No. of Printed Pages : **2 + Drawing Sheet** | **BICEE-009**

00580

B.TECH. CIVIL ENGINEERING (BTCLEVI)

Term-End Examination

June, 2013

BICEE-009 : ADVANCED STEEL DESIGN

Time : 3 hours *Maximum Marks : 70*

Note : *Answer **any four** questions. Assume any missing data suitably. Use of scientific **calculator** and **BIS** codes are **allowed**.*

1. Design a welded plate girder of 24 m in effective span and simply supported at the two ends. It carries a uniformly distributed load of 100 KN/m. **17.5**

2. Design a gantry girder to be used in an industrial building carrying an electric overhead travelling crane, for the following data : **17.5**

Crane Capacity = 200 KN,

Self weight of the trolley, electric motor hook etc = 200 KN

Approximate minimum approach of the crane hook to the gantry girder = 1.2 m

Wheel base = 3.5 m

c/c distance between gantry rails = 16 m

c/c distance between columns = 8 m

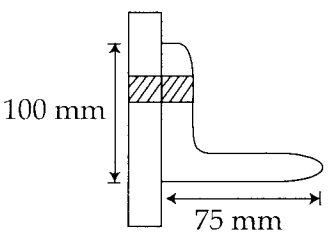
Self weight of rail sections = 300 N/m

Yield stress of steel = 250 N/mm^2

3. Design a rectangular tank of capacity 1,10,000 litres of water supported over a 12m high staging. Columns are supported over concrete pedstral of M_{15} concrete. The bearing capacity of soil is 100 KN/m^2. Design wind pressure may be assumed to be 1.05 KN/m^2 plates of 1.25 width and 8.75 m lengths are available. **17.5**

4. Write design principle of guyed chimeny with an example assuming suitable data. **17.5**

5. Determine the tensile strength of a roof truss diagonal $100 \times 75 \times 10mm$ ($f_g = 250N/mm^2$) connected to the gusset shown in the figure below : **17.5**



6. Write short notes on :

   (a) Buckling of light gauge section **7.5**

   (b) Design steps of compression member **10**