# ASSIGNMENT-3 PLASTIC DESIGN

1. Define Shape Factor, Collapse load and Plastic Hinge.

2. Explain the hinge length and assumptions made in plastic analysis in detail.

3. What are the points at which a plastic hinge is likely to form?

4. A fixed beam of '2L' m in span, is subjected uniformly distributed load of 'W'on left half of beam. Determine the collapse load if beam has uniform cross-section.

5. Compute the collapse load in portal frame shown below ,
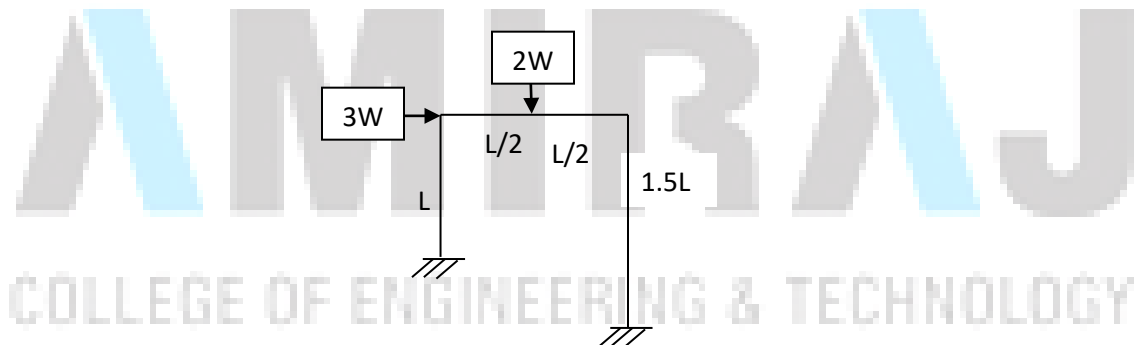
6. Compute the collapse load for the portal frame shown in fig and design the members if factored Wu = 72 kN and fy of steel is 250 MPa.

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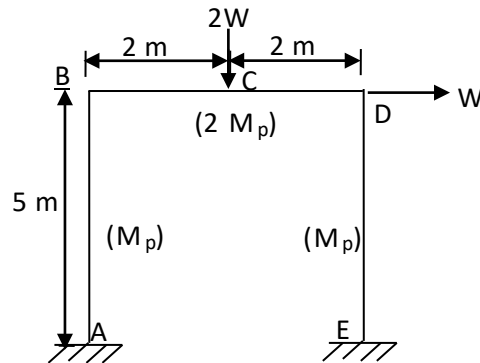
7. Derive the collapse load for fixed beam of length L, subjected to concentrated load W at centre.

8. Derive the collapse load for propped cantilever beam of length L, subjected to concentrated load W at centre.

9. Determine the shape factor for an I-section consists of 8 mm thick web and 12 mm thick flanges. The depth of web excluding flanges is 300mm. the width of flanges is 120 mm.

10. Determine plastic moment capacity for continuous beam as shown in fig. Take load factor = 1.5 .