

Seat No. : _____

N10-104

November-2014

Third Year, B.Arch./ ID / BCT, (Sem. – V)

Structure – V (AR – 503)

(New Syllabus)

Time : 2 Hours]

[Max. Marks : 50

- Instructions :** (1) Use of IS800-2007 and Steel table are allowed.
(2) Assume suitable data if necessary.

1. Attempt any **five** : **10**
- (A) Enlist reasons, why we consider factor of safety.
- (B) Draw neat sketch of castelatted beam.
- (C) Draw neat sketch of Plate girder and show its components.
- (D) Write advantages and disadvantages of welded connection.
- (E) Enlist advantages and disadvantages of steel as a structural material.
- (F) Draw neat sketch of Gantry girder.
2. (A) Explain pitch, gauge and edge distance in riveted connection. **3**
- (B) Design a steel column, 4.0 M long section to carry working load of 650 kN, which is effectively held in position at both ends, but restrained against-rotation at one end only, consider, $F_y = 250 \text{ N/mm}^2$. **7**
3. (A) What is ISMB, ISMC, ISJB, ISA, ISLC, ISWB ? **3**
- (B) Define compound column and describe lacing and battening with sketch and its design specifications. **4**
- (C) Write short note on Pile foundation. **3**

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P.T.O.

4. (A) A Conference room of inside clear dimension $5.25 \text{ m} \times 24 \text{ m}$ having 350 mm , Thick masonry wall all around and Five steel beams to support 125 mm , thick R.C.C. slab. Design a steel beam, if Floor finish load = 0.80 kN/m^2 , Super imposed load = 5.00 kN/m^2 and $E = 2 \times 10^5 \text{ N/mm}^2$. **7**
- (B) Classify section ISHB300 @ 588 N/m . used as column, Consider design strength $f_y = 410 \text{ mpa}$. **3**
5. (A) Design a laterally supported steel beam of effective span 4.75 m . loaded with UDL of 70 kN/m . including self weight of steel beam. **4**
- (B) Write short note on Virendell truss. **3**
- (C) Enlist points to be consider by a Steel Designer. **3**
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