

**DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE**

**Mid Semester Examination – Oct 2019**

**Course : B. Tech in MECHANICAL ENGINEERING**

**Semester : IV**

**Subject Name: Strength of Material (SOM)**

**Subject Code: BT-MEC 403**

**Max Marks: 20    Date: 13<sup>th</sup> March 2019    Time: 3 pm to 4 pm    Duration: 1 Hour**

**Instructions to the Students:**

1. Assume suitable data wherever necessary and State it clearly.

2. Figures to Right Indicate full Marks.

**QUESTIONS**

**Q.1 Attempt following Questions (6 Marks)**

1. Define Stress

2. Define Poisson's ratio

3. Define Longitudinal Strain

4. Define Core of section

5. Define Proof resilience

6. Define Principal strain

**Q.2 Solve Any TWO of the following.**

(A) Explain the Stress Strain Curve for brittle material

(B) A steel rod 40mm in diameter is 2.5 m long . Find the maximum stress induced when pull of 80 kN is applied i) gradually ii) suddenly also find instantaneous elongation. Take  $E=200$  Gpa Comment on result.

(C) Compute normal and she stress on failure plane if vertical and horizontal normal stress acting on block are 60MPa (tension) and 30 MPa (comp) and she stress 20 MPa.

**Q.3 Solve ANY ONE of the following.**

(A) State and derive relation between shear force and bending moment

(B)



Draw SFD and BMD for the beam as shown in fig. and indicate all the significant values at respective points on the beam.

**Best Luck**