

CBCS SCHEME

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17CV552

Fifth Semester B.E. Degree Examination, Jan./Feb. 2021 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. Discuss the factor which governs the choice of a gauge. (06 Marks)
- b. What are the requirements of good ballast? Mention the different types of ballast used in permanent way. (06 Marks)
- c. A 5° curve diverges from a 3° main curve in reverse direction in the layout of a B.G yard. If the speed on the branch line is restricted to 35kmph. Determine the restricted speed on the main line cant deficiency for MG = 5.0cm (08 Marks)

OR

- 2 a. Explain i) coning of wheels ii) creep in rails. (06 Marks)
- b. What is meant by wear of rails? How do you classify the wear? Discuss the various causes of wear. (06 Marks)
- c. What would be the equilibrium cant on a MG curved track of 7° for an average speed of trains 50kmph? Also calculate the maximum permissible speed after allowing the maximum cant deficiency. (08 Marks)

Module-2

- 3 a. List the modern surveying techniques that can be utilized for preliminary survey of railway line for different terrain. Explain any two techniques. (10 Marks)
- b. Explain the modern methods of maintenance of railway track. (10 Marks)

OR

- 4 a. What are the advantages and limitation of underground Railways? (08 Marks)
- b. Define Yards. Explain the types of Yards. (06 Marks)
- c. List the different surveys required to be conducted for track alignment. List the features to be considered during Reconnaissance survey. (06 Marks)

Module-3

- 5 a. Draw a neat sketch of artificial harbour. Explain the various components. (08 Marks)
- b. Define breakwater. Explain any one type of breakwater. (06 Marks)
- c. Draw a typical layout of harbour and explain. (06 Marks)

OR

- 6 a. Write short notes on :
i) Tunnel ventilation ii) Tunnel drainage (08 Marks)
- b. Explain various shapes of Tunnels with neat sketches. (06 Marks)
- c. Mention the objective of tunnel lining. List the materials used for tunnel lining. (06 Marks)

Module-4

- 7 a. List the various elements of an airport and explain with a neat sketch. (10 Marks)
- b. Explain the factors, which influence the site selection for airport. (10 Marks)

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.



OR

- 8 a. Discuss the characteristics of an airport. (06 Marks)
b. Mention the objectives of airport planning. (06 Marks)
c. Enumerate the classification of airport based on ICAO and FAA. (08 Marks)

Module-5

- 9 a. Describe the elements of taxiway geometric design. (10 Marks)
b. Define windrose diagram, with a neat sketch, explain the method of locating the best orientation at runway. (10 Marks)

OR

- 10 a. Write note on airport classification. (08 Marks)
b. The mean of MAX and average daily temperature at an airport site are 36° and 24°C . A runway at basic length 2400m is to be located. Just a few meters above MSL and the proposed longitudinal gradients are 0 and 600m, +0.5%, 600 to 1100m, -0.3%, 1,100 to 1900m + 0.6%, 1900 to other end + 0.2%. Determine the corrected length of runway. (12 Marks)
