



B.E./B.Tech (Full Time) DEGREE END SEMESTER EXAMINATION, APRIL/ NOV 2012
CIVIL ENGINEERING BRANCH
SIXTH SEMESTER - (ARREAR)
CE 385 - RAILWAYS, AIRPORT, DOCKS AND HARBOUR
(REGULATIONS 2004)

Time : 3 Hours

Max Marks : 100

PART – A (10 x 2 = 20 Marks)

- 1) What are the points to be considered while fixing railway line alignments?
- 2) Differentiate between Flat footed and Bull Headed rails.
- 3) A B.G railway track is designed for a ruling gradient of 1 in 180 on a curve of 3°. What should be the compensated gradient in the alignment?
- 4) State the relevance of widening of the gauges on curves.
- 5) What is a repeater signal?
- 6) Define Apron, Clearway and Runway.
- 7) State the ICAO classification of airport based on runway length.
- 8) Distinguish between Minimum Turning Radius and Minimum Circling Radius.
- 9) What are the surveys and data to be collected for construction of a port or harbour?
- 10) Define Tetra pods.

PART – B (5 x 16 = 80 Marks)

11. Explain the construction of a railway track and how will you assess the material required for laying the track **(16 marks)**

12 a. Draw and explain the components of a Right Hand Turnout for a train traveling from east to west **(16 marks)**

(OR)

12 b. Define the following: **(16 marks)**

- (i) Coning of rails
- (ii) Unigauge system
- (iii) Creep in rails
- (iv) Negative cant.

13 a.i) Derive an expression for Superelevation. **(8 marks)**

ii) On a B.G. track of 4° curve, equilibrium cant is provided for a speed of 60km/hr. **(8 marks)**
Calculate the value of the equilibrium cant and maximum speed allowing maximum deficiency.

(OR)

13 b.i) Explain the relevance of track circuiting. **(8 marks)**

ii) Explain any two methods of track drainage. **(8 marks)**

14 a. Draw and explain the Type I Wind Rose Diagram.

(16 marks)

(OR)

14 b. An airport is proposed at an elevation of 400m above mean sea level where the mean of the maximum and mean of the average daily temperature of the hottest month are 44.8°C and 26.2°C respectively. Maximum elevation difference along the proposed profile of a runway is 6.3m. Basic length of the runway is 1260m. Determine the actual length of the runway to be provided.

(16 marks)

15 a. Explain in detail the classification of various types of Harbour.

(16 marks)

(OR)

15 b. Explain the following:

(16 marks)

- (i) Quays
- (ii) Littoral Drift
- (iii) Wharves
- (iv) Piers