Register Number: ……..

B.E DEGREE EXAMINATIONS: MAY/JUNE 2013

Fourth Semester

CIVIL ENGINEERING

CEE110 : Railways Docks Harbors and Airports

Time: Three Hours **Maximum Marks: 100**

Answer all the Questions

PART A (10 x 1 = 10 Marks)

1. Railway track performance under traffic is elastic mainly because of
   a) Sleepers b) Rails
   c) Ballast d) Formation
2. Interlocking is mostly a / an
   a) Mechanical device b) Electrical device
   c) Safety device d) Operational device
3. The gauge of the railway track running between Mettupalayam and Ooty is
   a) Narrow gauge b) Meter gauge
   c) Broad gauge d) Special gauge
4. A second signal provided on the same post as the main signal for better visibility is called
   a) Routing signal b) Repeating signal
   c) Co acting signal d) Calling on signal
5. Madras (Chennai) harbour belongs to the type of _____ harbour
   a) Natural b) Artificial
   c) Semi natural d) Semi artificial
6. The marine structure used for the mooring of ship vessels is known as
   a) Jetty b) Dolphins
   c) Quay d) Wharves
7. Apron marking should be done with
   a) Yellow paint b) White paint
   c) Blue paint d) Red paint
8. The beginning of the runway to be used as landing is known as
   a) Holding apron b) Threshold
   c) Hanger d) Apron
9. If the air traffic is heavy, the aircrafts are detained at the place known as
   a) Air Traffic Control Station b) Flight Service Station
   c) Holding Fix d) Instrument Runway

10. Match the following : (A) Rail (B)Ballast (C)Fender (D) Shift

(1)Counter weight (2) Transition curve (3) Jetty (4) Weight (5) Length

a) A-2; B-1; C-3; D-5 b) A-4; B-1; C-3; D-5

c) A-1; B-4; C-3; D-5 d) A-4; B-1; C-3; D-2

PART B (10 x 2 = 20 Marks)

11. Distinguish between Unigauge and Standard Gauge of a permanent way.
12. Define Equilibrium Cant. Give its maximum value for a Broad Gauge Track.
13. Define the term Track Circuiting.
14. State the use of Gauntlet tracks.
15. What are the advantages of Automatic Signaling?
16. Define the term Fetch. Mention its importance.
17. Why is tidal force due to moon greater than due to sun?
18. How is the number of gates decided in an airport?
19. What are the types of Imaginary surfaces?
20. What are the aims of Airports drainage?

PART C (5 x 14 = 70 Marks)

21. a) (i) Discuss the role of Railways in Industrial and Economic progress of a Nation (7)

(ii) What are the different types of rails? What are the relative advantages of using F.F.Rails? (7)

(OR)

b) (i) Discuss the necessity and effects of Coning of Wheels and Tilting of Rails (7)

(ii) Differentiate between Traffic Reconnaissance Survey and Engineering Reconnaissance Survey. (7)

22. a) (i) A 6^0 curve branches off from a 3^0 main curve in an opposite direction in the layout of a broad gauge track. If the speed on branch line is limited to 35kmph, determine the speed restrictions on main line. Take Gant deficiency as 7.62cm. (7)

(ii) What is meant by Level Crossing? Discuss in detail how the level crossings are classified in India. (7)

(OR)

b) (i) Explain the necessity of Gradients. Discuss all the types of gradients giving their permissible values adopted in Indian railways. (7)

(ii) Explain briefly the different types of Stations and Yards (7)

23. a) (i) How are the Harbours or Ports classified? Explain in detail the salient features of each one of the classification. (7)

(ii) Write a detail note on the Navigational Aids in waterways. (7)

(OR)

b) (i) What are the factors to be studied and scrutinized in Harbour Planning? (7)

(ii) Every harbour or port must be planned to provide maximum facilities – Justify the statement (7)

24. a) (i) Draw the wind rose diagram and find the calm period & best orientation of runway from the following data. (7)

Wind Direction	Duration of wind, Percent		
	6.4-25 kmph	25-40 kmph	40-60 kmph
E	0.8	0.2	0.0
ESE	0.3	0.1	0.0
SE	4.3	2.8	0.0
SSE	5.5	3.2	0.0
S	9.7	4.6	0.0
SSW	6.3	3.2	0.5
SW	3.6	1.8	0.3
WSW	1.0	0.5	0.1
W	0.4	0.1	0.0
WNW	0.2	0.1	0.0
NW	5.3	1.9	0.0
NNW	4.0	1.3	0.3
N	7.4	2.7	0.2
NNE	5.7	2.1	0.3
NE	2.4	0.9	0.6
ENE	1.2	0.4	0.2

(ii) Give the classification of Airports as per ICAO. (7)

(OR)

b) (i) The length of runway under standard condition is 2100m. The airport is to be provided at an elevation of 410 m above the MSL.The airport reference temperature is 32^0C. If the runway is to be constructed with an effective gradient of 0.2 percent, determine the corrected runway length. Assume any other data if necessary. (7)

(ii) What are the different drawings and maps that should be prepared for the finally selected site for developing an airport? (7)

25. a) (i) Enumerate the various Air Traffic Control Aids. (7)

(ii) Briefly discuss the various Elements of Airport Lighting. (7)

(OR)

b) (i) Describe the various systems of Airport parking and markings. (7)

(ii) What are the characteristics and advantages of STOL Ports? (7)

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