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Fifth Semester B.E. Degree Examination 200Aran.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.

- Explain the types of track stress. (06 Marks)
- What are the functions and requirements of sleepers? (06 Marks)
- Discuss the conventional method of route alignment surveys. (08 Marks)

OR

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

Module-2

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

OR

- Mention the passenger amenities to be provided in the railway station. (06 Marks)
 - Explain the types of yards. (06 Marks)
 - 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

- List the requirements of harbor. (06 Marks)
 - Describe the components of harbor with neat sketch. (08 Marks)
 - 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-1 wind rose diagram. (07 Marks)
- h. 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)