

**Total No. of Questions : 09**

**B.Tech (Civil) (Sem.-8)**  
**DESIGN OF STEEL STRUCTURE-II**  
**Subject Code : CE-408**  
**Paper ID : [A0627]**

**Time : 3 Hrs.**

**Max. Marks : 60**

**INSTRUCTIONS TO CANDIDATES :**

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

## SECTION-A

- 1. Answer briefly :**
- a) List out the important properties of such steel.
  - b) How the built-in steel beams are classified?
  - c) How the flange area of a plate girder is designed?
  - d) Define permissible stresses and Working stresses.
  - e) What is un-stiffened seat connection?
  - f) Explain about Longitudinal bracing.
  - g) What is mill bent, explain with neat sketch?
  - h) What is stringer?
  - i) Explain the main function of bearings.
  - j) What is the difference between stringer and cross girder?

**SECTION-B**

- Q2. What are advantages and disadvantages of steel structures?
- Q3. Enlist the riveted and welded connections with neat sketches.
- Q4. Design a suitable bearing for a plate girder railway bridge of span 3.4m centre to centre of bearings. The bridge is designed for Broad gauge single track main line.
- Q5. Explain the design procedure of Main girder for an industrial building.
- Q6. Design the timber planks for railway foot-bridge for following particulars.

Type of girder-	N-type
Span of girder-	18meters
Spacing of cross-girder-	2.25 meters
Clear walking width of main girders-	3 meters
Live load-	5KN/m <sup>2</sup>

**SECTION-C**

- Q7. Design a Welded plate girder 18 m. in effective span and simply supported at the two ends. It carries a uniformly distributed load of 150KN/m.
- Q8. Design a gantry girder to be used in an industrial building carrying an EOT crane for the following data :
- Crane capacity = 300 KN.
- Total self weight of all components = 280 KN.
- Minimum approach at the crane hook of gantry girder = 1.1m
- Wheel base = 3.5m
- C/C distance between gantry rails = 17.5m
- C/C distance between columns = 8m
- Self weight of rail section = 330 N/m
- Yield stress = 250 N/mm<sup>2</sup>
- Design the main gantry section. Connection design not required.
- Q9. Write short notes on (**any two**) :
- a) Mill Bent
  - b) Roller bearings
  - c) Lateral Bracing