

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

CE 04 605—TRANSPORTATION ENGINEERING—II

(2004 Admissions)

Time : Three Hours

Maximum : 100 Marks

Answer the following questions.

1. (a) Draw a typical cross-section of a permanent way. Discuss in brief the basic functions of various components of the railway track.
- (b) What are the possible causes of creep ? What are the effects of creep ? Explain various preventive and remedial measures that can be taken.
- (c) Explain necessity of gradients. Discuss all the types of gradients giving their permissible values in India.
- (d) Draw a neat diagram of simple right hand or left hand turnout and show the various component parts. Explain the working principle of turn out.
- (e) Explain the various design consideration of a harbour.
- (f) Write a descriptive note on tunnel ventilation.
- (g) Explain how the master plan is prepared and the road development programme is phased.
- (h) What are the speed effects on railway track ? What special measures would you consider for the construction of high speed track having a speed of 150 kmph.

(8 × 5 = 40 marks)

2. (a) Write short notes on :

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|-----------------------------------|------------------------|
| (i) Sleeper density. | (ii) Coning of wheels. |
| (iii) Types of rail joints. | (iv) Cant. |
| (v) Grade compensation on curves. | |

(15 marks)

Or

- (b) What do you understand by Negative cant ? When from a layout of BG yard a 8° curve branches off from a 4° main curve in an opposite direction ? If the speed is restricted to 40 kmph and permissible value of cant deficiency is 7.61 cms, determine the speed restriction on the main line.

(7½ marks)

Turn over

(c) What are the objectives for providing curves on railway track ? Calculate the shift and offsets at every 15 m of transition curve 105 m long joining the ends of a 5° circular curve and set the transition curve. If the maximum cant permitted on this curve with a cant deficiency of 5.1 cms is 12.7 cm, calculate also the cant on the curve.

(7½ marks)

3. (a) Enumerate various types of track junction in use. Discuss the suitability of each under different condition.

(7½ marks)

(b) Write short notes on :

(i) Selection of platform along the track.

(ii) Goods yard and Loco yard.

(7½ marks)

Or

(c) Explain the methods of tunneling in hard rock.

(15 marks)

(d) Write short notes on :

(i) Working principle of Absolute Block system.

(ii) Daily Maintenance and Periodicals Maintenance.

(7½ marks)

4. (a) Write short notes on :

(i) Classification of harbours and ports.

(ii) Wet and dry docks.

(iii) Breakwaters.

(iv) Quays and Piers.

(v) Transit shed and warehouse.

(15 marks)

Or

(b) Write short notes on :

(i) Site selection for harbours and points.

(ii) Construction of breakwater.

(iii) Lock and Lock gates.

(iv) Fender and Dolphins.

(v) Navigational aids.

(15 marks)