

B.E. DEGREE EXAMINATIONS: APRIL / MAY 2010

Fourth Semester

CIVIL ENGINEERING

U07CE405: Railways, Docks, Harbours & Airports

Time: Three Hours

Maximum Marks: 100

Answer ALL the Questions:-

PART A (10 x 1 = 10 Marks)

1. For The main cities and routes of maximum intensities the gauge adopted,
(a)M.G (b) N.G (c) B.G (d) M.G & B.G
2. The tounge rail is made up of
(a) Cast Iron (b) Mild steel (c) low carbon steel (d) High manganese steel
3. The Ballast below the sleeper is called.....
(a) Ballast- cushion (b) Crib ballast (c) Shoulder ballast (d) Heavy ballast
4. Which one of the following type of transition curve is mostly used on Indian Railways?
(a)Euler's spiral (b) Cubic spiral (c) Shoulder ballast (d) Cubic parabola
5. Which part of a port or harbour that provides docking, a cargo handling and storage facilities.
(a) Marine terminal (b) Free port (c) Cargo terminal (d) Turning basin
6. The national Airport Authority (NAA) was established,
(a)1986 (b)1988 (c)1990 (d)1987
7. Space requirement for terminal building (per 100 peak hour passenger) for ticket counter is
(a)7 m (b)12 m (c) 45 m (d) 35 m
8. Symbol for poorly graded gravel sand silt mixtures is given by, adopted,
(a) GM (b) GB (c) GW (d) GP
9. To prevent segregation of filter material, the co-efficient of uniformity obtained by the equation [60% size of filter material/10 % size of filter material] should not be greater than
(a) 20 (b) 5 (c) 1 (d) 25
10. The stopway length for engine failure speed $V_1 < V$ is given by,
(a) $L_5 - L_2$ (b) $L_7 - L_1$ (c) 0 (d) $L_4 - L_1$

PART B (10 x 2 = 20 Marks)

11. Define, "Bulking of Rails".
12. What do you mean by Coning of Wheels on Level-Track?
13. What is super elevation?
14. Write short notes on Scotch Block.

15. Define breakwater.
16. Name any four component parts of an aero plane.
17. Mention the importance of air transport.
18. Sketch the centralized system of planning.
19. What is the meaning of term Transverse gradient?
20. Enumerate about Forecasting in Aviation.

PART C (5 x 14 = 70 Marks)

21. (a) Describe in detail the different types of surveys to be carried out for taking up of new railway project.

(OR)

- (b) Define gauges of railway track. Enumerate different gauges used in India and discuss their suitability with different locations with reasons.

22. (a) (i) What are the possible causes of creep? And what are the effects of creep? (7)
(ii) Compare the relative merits and demerits of wooden and concrete sleepers. (7)

(OR)

- (b) (i) What is the necessity of geometric design of a railway track? (7)
(ii) Enumerate the significant features of design of a railway track. (7)

23. (a) Briefly outline the considerations in deciding size and position of harbour entrances.

(OR)

23. (b) (i) What are the navigational aids? Why are they necessary in harbours? (7)
(ii) What are the floating signals? List out different types of floating signals? (7)

24. (a) How can the plotting of windrose diagrams be done? Explain with sketch in detail.

(OR)

- (b) An airport is proposed at an elevation of 400 m above mean sea- level where mean of maximum and mean of average daily temperatures of the hottest month are 44.8°C and 26.2°C respectively. The maximum elevation difference along the proposed profile runway is 6.3 m. If the basic length of runway is 1260 mm, determine the actual length of runway to be provided.

25. (a) (i) Write about the factors which affect the type and intensity of the airport lighting. (8)
(ii) Differentiate between runway lighting and threshold lighting. (6)

(OR)

- (b) Explain the six groups of the airport marking.
