PRESIDENCY UNIVERSITY
BENGALURU

SCHOOL OF ENGINEERING

MAKEUP EXAMINATION –JAN 2023

Course Code: CIV213

Course Name: Design of Structural Steel Elements

Program   : B.Tech

Date: 28-JAN-2023

Time: 09:30AM to 12:30PM

Max Marks: 100

Weightage:50%

Instructions:

(i) Read the all questions carefully and answer accordingly.
(ii) Use of IS800: 2007 and Steel Tables are permitted

Part A [Memory Recall Questions]

Answer all the Questions. Each question carries FIVE marks.   (4Qx 5M= 20 M)

1. Write short notes on various modes of failures in compression members.

(C.O.No.3) [Knowledge]

2. Classify the different types of column based on length and structural behaviour.

C.O.No.3) [Knowledge]

3. With neat sketch, discuss the web crippling and web buckling failure modes in beam section.   C.O.No.4) [Knowledge]

4. Discuss briefly the four classes of beam section based on moment capacity of the section.

C.O.No.4) [Knowledge]

Part B [Thought Provoking Questions]

Answer all the Questions. Each question carries TWENTY marks.   (2Qx20M=40M)

5. Calculate the design compressive load for a stanchion ISHB350 @ 710.2 N/m, 3.5m high. The column is restrained in direction and position at both ends. Use steel of grade Fe410.

(C.O.No.3) [Comprehension]

6. An ISLB 600 @ 976.1 N/m has been used as simply supported beam over 7.2m span. Determine the safe uniform load that the beam can carry in flexure. Assume Fe410 steel.

(C.O.No.4) [Comprehension]

Part C [Problem Solving Questions]

Answer all the Questions. Each question carries TWENTY marks.   **(2Qx20M=40M)**

7. Design a column to support a factored load of 1050 kN. The column has effective length of 7m with respect to z-axis and 5m with respect to y-axis. Use steel of grade Fe410.

(C.O.No.3) [Application]

8. Design a simply supported beam of span 4m carrying a reinforced concrete floor capable of providing lateral restraint to the top compression flange. The uniformly distributed load is made up of 20 kN/m imposed load and 20 kN/m dead load. Assume Fe410 grade steel.

(C.O.No.3) [Application]