibrium cant on a 2 degree curve on a BG track 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? (4)

PART B

Answer any two full questions, each carries 15 marks.

- 4 a) Describe any five probable causes of accidents in railway. Discuss the conventional remedies for preventing the accidents. (8)
b) With the help of a diagram showing the position of signals in station yards, explain the different types of signals. (7)

- 5 a) Explain the operations involved in through packing. How it differs from scissor packing? (8)
- b) How railway stations are classified based on functional and operational characteristics? (7)
- 6 a) What is the difference between periodic maintenance and daily maintenance? (4)
Also explain the necessity of screening of ballast.
- b) With the help of neat diagrams, explain different types of crossings. (6)
- c) Differentiate between ATC and CTC. (5)

PART C

Answer any two full questions, each carries 20 marks.

- 7 a) Write short notes on (i) Ventilation of tunnels (ii) Compressed air method (10)
- b) Explain the planning aspects of a harbour basin. (10)
- 8 a) List and explain the different stages of setting out of centreline of tunnels. (10)
- b) Explain the various forces acting on an upright wall breakwater with a neat sketch and explain their destructive effects. (7)
- c) Distinguish between Wharf and Quay. (3)
- 9 a) Write a note on Tunnel boring machine. (5)
- b) Explain the primary classification of harbours based on natural configuration of lands with neat sketches. (5)
- c) With the help of a neat sketch explain the working of a wet dock. (5)
- d) Describe the use and types of moorings. (5)
