M15 Concept Question 1

The concept of structural integrity concerns the following "properties" of a structure:

- 1. stiffness, failure, longevity
- 2. cost, stiffness, failure
- 3. safety, cost, failure
- 4. failure, longevity, cost,
- 5. longevity, stiffness, safety
- 6. Some other answer
- 7. Do not know/do not understand

A metal cylinder is loaded by uniaxial tension past its yield point and deforms plastically. The stress-strain curve is plotted (see graph on board). The work done to deform the material is given by:

1. The area under the stress-strain curve

2. The area under the stress strain curve multiplied by the volume of the cylinder

3. The stress times the strain times the length of the cylinder

4. The strain times the stress times the cross-sectional area of the bar

5. The maximum stress times the area times the strain times the length of the bar

6. Some other answer

7. Do not know/do not understand