Total No of Questions : 8 Total No. of Printed Pages : 3

EI-211

B.E. (VIIIth Sem.) (CGPA) Civil Engg. Exam.-2015

ADVANCED STRUCTURAL DESIGN - II (STEEL)

Paper - CE-802

Time Allowed : Three Hours

Maximum Marks : 60

Note : (1) Attempt any five questions.

(2) Use of IS Codes, IRC Publication, bridge rules and tables are permitted.

(3) All questions carrying equal marks.

(4) Assume missing data, If any.

Q.I Design the central section for a welded plate girder having an effective span of 15m. It has to support a live load of 60 kN/m and total dead load of 40 kN/m. Take impact factor $= \frac{20}{14+L}$ where L is the span in meters. Sketch the details.

Q.II Calculate the maximum bending moment and shear force values for the girder of a two lane bridge for class 'A' loading. The details of bridge are—

Span = 20m

Roadway = 7.5m

Footpath = 1.5m each side

Spacing of girder = 7m c/c

Spacing of cross beam = 2m

Type of girder = *N* type trusses

Q.III Design a circular hemispherical bottom water tank for capacity 1,50,000 lts. Sketch the details also.

Q.IV Write down the design steps of a pressed steel water tank in details.

Q.V Design a self supporting steel stack of 60m for Jabalpur. The diameter of cylindrical part is 4.5 m. Foundation is resting on medium soil having bearing capacity 200 kN/m^3. Assume 150 mm thick lining. Design only Chimney Shell.

Q.VI (a) Write a short note on guyed chimney.

(b) Discuss in detail Calculations of loads for a chimney.

Q.VII Design a coal bunker to hold 30 MT Coal. Unit weight of coal is 12 kN/m^3 and angle of internal friction is 30°. Design only Vertical Walls.

Q.VIII Design the walls of a circular steel silo of 12m height and 4m internal diameter to store cement of bulk density 15.0 kN/m^3. The angle of internal friction is 25°. The mean size of particles is assumed to be less than 60μ.
