Roll No .....

CE - 302

B.E. III Semester

Examination, December 2015

Transportation Bridges and Tunnels

Time : Three Hours

Maximum Marks : 70

Note: i) Answer five questions. In each question part A, B, C is compulsory and D part has internal choice.
ii) All parts of each question are to be attempted at one place.
iii) All questions carry equal marks, out of which part A and B (Max. 50 words) carry 2 marks, part C (Max. 100 words) carry 3 marks, part D (Max. 400 words) carry 7 marks.
iv) Except numericals, Derivation, Design and Drawing etc.
v) Assume suitable data if found missing.

1. a) Name different types of rails.
   b) Name various types of Sleepers.
   c) What are requirements of good Ballast?
   d) Explain problems of non-uniform gauges.

   Or

   Discuss the varieties of Tractive Resistances which a locomotive has to overcome.

2. a) Why superelevation is provided?
   b) Why Cant Deficiency is provided?
   c) Name different types of curves provided on railway track.
   d) A 6 degree curve is having speed of 60 KMPH with cart as 12cm. Determine the length of transition curve assuming track to be meter gauge type.

Or

Actual cart is 8.24cm for the speed of 60 KMPH on a meter gauge curve. Calculate the grade compensation required on the curve.

3. a) Define scour Depth.
   b) Define clearance of bridge.
   c) What are factors affecting site of bridge?
   d) Explain different types of loads and forces acting on bridges.

   Or

   Discuss different types of highway bridges.

4. a) When SUSPENSION bridge is selected?
   b) What is pile foundation?
   c) What are requirements of good bridge foundation?
   d) Explain cofferdam foundation.

   Or

   Discuss various reasons of bridge failure.

5. a) What are advantages of tunnel?
   b) What are demerits of tunnel?
   c) How alignment of tunnel is done?
   d) Explain methods of tunneling through soft soil.

   Or

   Discuss various methods of tunneling in rock.

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