

Seat
No.

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मजल - 042

Transportation Engineering - I (1040)

P. Pages : 2

Time : Three Hours

Max. Marks : 100

Instructions to Candidates :

1. Do not write anything on question paper except Seat No.
2. Answersheet should be written with blue ink only. Graph or diagram should be drawn with the same pen being used for writing paper or black HB pencil.
3. Students should note, no supplement will be provided.
4. Attempt all **five** questions & from each unit attempt **any two** bits out of a, b & c.
5. Neat diagrams must be drawn wherever necessary.
6. Assume suitable data, if required.
7. Figures to the right indicate full marks.

UNIT - I

1. a) i) Explain functions of sleepers & Define sleeper density. 5
ii) What is wear of rail ? What are the causes of rail-wear ? 5
b) i) List out different types of gauges & Explain the need of uniformity in gauges in India. 5
ii) Explain in detail coning of wheels. 5
c) i) Find out expression for sleeper density for a busy track, if 19 sleepers are used under a rail length of 12.8m. 5
ii) Draw a typical cross-section of P. way showing various components. 5

UNIT - II

2. a) i) Find out the length of transition curve for a B. G. Curve of three degree, having a cant of 10cm. The maximum permissible speed on the curve is 80 kmp.h & allowable cant deficiency is 75mm. 5
ii) Work out the maximum speed of a train on a B. G. track having a curvature of three degrees & cant of 10cm. Assume allowable cant deficiency as 75mm. 5
b) i) Define cant & state various objectives of providing cant on curves. 5
ii) Define creep & Explain various factors which affects the magnitude of creep. 5

- c) i) Explain different types of survey required for a railway project. 5
 ii) Calculate shift & offsets at every 25m of transition curve. The transition curve of 125m long is to be used to join the ends of 4° circular curve. 5

UNIT - III

3. a) i) What are Interlocking standards ? Explain the essential features of Interlocking standards. 5
 ii) Explain points & crossings of a railway track. 5
 b) i) List various types of signals & Explain any one with a neat sketch. 5
 ii) Write a short note on tracks for superhigh speed train. 5
 c) i) Write a short note on FM. 5
 ii) Explain various types of layouts with a neat sketch. 5

UNIT - IV

4. a) i) State various objectives of tunnel lining. 5
 ii) Explain classification of tunnel based upon shape & also explain their adaptability. 5
 b) i) How drainage of tunnel is achieved ? 5
 ii) What is mucking ? How it is carried out ? 5
 c) i) Explain Heading & Bench method of tunnelling. 5
 ii) Write a short note on : 5
 1) Ventilation & Lighting of tunnels.
 2) Pilot tunnel system.

UNIT - V

5. a) i) Write a detail note on Quay walls. 5
 ii) Describe Light-house with a neat sketch. 5
 b) i) Differentiate between Dry dock & wet dock. 5
 ii) Differentiate between Jetty & a Wharf. 5
 c) i) Explain different types of buoys with neat sketches. 5
 ii) Write a short note on Breakwater. 5
