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53 (CE 603) TREN-II

2015

TRANSPORTATION ENGINEERING-II

Paper : CE 603

Full Marks : 100

Time : Three hours

The figures in the margin indicate full marks for the questions.

Answer **any five** questions.

1. (a) Explain the factors affecting choice of gauge. 5
- (b) Explain the problems caused by change of gauge. 10
- (c) What are the benefits of adopting uniform gauge throughout the country ? 5

Contd.

2. Explain the following engineering surveys for new track alignment : 5+5+5+5
- (a) Traffic Survey
 - (b) Reconnaissance Survey
 - (c) Preliminary Survey
 - (d) Detailed Survey.
3. (a) What are the requirements of ideal rails ? 5
- (b) What are the advantages of flat footed rails over bull headed or double headed rails ? 5
- (c) Explain the various theories and causes for creep of rails. 5
- (d) Explain *any five* types of railway ballast. 5
4. (a) Explain the following : 5
- (i) Ruling gradient
 - (ii) Momentum gradient
 - (iii) Pusher gradient
 - (iv) Gradient at station yards
 - (v) Grade compensation.

- (b) What would be equilibrium cant on a M.G. track of 5° curve for a speed of 60 *kmph* ? What would be the maximum permissible speed after allowing the maximum cant deficiency ? 5
- (c) What is the permissible speed on B.G. track with a 4° curve ? If the speed is restricted to 72.3 *kmph*, what super-elevation should be given after allowing the permissible cant deficiency ? 5
- (d) Explain coning of wheels. State its advantages over straight and curved track. 5
5. (a) What are the advantages and disadvantages of air transport over other modes of transport ? 5
- (b) Explain the various factors governing the selection of suitable site for a major airport. 10
- (c) Explain the various surveys conducted for airport site selection. 5
6. (a) What are the various assumptions made in the determination of basic runway length ? 5

(b) With a neat sketch explain the determination of basic runway length in normal landing and normal take off case. 5

(c) The length of runway under standard conditions is 1620m. The airport site has an elevation of 270m. Its reference temperature is 32.94°C. If the runway is to be constructed with an effective gradient of 0.2%, determine the corrected runway length. 10

7. Write short notes on the following : 5+5+5+5

(a) Terminal Building

(b) Taxiway

(c) Permanent way

(d) Rail failures.