CBCS SCHEME

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18CV645

Sixth Semester B.E. Degree Examination, June/July 2023
Railway, Harbours, Tunneling and Airports

Time: 3 hrs. Max. Marks: 100

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

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.

Module-1

1 a. Mention the requirements of ideal permanent way. **(06 Marks)**

b. Define creep. What are the causes, effects and prevention of creep? **(08 Marks)**

c. Explain the following:
i) Grade compensation
ii) Negative superelevation. **(06 Marks)**

OR

2 a. Discuss the significance of road, rail, water and air transport. **(06 Marks)**

b. If a 8° curve track diverges from a main curve of 5° in an opposite direction in the layout of a B.G. yard, calculate the super elevation and the speed on the branch line, if the maximum speed permitted on the main line is 45kmph. **(08 Marks)**

c. Explain the functions and requirements of sleepers. **(06 Marks)**

Module-2

3 a. Explain the types of yards. **(06 Marks)**

b. Outline the quantity of materials required to construct 1.2km long B.G. track. Take sleeper density (m + 4). Length of rail = 13m. **(08 Marks)**

c. Mention the passenger amenities to be provided in the railway station. **(06 Marks)**

OR

4 a. Explain the classification of railway station. **(06 Marks)**

b. List and explain the methods of earthwork stabilization of track on poor soil with neat sketches. **(08 Marks)**

c. Discuss the various requirements of mechanical maintenance of railway track. **(06 Marks)**

Module-3

5 a. Write a brief note on commercial harbor, fishing harbor and refugee harbour. **(10 Marks)**

b. Write short notes on:
i) Tunnel ventilation
ii) Tunnel drainage. **(10 Marks)**

OR

6 a. Draw a neat sketch of artificial harbor and explain the various components with one function of each. **(10 Marks)**

b. Explain the shapes of tunnels with neat sketch. **(10 Marks)**

Module-4

7 a. Explain briefly various factors considered in the selection of site for airport. (10 Marks)
b. Explain briefly the aircraft characteristics. (10 Marks)

OR

8 a. Describe the airport master plan procedure recommended by FAA. (10 Marks)
b. Briefly explain various classification of airport. (10 Marks)

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Module-5

9 a. Describe the elements of runway geometric design. (10 Marks)
b. Explain the Type 1 wind rose diagram for orienting the runway. (10 Marks)

OR

10 a. The length of runway under standard conditions is 1620m. The airport site has an elevation of 270m. Its reference temperature is 32.90°C. If the runaway is to be constructed with an effective gradient of 0.20 percent, determine the corrected runway length. (10 Marks)
b. Explain the different types of lighting used in airport. (10 Marks)

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