

# CBCS SCHEME

USN

21CV643

## Sixth Semester B.E. Degree Examination, June/July 2024 Railways, Harbour, 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. With a neat sketch of permanent way, explain the functions of its components. (10 Marks)  
b. With a neat sketch, explain coning of wheels with its advantages. (10 Marks)

OR

- 2 a. Draw a neat sketch of simple left hand turnout and show its various components. (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 B.G yard. Calculate the super elevation and the speed on the branch line, if the maximum speed permitted on the main line is 45 kmph. [Assume cant deficiency for B.G track as 7.6cm] (10 Marks)

### Module-2

- 3 a. Enumerate and explain methods of stabilization of track on poor soil. (10 Marks)  
b. Calculate the quantity of materials required for the construction of B.G track of length 19.5km for the following data, weight of Rail section = 52Kg per unit length, standard length of Rail = 13m, Sleeper density =  $(M + 4)$ . (10 Marks)

OR

- 4 a. With a neat sketch, enumerate Marshalling yards. (10 Marks)  
b. Enumerate various requirement of Railway station. (10 Marks)

### Module-3

- 5 a. Explain with a neat sketch the layout and components of an artificial Harbour. (10 Marks)  
b. With a neat sketch clearly explain needle beam method of tunneling in soft soils. (10 Marks)

OR

- 6 a. Enumerate and explain different types of break waters. (10 Marks)  
b. Discuss briefly on :  
i) Tunnel Lining  
ii) Ventilation of Tunnels. (10 Marks)

### Module-4

- 7 a. With a neat sketch of typical airport layout, explain the function of each component. (10 Marks)  
b. Enumerate the factors considered in the site selection for an airport. (10 Marks)

OR

- 8 a. Discuss on classification of Airport. (10 Marks)  
b. Write a short note on :  
i) Air transport characteristics  
ii) Parking and circulation area (10 Marks)

**Module-5**

- 9 a. Explain the procedure for oriented runway using windrose diagram of type : 1. (10 Marks)  
b. The length of runway under standard condition is 1620m. The airport site has an elevation of 270m, its reference temperature is 32.94°C. If the runway is to be constructed with an effective gradient of 0.2% determines the corrected runway length. (10 Marks)

OR

- 10 a. Write a short note on :  
i) Airport Lighting (10 Marks)  
ii) Airport Marking (10 Marks)  
b. Explain the passenger facilities and services available at airport. (10 Marks)

\*\*\*\*\*