Total No. of Questions : 5] *[Total No. of Printed Pages : 2*

Roll No .....

CE-302

B.E. III Semester

Examination, December 2016

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.

Unit - I

1. a) What is mean by wear of rails?
   b) What is reconnaissance survey?
   c) Explain the different types of train resistances.
   d) Compare the different types of rails with the help of neat sketches.

Or

Explain the requirements of a good sleeper. What is sleeper density?

Unit - II

2. a) Define the marshalling yards.
   b) Name the different variates of signals.
   c) What do you understand by points and crossing?
   d) Find out the length of the curve for a B.G. curved track having 4° curvature and a cant of 12cm. The maximum permissible speed on curve is 85km.p.h.

Or

On a B.G. 3° curve, the "equilibrium cant" is provided for a speed of 70 km.p.h.
i) Calculate the value of equilibrium cant.
ii) Allowing a maximum cant deficiency, What would be maximum permissible speed on the track.

Unit - III

3. a) Discuss the factors affecting suitable site of bridge.
   b) Define afflux and indicate its importance.
   c) Explain the various types of road and railway bridges.
   d) Define an economic span of a bridge and work out its expression.

Or

Draw neat sketches of wing wall and approaches. Explain the different parts.

Unit - IV

4. a) Explain the strengthening of bridges.
   b) Explain the sinking of wells.
   c) Discuss the various causes of failure of bridges.
   d) Explain the various types of coffer dams, where they are constructed. Also write down procedure of construction.

Or

How the inspection and data collection is carried out for a bridge?

Unit - V

5. a) What is the necessity of railway tunnels?
   b) Write a short note on shape and size of tunnel.
   c) How drainage and ventilation of tunnel is done?
   d) Explain the various methods of construction of tunnel in rock with the help of neat sketches.

Or

Explain the different types of linings used in tunnel.

******