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Total No. of Questions : 5

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EK-347

B.E. (VIIIth Sem.) (CGPA) Civil Engg. Exam.-2016

ADVANCED STRUCTURAL DESIGN-II (STEEL)

Paper - CE-802

Time Allowed : Three Hours

Maximum Marks : 60

Note : Attempt all questions.

Assume suitable data if found mssing.

Use of relevent code in permitted.

Q.I Design a deck type plate girder railway bridge for single track B.G. loading for given data— 12

Effective span = 24m

Spacing of plate girder = 1.9 m c/c

Weight of stock rails = 260 N/m

Weight of guard rails = 275 N/m

Weight of fastening etc. = 290N/m of track

Timber sleepers = 250 mm x 150 mm x 2.8 m @ 0.4m c/c

Density of timber = 7350 N/m^3

Take permissible stresses as per railway steel bridge code.

or

Discuss the following— 12

(a) Welded plate girder bridge

(b) Overturning effect on the glrder

(c) Half through plate girder bridge for railways.

Q.II Write notes on the following— 12

(a) Truss girder bridge for railways

(b) Roller bearing

(c) Rocker bearing

or

An open web girder bridge consist of two pratt trusses 8 panels @ 4m c/c = 32m. The bridge supports an equivalent U.D. live load of 180 KN/m run. The D.L. transmitted to each truss inclusive of self wt. is 16 KN/m. Design any top chord member of truss. Assume the impact factor to be 12%.

Q.III Design a rectangular tank of capacity 110KL of water. Plates of 1.25 m width and 8.5 m length are available. Design water plates and Tee covers. 12

or

Contd. .....

Write down in detail the design steps of pressed steel water tank.

Q.IV Design a self supporting steel stack for Jabalpur of height 75 m above the foundation with diameter of cylindrical part as 4.5m. Foundation in raft resting on medium soil. Assume suitable data. 12

or

Discuss the following—

(a) Recommendations for height of stack

(b) Chimney lining

(c) Calculation of stresses due to earth quake

Q.V Write short notes on the following—

(a) Difference between silos and bunkers

(b) Airy's and Janssen's theory

or

Design a coal banker to hold 40 MT of coal. Unit weight of coal is 12.5 KN/m^3 and angle of internal friction is 30°. Design vertical walls.
