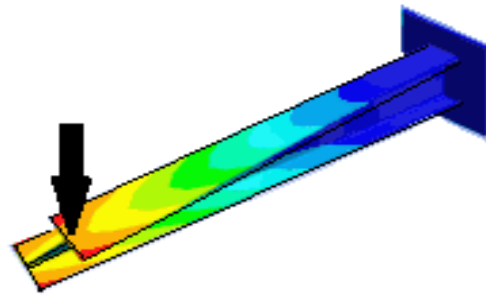


Part 1 (35 Points, 30 Minutes)

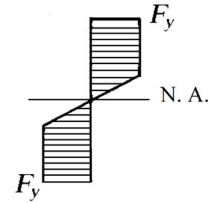
Question 1

Explain what happened to the cantilever beam.



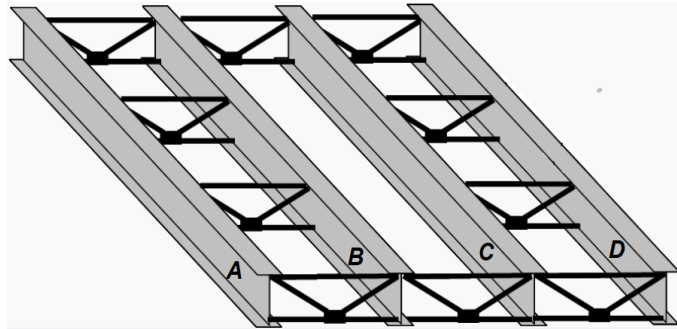
Question 2

How do you describe beam mode of failure if it only reached the shown distribution of stress



Question 3

- a) Explain the role of the truss-like elements shown between the beams in the image below.
- b) Explain why such elements are missing between beams **B** and **C**.



Question 4

List potential measures that may be utilized to improve the strength of the steel beams, to avoid replacing them.



Question 5

The built-up cross section of a beam consists of two C10 x 30 shapes and two 12 inch-wide plates, which are 5/8-inch thick.

Determine the plastic moment (M_p) capacity of the beam.

