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Write notes on the following:

- i) Drainage and ventilation
- ii) Mucking operation
- iii) Tunnel approaches

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Total No. of Questions :5]

[Total No. of Printed Pages :4

Roll No

CE-302**B.E. III Semester**

Examination, June 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) Discuss in brief the various tractions on railways.
- b) Discuss in brief the sleeper density.
- c) Describe briefly the suitability of various materials which are commonly used as ballast in a railway track.
- d) What is Creep? Discuss the theories propounded to explain probable causes of creep and what are the effects of creep.

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[2]

Define gauge of a Indian railway track. Enumerate different gauges used in India and discuss their suitability at different locations. Also describe the coning of wheels for the train to run without derailment.

Unit - II

2. a) What is cant deficiency.
- b) Draw a neat diagram of simple right hand turnout and show its various component parts.
- c) Explain briefly the different types of station yards.
- d) Explain transition curves and why it necessary in Railway track. Write down equation for setting these curves.

Or

What are the objects of Signalling? Describe the engineering principles of signalling and explain the different types of signals used in the station yards.

Unit - III

3. a) Explain the economical span of a bridge.
- b) Mention the forces acting on a pier.
- c) What is Dead load? Mention some of the important empirical formulas which are used to find it.
- d) Write short notes on:
 - i) Afflux and its importance
 - ii) Depth of bridge foundation
 - iii) Alignment of a bridge

Or

[3]

Explain the different types of Railway bridges with the help of neat sketches.

Unit-IV

4. a) Explain in brief, the erection of bridges.
- b) Explain in brief, the strengthening of bridges.
- c) Explain in brief the various laboratory tests which are carries out on the soil samples.
- d) Explain the various types of coffer dams, where they are constructed. Also write down procedure of construction.

Or

Explain the Pile foundation and Well foundation for bridges with neat sketches. Also discuss procedure of sinking of wells.

Unit-V

5. a) Explain in brief a suitable alignment of tunnel.
- b) Describe in short the lining for tunnels.
- c) Write a short note on shape and size of tunnel.
- d) Describe the various methods of hard rock tunnelling and mention the advantages and disadvantages of each of them.

Or