Seat No: _____ Enrollment No: _____

PARUL UNIVERSITY

FACULTY OF ENGINEERING & TECHNOLOGY

M.Tech. Summer 2018 - 19 Examination

Semester: 2 **Date: 10/05/2019**
Subject Code: 203209180 **Time: 10:30am to 1:00pm**
Subject Name: Advanced Steel Design **Total Marks: 60**

Instructions:
1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1 A) Explain Bauschinger Effect with neat sketch. **(05)**
B) Explain Plastic Hinge concept with neat sketch. **(05)**
C) Give reasons to provide beam and column splices. **(05)**

Q.2 **Answer the following questions**. (Attempt any three) (Each five mark) **(15)**
A) Enlist section classification and define all of them.
B) Enlist assumptions made in derivation of K factor from Julian and Lawrence alignment chart.
C) List out Mechanical properties of Steel.
D) Enlist type of structural stability and explain in detail general stability.

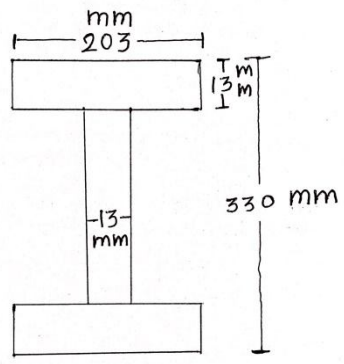
Q.3 A) Enlist other serviceability limits and explain each in detail. **(07)**
B) Explain in detail column splices with sketch. **(08)**

OR

B) Write a note on residual stresses. **(08)**

Q.4 A) Determine following for given doubly beam with neat sketch for every stage. σ_y = 415 N/mm^2, ϵ_y = 0.002, I_{xx} = 160 x 10^6 mm^4. **(07)**

- Maximum Elastic Moment
- Fully Plastic Moment
- Shape factor



OR

A) As per data given in above example (i.e. Q.4 (A)). Determine following **(07)**
- Partially plastic moment, if ϵ_{max} = 0.00325

B) Explain in detail about short and slender compression member with neat sketch. **(08)**