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

Roll No .....

CE-8001 (CBGS)

B.E. VIII Semester

Examination, May 2019

Choice Based Grading System (CBGS)

Advanced Structural Design -II (Steel)

Time : Three Hours

Maximum Marks : 70

Note: i) Attempt any five questions. All questions carry equal marks.

ii) Use of steel table is allowed.

iii) Use of calculator is allowed.

1. a) List any seven elements of plate girder and explain its important features related to design. 7

   b) Explain the step by step design procedure of welded plate girder bridge. 7

2. A deck type welded plate girder Railway bridge is to constructed for a broad gauge single track on main line.

   Effective span=20m, c/c distance between the plate girder is 2m , dead load on each girder is (220L+600) N/m, Dead load of track with sleeper=6800 N/m. Design the super structure of the bridge with welded plate girder. 14

3. a) What are different types of truss bridges? Explain the design principles of optimum depth of truss-girder. 7

   b) Explain the various types of bridge bearing and discuss Elastomeric Bearing for bridge structures in detail. 7

208

4. a) Distinguish between bunker and silo with the Help of diagram. 7

   b) Explain factors affecting the design of bins. 7

   OR

   Explain the lining material used for chimney.

5. Design an elevated steel tank circular for (10^5 litres) 1,00,000 lit. capacity with circular girder supported on suitable number of columns. The shape of bottom may be assumed suitably. The Roof covering and staging for the tank need not be designed. http://www.rgpvonline.com 14

6. Design for Bhopal a self supporting steel stack of height 70m, the diameter of cylinder shell is 4.25 metres foundation is raft resting an medium soil. Assume that 100mm thick lining is supported by the stack throughout the neck. 14

7. A silo with internal diameter 6m, height of cylindrical portion 18m and control opening with 0.5m is to built to store wheat. Design the silo using M20 grade concrete and Fe 415 steel given. 14

   i) Unit weight of wheat = $8.5kN/m^3$

   ii) Angle of internal friction=28°

8. The effective span of deck plate girder two lane highway bridge is 30m. The reinforced concrete slab is 250mm thick inclusive the wearing coat. The foot path are provided on either side of carriage way. Design the maximum section of plate girder, if the girder is to carry IRC class A loading. 14

******

209