



# CBCS SCHEME

17CV552

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Fifth Semester B.E. Degree Examination, Feb./Mar. 2022

**Railways, Harbours, Tunneling and Airports**

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

## Module-1

- 1 a. Define Permanent way. Draw the neat diagram of cross sectional view of permanent way and describe the component parts. (10 Marks)
- b. Determine the allowable ruling gradient for following data : The ruling gradient is 1 in 150 on a particular section of the broad gauge and at the same time a curve of 4 degree is situated on this ruling gradient. (10 Marks)

OR

- 2 a. Define Super Elevation. Derive a relationship between Superelevation , Gauge , Speed and Radius of curvature. (10 Marks)
- b. If a  $8^\circ$  curve track diverges from a main curve of  $5^\circ$  in an opposite direction in the layout of BG yard, calculate the superelevation and the speed on the branch line, if maximum speed permitted on the main line is 45km p.h. (10 Marks)

## Module-2

- 3 a. Define Plate lying. Explain the different methods of plate laying. (10 Marks)
- b. Define Track drainage. Explain the different methods of track drainage. (10 Marks)

OR

- 4 a. Define Track Maintenance. Explain the objectives and advantages of Track maintenance. (10 Marks)
- b. Define Station. Explain the purpose of Railway station. (10 Marks)

## Module-3

- 5 a. Define Harbour. Explain the basic terms of Harbour. (10 Marks)
- b. Explain the classification of Harbour. (10 Marks)

OR

- 6 a. Explain the factors to be considered during designing of harbour. (10 Marks)
- b. Define Tunnel. List the different types of Tunneling and explain any one in detail. (10 Marks)

## Module-4

- 7 a. Explain the basic terminologies of Airport Engineering. (10 Marks)
- b. Explain the classification of Airport. (10 Marks)

OR

- 8 a. Explain the objectives of Airport planning. (10 Marks)
- b. Explain the factors to be considered for site selection of Airport. (10 Marks)

## Module-5

- 9 a. Define Runway. Explain Orientation of runway and windrose in runway. (10 Marks)
- b. Define Taxiway. Explain the elements of Taxiway. (10 Marks)

OR

- 10 a. Explain the Taxiway marking and lighting. (10 Marks)
- b. Explain the Geometric specification of Runway. (10 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

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