B.TECH DEGREE EXAMINATION, MAY-JUNE 2013

SIXTH SEMESTER

CIVIL ENGINEERING

CE 010 604 TRANSPORTATION ENGINEERING I

(2010 Admission Onwards)

Time: Three Hours Maximum: 100 Marks

PART A

(Answer all Questions)

(3 X 5 = 15 marks)

1. What are the functions of ballast?

2. What is wave theory?

3. What is meant by Littoral drift?

4. Write a short note on channel lighting

5. What is the necessity of ventilation to be provided in tunnels?

PART B

(Answer all Questions)

(5 X 5 = 25 marks)

6. Why the uniformity of gauge is important for the efficient functioning of railways?

7. Draw neatly a typical cross section of a single lane railway track in a level ground and name the different parts.

8. Write a brief note on tunnel drainage.

9. What should be the actual ruling gradient, if the ruling gradient is 1 in 200 on a metre gauge and a curve of 3^o is superimposed over the track?

10. List out the necessities and functions of breakwaters

PART C

(5 X 12 = 60 marks)

11.

a. Explain the terms:

i. conning of the wheels and

ii. Grade Compensation

b. Explain with suitable figures various types of rail fastenings

OR

12. What are the functions of:

i. Rail

ii. Sleepers

iii. Ballast

13. On a straight BG track a turn out takes off at an angle of 6^o 42' 35" Design the turnout if (i) angle of switch is 1^o 34' 27" (ii) length of switch rail is 4.73 m (iii) heel divergence is 11.43 cm and (iv) length of straight arm is 85 cm

OR

14. A 5^o curve diverges from a main curve of 4^o in an opposite direction in the layout of a BG yard. If the speed on the branch line is restricted to 40kmph.Determine the speed restriction in the main track. Assume the permissible cant deficiency to be 7.5 cm

15. What are the different methods of tunneling through soft soil? Explain the fore poling method in detail.

OR

16.

a. How are the size and the shape of tunnel decided?

b. Sketch different shapes of tunnel cross section generally followed

c. Mention the various problems in tunneling.

17. Describe the various types of signals used in harbours.

OR

18. Write a short note on: (i) landing stages in harbour.(ii) Channel demarcation

19. Define: (i) wet and dry docks. (ii) Lock and lock gates

OR

20. State the types of dredging devices commonly used in harbour engineering. Explain with neat sketch, the operation of bucket ladder dredger.