



# CBCS SCHEME

17CV552

## Fifth Semester B.E. Degree Examination, Dec.2019/Jan.2020 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. Explain the types of track stress. (06 Marks)
- b. What are the functions and requirements of sleepers? (06 Marks)
- c. Discuss the conventional method of route alignment surveys. (08 Marks)

OR

- 2 a. Discuss the significance of road, rail, water and air transport. (06 Marks)
- b. List the requirements and explain the types of rails. (06 Marks)
- c. Determine the super elevation to be provided for a  $2.5^\circ$  transition curve having a maximum sectional speed of 100 kmph for a broad gauge track. (08 Marks)

### Module-2

- 3 a. Discuss the stabilization methods of track on poor soil. (06 Marks)
- b. Demonstrate the modern methods of track maintenance. (08 Marks)
- c. Explain the classification of railway stations. (06 Marks)

OR

- 4 a. Mention the passenger amenities to be provided in the railway station. (06 Marks)
- b. Explain the types of yards. (06 Marks)
- c. Outline the quantity of materials required to construct 1.2 km long BG track.  
Take sleeper density =  $(m+4)$ , Length of Rail = 13 m (08 Marks)

### Module-3

- 5 a. List the requirements of harbor. (06 Marks)
- b. Describe the components of harbor with neat sketch. (08 Marks)
- c. Define sea wave. Explain the types of sea waves. (06 Marks)

OR

- 6 a. Write a note on tunnel drainage and tunnel lining. (08 Marks)  
b. Explain the shapes of tunnels with sketch. (06 Marks)  
c. Write a neat sketch, explain the linear plate method of tunneling. (06 Marks)

**Module-4**

- 7 a. Discuss the component parts of airport. (08 Marks)  
b. Explain the characteristics of air transport. (04 Marks)  
c. Explain the aircraft characteristics which affect the airport design. (08 Marks)

OR

- 8 a. Mention the objectives of airport planning. (05 Marks)  
b. Sketch the typical airports showing different runways. (08 Marks)  
c. Write a note on parking and circulation area. (07 Marks)

**Module-5**

- 9 a. Define orientation of runway. Explain the procedure of plotting Type-I wind rose diagram. (07 Marks)  
b. Describe the elements of runway geometric design. (07 Marks)  
c. Write a note on airport turning zone. (06 Marks)

OR

- 10 a. Explain the different types of lightings used in airport. (06 Marks)  
b. Explain the passenger facilities and services available at airport. (06 Marks)  
c. Calculate the actual length of runway from the following data:  
(i) Airport elevation : R.L 1003  
(ii) Airport reference temperature : 28°  
(iii) Basic runway length : 600 m  
(iv) Highest point along the length : R.L.98.2  
(v) Lowest point along the length : R.L.95.2 (08 Marks)

\* \* \* \* \*