

C 47612

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Name.....

Reg. No.....

**SIXTH SEMESTER B.TECH. (ENGINEERING) DEGREE
EXAMINATION, JUNE 2008**

CE 04 605—TRANSPORTATION ENGINEERING—II

Time : Three Hours

Maximum : 100 Marks

Answer all questions.

1. (a) What do you understand by permanent way ? Mention the requirements of an ideal permanent way.
- (b) Describe the functions and requirements of rails in railway track.
- (c) What is creep ? Discuss the theories recommending for the probable causes of creep.
- (d) Explain the different types of signals used in the station-yard.
- (e) What is the interia to be adopted to select a site for a harbour ?
- (f) Explain how lighting and draining are provided in a tunnel.
- (g) Write a short notes on ITS and automated Highways.
- (h) Explain the different Navigational aids used in harbours and ports.

(8 × 5 = 40 marks)

2. (a) Define gauge of a railway track. Enumerate different gauges used in India and discuss their suitability at different locations with reasons. Why uniformity of gauges is desirable in any country ?

(7 marks)

- (b) Write short notes on :

- | | |
|------------------------|----------------------------|
| (i) Sleeper density. | (ii) Coning of wheels. |
| (iii) Joints in rails. | (iv) Safe speed on curves. |

(8 marks)

Or

- (c) What is cant deficiency ? A 6 degree curve branches off from a 3 degree main curve in an opposite direction in the layout of a BG yard. If the speed on branch line is limited to 40 kmph determine the speed restriction on main line given cant deficiency = 7.62.

(7 marks)

- (d) Write short notes on :

- | | |
|-------------------------------------|---------------------------------|
| (i) Widening of gauges on curves. | (ii) Equilibrium cant. |
| (iii) Grade compensation on curves. | (iv) Speeds of trains in India. |

(8 marks)

Turn over

3. (a) What are the functions of points and crossings in Railway track? Determine all the elements of a turnout when the following data is given :—

Heel divergence = 13.65 cm

Angle of switch = $1^{\circ}34'27''$

Gauge = 1.676 m

Value of N = 8.5

(8 marks)

- (b) Enumerate the various types of track Junctions in use. Discuss the suitability of each under different conditions.

(7 marks)

Or

- (c) Explain and discuss the following by means of sketches :—

(i) Way side stations.

(ii) Junction stations.

(iii) Terminal stations.

(7½ marks)

- (d) Explain the methods of tunnelling in hard rock.

(7½ marks)

4. (a) Write short notes on :

(i) Wet and dry dock.

(ii) Transit shed and warehouse.

(iii) Various design considerations of harbour.

(iv) Breakwater.

(v) Lock and Lock gates.

(15 marks)

Or

- (b) Write short notes on :

(i) Slipways.

(ii) Fenders and Dolphins.

(iii) Classification of Harbours and Ports.

(iv) Construction of breakwater.

(v) Forces acting on breakwater.

(15 marks)