

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

Examination, December 2013

**Transportation Bridges and Tunnels****Time : Three Hours****Maximum Marks : 70**

- Note:** 1. All questions carry equal marks.  
 2. Attempt any five questions selecting one from each unit.  
 3. Assume suitable data if found necessary.

**Unit - I**

1. a) Discuss the various Tractive Resistances which a locomotive has to overcome while running on railway track.  
 b) How will you fix Alignment of railway track? 7+7

**Or**

2. a) Explain the different types of Rails with the help of neat sketches.  
 b) Write a note on  
 i) Ballast ii) Fish plate 7+7

**Unit-II**

3. a) Determine the length of Transition Curve having 7 degree curvature. The speed on curve is 60 KMPH and cart is 13cm. Assume the track to be M.G.  
 b) Derive an expression for determining Super Elevation on a railway track. 7+7

**Or**

4. a) Explain the various considerations kept in mind while selecting a suitable Site of Railway Station.  
 b) Discuss the salient features of Marshalling Yard through neat sketches. 7+7

**Unit-III**

5. a) How will you select a suitable Site of Bridge?  
 b) Write a note on  
 i) Scour Depth ii) Economical Span 7+7  
**Or**  
 6. a) Discuss the various Loads and Forces acting on a bridge.  
 b) Draw a neat sketch of Abutment. Explain function of different parts. 7+7

**Unit-IV**

7. a) Explain Pile and Well foundation with the help of neat sketches.  
 b) What is function of Cofferdam? Explain through neat diagram. 7+7  
**Or**  
 8. a) How Erection of Bridge is carried out?  
 b) How Strengthening of Bridge is done? 7+7

**Unit-V**

9. a) How selection of route is done for Tunnel?  
 b) Explain the various shapes and size of Tunnel. 7+7

**Or**

10. Discuss the various methods of construction of Tunnel in soft soil. Explain in detail through neat sketches. 14