S. B. Roll. No.....

**STEEL STRUCTURE DESIGN**
**6th Exam/Civil/8510/Nov'24**
**(For 2018 Batch Onwards)**

**Duration: 3Hrs.** **M.Marks:75**

**Note: Use of Calculator/Scientific Calculators /IS: 800 and steel tables are permitted in the examination.**

**SECTION-A**

**Q1. Do as directed.** **15x1=15**

a. ISMB 300 stands for_____.
b. What is Elastic limit?
c. What is Bolt?
d. Why washer is provider under the bolt?
e. What is Lap joint?
f. What is Tension member?
g. The additional rivet calculated for packing is provided in _____ of packing.
h. The member in a roof truss subjected to axial compression is called _____.
i. Strut is a member in tension. (True/False)
j. What is Pitch?
k. Long column fails due to buckling. (True/False)
l. A column is vertical structural member subjected to _____ forces.
m. What is Beam?
n. Web crippling is also known as _____.
o. What is Fabrication?

**SECTION-B**

**Q2. Attempt any six questions.** **6×5=30**

i. Write the various failures of bolted joints.
ii. What are the merits of welded joints over riveted joints?
iii. Why the stress distribution is non-uniform in eccentric loaded tension member?
iv. Give IS: 800 specifications for tracking rivets, to be used in compression member.
v. What is a purlin and what is its purpose in roof truss?
vi. Why is it important to provide column base in structures?
vii. Why bearing plates should be sufficiently thick when placed under beams?
viii. What is the purpose of track rivets in steel structures?
ix. Enlist the important consideration in fabrication and erection of steel structures.

**SECTION-C**

**Q3. Attempt any three questions.** **3x10=30**

a. Design a Double angle tension member of 2m length with riveted end connections to carry an axial tensile load of 200kN.
b. Design a suitable double angle discontinuous section for a strut of a roof truss carrying an axial compressive load of 150 KN. The length of the member between centre to centre of inner section is 2.4m. Also design its rivetted end connections.
c. i) Explain different types of column bases. ii) What is a seated connection? Explain with neat sketch.
d. Calculate the moment of resistance of a rolled steel beam ISLB 500 @ 735.7 N/m. Assume the permissible bending stress as 165 Mpa.
e. (i) Explain different types of bolts. ii) Explain different types of bolted joints with neat sketch.