## DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Mid Semester Examination – Oct 2018

Course: B. Tech in CIVIL ENGINEERING Semster: III

Subject Name: Mechanics of Solid (SOM) **Subject Code: CV302** 

Date: 9th October 2018 Time: 3 pm to 4 pm **Duration: 1 Hour** Max Marks: 20

**Instructions to the Students:** 

- 1. Assume suitable data wherever necessary and State it clearly.
- 2. Figures to Right Indicate full Marks.
- 3. L indicates Low Level, M indicates Medium Level & H indicates High Level.

## Marks **QUESTIONS**

6

6

Marks

6

8

Aburation: 1 Hour

# Q.1 Attempt following Questions (6 Marks)

- 1. Define Strain
- 2. Define Poissons ratio
- 3. Define Longitudinal Stress
- 4. Define Pure Torsion AMBEDKAR TECRNOLOGICAL UNIVERSITY, LONERE
- 5. Define Strain Rosette Mild Semester Examination Oct 2018
- 6. Define Principal Stress 1. ENGINEERING

Q.2 Solve Any TWO of the following over 2018 Time: 3 pm to 4 pm

### une: Mechanics of Solid (SOM) Subject Code: CV362

- Explain the Stress Strain Curve for Mild Steel Bar. (A)
- The pipe of 400 mm internal diameter and 100 mm thickness contains a fluid at pressure of 8 N/mm<sup>2</sup>. Find the Maximum and Minimum Hoops Stress across the Section. Also Sketch the Radial and Pressure Distribution and Hoop stress distribution across the Section.
- In a tensile test, a piece 25 mm in diameter, 200 mm gauge length is stretched 0.0975 mm under a pull of 50 kN. In a Torsion test, the same rod is twisted 0.025 radians over a length of 200 mm, when the torque of 400 Nm was applied. Evaluate the Poissons ratio and three Elastic Moduli for the material.

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#### Solve ANY ONE of the following. 0.3

- (A) Derive the Torsion Formula.
- A steel Plate 15 mm x 30 mm is testd by pulling it with a tensile force of 45 kN, the line of **(B)** action of the load being 35 mm from one edge. An extensometer set along the line of the ŒZ. action of the load shows the extension of 0.055 mm over a gauge length of 125 mm. IAY
- Determine the extreme stresses for the Plate section and the Young's Modulus of Steel. (13)

8 Mount, Find the Maximum and Minimum Hoops Stress across the Section. Also Sketch \*\*\* End \*\*\* rese distribution across the Section. the Radial and Pressure Distribution and Hoop st

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