

C 3113

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2007.

Fifth Semester

Civil Engineering

CE 1303 — RAILWAYS, AIRPORTS DOCKS AND HARBOURS

(Regulation 2004)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is creep? How is it prevented?
2. What is meant by 'Sleeper density'? What is its importance?
3. Differentiate between crossings and cross-overs.
4. Write down the various train control systems in India.
5. List the geometric design elements of Runway.
6. Mention the factors affecting the locations of Exit taxi-way.
7. What is holding apron? Where it is provided?
8. List the various types of runway marking.
9. Why is dredging so essential in port operations?
10. Distinguish between Quay and Pier.

PART B — (5 × 16 = 80 marks)

11. (a) (i) How remote sensing and GIS technology will help in track alignment? (8)
- (ii) What are the requirements of an ideal permanent way? What are the factors that govern the cross section and length of rails? (8)

Or

- (b) (i) Summarize briefly the various geometric design of Railway Tracks. (8)
- (ii) What are the requirements of an ideal rail joint? Explain any two joints used in Indian Railway lines with neat sketches. (8)
12. (a) (i) Draw a neat sketch of left hand turnout and show its various component parts. (7)
- (ii) What are the main objectives of signalling and interlocking? Explain how track circuit helps in controlling train movements. (9)

Or

- (b) (i) Explain the automatic block system of controlling train traffic. (7)
- (ii) Distinguish between a railway station and a railway yard with a neat sketch. Also explain the function of a Marshalling yard. (9)
13. (a) (i) Enumerate the various factors to be kept in view in selection of site for a commercial airport. (9)
- (ii) The length of runway at standard condition is 2000 m. Determine the required runway length at an airport site with the following particulars.

Mean maximum daily temperature = 45.1° C

Mean average daily temperature = 28.6° C

Elevation of site above MSL = 250 m

Effective gradient of the run way = 0.21%. (7)

Or

- (b) (i) Explain the necessity of Airport drainage. What are its special characteristics? (8)
- (ii) Describe with sketches the limiting heights of objects in the approach and turning zone of an ILS run way. (8)

14. (a) (i) Explain the various factors which affect the size of gate position. How will you divide the number of gate positions required by an airline? (7)
- (ii) Discuss the passenger facilities that are to be provided in an Airport building. (9)

Or

- (b) (i) Describe the importance of runway lighting. Explain threshold lighting with the help of sketches. (7)
- (ii) Discuss the importance of air traffic control and list the various aids needed for enroute air traffic control. (9)
15. (a) (i) Discuss the Tides and wave effects and its action on coastal structures. (8)
- (ii) Distinguish between wet docks and dry docks. Also list the different types of repair docks. (8)

Or

- (b) (i) State the difference between a transit and a warehouse with regard to (1) their use (2) their construction. (7)
- (ii) Explain the various Navigational Aids-both fixed and floating. (9)
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