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Reg. No. : .....

Name : .....

# First Semester M.Tech. Degree Examination, February 2015
## (2013 Scheme)
## Branch : Civil Engineering (Structural Engineering)
## CSC 1003 : ADVANCED METAL STRUCTURES

Time : 3 Hours Max. Marks : 60

***Instructions*** : 1) *Answer* ***any two*** *questions from* ***each*** *Module.*

2) ***All*** *questions carry* ***equal*** *marks.*

3) *Assume missing data* ***if*** *any suitably.*

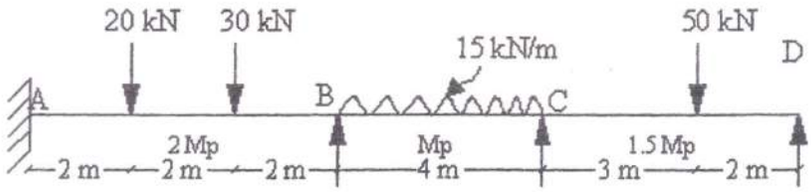
4) *Use of IS 800-2007, IS 801-1975, IS 147-1976, IS 875-1987 and structural steel tables are* ***permitted.***

### Module – I

1. a) Explain the various theorems in plastic analysis.

   b) Write a short note on moment redistribution.

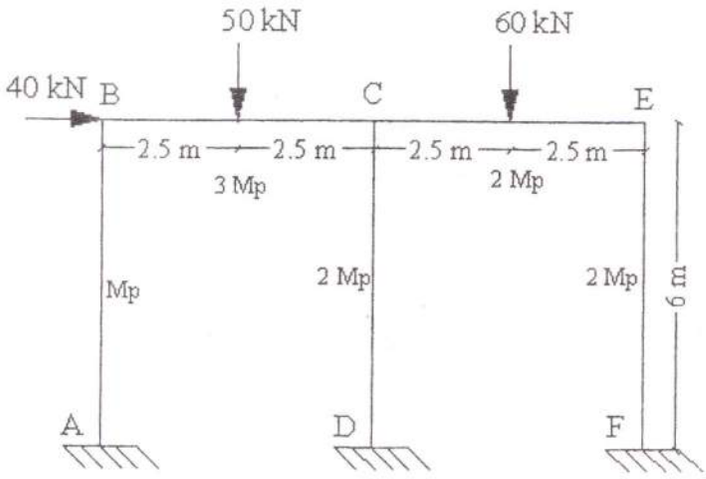
2. A three span continuous beam as shown in fig. Determine the required plastic moment of resistance. Also find the section modulus, if shape factor is 1.5 and fy = 250 N/mm$^2$






P.T.O.

3. Find the required plastic moment for a two bay storey portal frame as shown in fig. Assume the given loads are factored loads.




## Module – II

4. Explain with neat sketches, the various elements of an Industrial building.

5. a) Explain Fabrication and Erection of an Industrial building.

   b) Write a short note on longitudinal bracing.

6. Design a seat angle connection between beam ISMB 250@37.3 kg/m and column ISHB 200@37.3kg/m. The end reaction transmitted by the beam is 85 kN (factored). Use M20 bolts of grade 4.6 and steel of grade Fe 410. Sketch the connection details.

## Module – III

7. a) Write a short note on cold formed steel members with neat sketches.

   b) Explain the term form factor.

8. Explain with neat sketches, the various types of shear connectors.

9. An ISALC 200×80@ 9.28 kg/m is used as a column. Actual length of column is 3.5 m and it is effectively held in position by both ends but it is not restrained. Determine the safe load on the column.