

Exam.Code:0949
Sub. Code: 7123

1078
B.E. (Civil Engineering)
Seventh Semester
CIV-701: Steel Structure Design – II

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. 1 which is compulsory and selecting two questions from each Unit. IS-806, IS 800, Tata Structura and Steel are allowed. Assume suitable data, if found missing.

x-x-x

I. Explain the following terms:-

- a) Purlin
- b) Rockers.
- c) Rafter,
- d) Equivalent UDL.
- e) Joist
- f) Column Bracket
- g) Stringers,
- h) Bracings
- i) Column bent
- j) N-type truss

(10x1)

UNIT – I

- II. Write down the different classifications of the hollow sections. Also draw a neat sketch of the recommendations for the joining of the hollow sections. (10)
- III. Design a truss hollow circular member to resist a compressive force of 250kN acting axially. The member has welded joints at the edges. The length of the strut is 4.5m and it is expected that there is stress reversal due to earthquake possible in the member. (10)
- IV. Suggest a section for a gantry girder to be used in an industrial building to carrying an electric overhead travelling crane of capacity 150 kN. The Self-weight of the crane girder excluding crane girder is 150 kN, Self weight of the crab with hook is 50 kN Minimum Approach of the crane hook to gantry girder is 1.4m. The wheel base is 3.6m apart. The C/C span of crab-bridge is 25m. The C/C distance between columns supporting gantry girder is 10m. (10)

P.T.O.

UNIT - II

- V. Suggest a truss pattern for an open web girder bridge for a span of 25m c/c of bearings. The bridge supports an equivalent uniformly distributed live load of 250 kN/m run. The dead load of the trusses may be assumed as 20% of the live load for the initial analysis. Assume the impact factor of 12% for the movement of the carriage wagons. Also tabularise the design forces for the members of the trusses (10)
- VI. Design the cross-girder for a bridge with loading as mentioned in question 5. The width of the bridge is 3mt and the spacing of the cross-girder is 5m c/c. (10)
- VII. In a through type girder bridge, the effective span of the bridge is 6m. Each girder supports a live load inclusive of impact of 150 kN/m run in addition to its own weight. The dead load of the bridge is 100 kN/m. Design the main-span section of the bridge. (10)

x-x-x