Question Paper Code : 41004

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2013.

Fifth Semester

Civil Engineering

080100026 — RAILWAYS AND AIRPORT ENGINEERING

(Regulation 2008)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. List any four economic advantages of railways.

2. What is meant by obligatory points?

3. What are the objects of providing transition curves on railways?

4. What is cant deficiency?

5. What are the functions of points and crossings in railway track layout?

6. Mention any four objectives signalling.

7. What is a wind rose diagram?

8. Show the essential clearances over a highway or a railway located any where in the approach area.

9. List any four principles of passenger flow in airport terminal building.

10. What are the three parts of network for controlling the air traffic?

PART B — (5 × 16 = 80 marks)

11. (a) Describe the modern method of track alignment in detail.

Or

(b) Explain with the aid of neat sketches the various fixtures for fixing rails on different types of sleepers.

12. (a) (i) Define superelevation. What are the objects of providing superelevation on curves of a railway track? (8)

    (ii) Explain the necessity of gradients. Discuss the types of gradients giving their permissible values adopted on Indian railways. (8)

Or

(b) (i) If the wheel base of a vehicle moving on a B.G. track is 6 m, the diameter of wheel is 1.5 m and depth of flanges below the top of rail is 3.17 cm. Determine the extra width required to be provided on gauge. If the radius of the curve is 160 m. (10)

    (ii) What are the objections for providing curves on a railway track? Under what circumstances the use of curves is warranted? (6)

13. (a) (i) Draw a neat diagram of simple right-hand turnout and show its various component parts. Explain the working principle of the turnout. (10)

    (ii) Write an explanatory note on track-circuiting. (6)

Or

(b) What is necessity of relaying a track? Describe the standard method of relaying the track in India. Discuss the various considerations to be made for replacing a track.

14. (a) Explain the various components of airport planning.

Or

(b) (i) The length of runway under standard conditions is 1620 m. The airport site has an elevation of 270 m. Its reference temperature is 32.90° C. If the runway is to be constructed with an effective gradient of 0.20%, determine the corrected runway length. (10)

    (ii) What are the special characteristics and requirements of airport drainage? (6)

15. (a) Explain the characteristics of an ideal airport layout.

Or

(b) Draw a typical sketch showing the general lighting pattern for a major airport and explain it in detail.

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