Total No. of Questions : 8] *[Total No. of Printed Pages : 2*

Roll No .....

CE-803 (GS)

B.E. VIII Semester

Examination, May 2018

Grading System (GS)

Advanced Structure Design-II (Steel)

Time : Three Hours

Maximum Marks : 70

Note: i) Answer five questions.
ii) All questions carry equal marks.
iii) Use of relevant IS codes, IRC publications, bridge rules and tables is permitted.

1. Design the central section of riveted plate girder to carry a superimposed load of 100 kN/m on an effective span of 24m. Take importer factor = 0.4

2. Design a deck type welded plate girder for B.G. single track loading for the following data. Effective span = 24m, spacing of girders = 1.9mc/c, weight of stock rails = 260N/m weight of guard rails = 280N/m, wt of fastenings etc = 300N/m of track. Timber sleepers = 250mm × 150mm × 2.8m @ 0.4 mc/c. Density of timber = 7.4kN/m^3.
Design central section only.

3. Design cross beams of a foot bridge for the following particulars.
Type of girder N-type trusses, Span of girders = 18 m c/c, spacing of cross girders = 2.25 m c/c, clear walking width between main girders = 3m. Live load = 4.0 kN/m^2.
Design floor and cross beams of the bridge.

4. Design top chords of above foot bridge.

5. Design stays of a pressed steel tank for the following data:
Capacity = 85 kL, Height of tank container = 2.5 m

6. Design longitudinal beams for above tank.

7. Design the cylindrical portion for a self supporting steel stack of height 60m above foundation for following data:
Dia. of cylindrical part = 4.25m,
Dia. of flare portion at base = 5.60 m.
Height of flared portion = 10.0 m,
Wind pressure = 1.0 kN/m^2 uniform throughout the height

8. Answer any four of the following:
   a) Discuss impact allowance for railway bridges.
   b) Discuss general arrangement of components of truss girder bridge.
   c) Derive formula for stresses in conical bottom of water tank.
   d) Derive the expression for stresses in chimney.
   e) Name the different elements of Silo.
   f) Discuss the design of stiffness for Silo.

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