

G 460

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Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, MAY 2014

Sixth Semester

Branch : Civil Engineering

TRANSPORTATION ENGINEERING—I (C)

(Old Scheme—Supplementary/Mercy Chance)

[Prior to 2010 admissions]

Time : Three Hours



Part A

Answer all questions.

Each question carries 4 marks.

1. List different types of rail failures.
2. What would be the gradient for a B.G. track when the grade resistance together with curve resistance due to a curve of 3° shall be equal to the resistance due to a ruling gradient of 1 in 200 ?
3. Explain the terms : HCl divergence and flangeway clearance in turn-outs.
4. How are signals classified with respect to their location in a station ?
5. What are pilot tunnels ? What are their uses ?
6. Write note on tunnel ventilation.
7. Enumerate the forces acting on break-waters.
8. Differentiate between piers and wharves.
9. What are the functions and types of docks ?
10. Distinguish between capital dredging and maintenance dredging.

(10 × 4 = 40 marks)

Part B

Answer all questions.

Each question carries 12 marks.

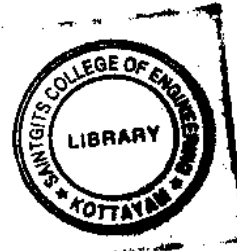
11. (a) Write short notes on surface, elevated and tube railways.

Turn over

- (b) Find out the steepest gradient on a straight track, given the following data for a train having 20 wagons :

Weight of each wagon	=	20 t
Rolling resistance of wagon	=	2.6 kg/ton
Speed of the train	=	50 kmph
Weight of locomotive	=	120 t
Rolling resistance of locomotive	=	3.6 kg/ton

Or



12. (a) Explain the term 'wear' and 'creep' of rails.
 (b) Find out the length of transition curve for a B.G. curved track having 4° and a cant of 12 cm. The maximum permissible speed on curves is 85 kmph.
13. (a) Draw a neat sketch of a left hand turn-out and indicate all its components.
 (b) Write notes on centralised traffic control system.

Or

14. A turn-out is to be laid off a straight B.G. track with 1 in 12 crossing. Determine the lead and radius for the turn-out given the following data :
- Heel divergence $d = 133$ mm
 Straight length between theoretical nose of crossing and tangent point of crossing = 1.418 m
 Crossing angle $\alpha = 4^\circ 45' 49''$.

15. (a) What are the different types of tunnel sections? What are their relative merits and demerits?
 (b) Explain 'Plenum process' in tunnelling.

Or

16. (a) What are the different methods of tunnelling in soft soil? Explain any one method in detail.
 (b) Write note on tunnel drainage.
17. (a) Discuss the influence of various natural phenomena on harbour planning and design.
 (b) Write note on 'Light house'.

Or

18. Write notes on :

- (i) Harbour classification.
- (ii) Transit sheds and warehouses.
- (iii) Beacons



19. (a) What are the function of locks and lock-gates ?

(b) Write a note on shipways.

20. Explain with neat sketch the type of dredger you will recommend in the following cases :

- (i) Hard soil and
- (ii) Saturated silky soil.

(5 × 12 = 60 marks)