Roll No.: 1782300044

Total No. of Questions : 10] [Total No. of Printed Pages : 3

EG-290

B.E. III Semester (CGPA) Civil Engg.

Examination 2018

MECHANICS OF MATERIALS

Paper -CE-302

Time Allowed : Three Hours] *[Maximum Marks : 60*

Note : Attempt all questions. All question carry equal marks.

Q.1. Define of following (any three)

i) Principal of stress and strain

ii) Hook's law

iii) Tapering bars

iv) Poisson's ratio

OR

Q.2. At a point, stresses in two mutually perpendicular directions are 8KN/cm^2 compressive and 2 kN/cm^2 compressive along with a shear stress of 2kN/cm^2 Determine magnitude of principal stresses and their directions and maximum shear stress at the point.

Q.3. a) Explain different types of beams with diagram.

b) What do you mean by Bending moment and shear force? Explain in detail.

OR

Q.4. A beam 6m long is simply supported at ends carries U.D.L. of 4kN/m throughout its length. Draw B.M. diagram of the beam using conjugate beam method determine the slope at the ends an d deflection in the centre EI is the flexural Rigidity of the beam EI=10500 kN/m^2

Q.5. Derive the expression for Euler equations buckling load of a column having both ends hinged.

OR

Q.6. What is Rankine's formula for column? Explain its application to long and short columns.

Q.7. a) What are the reason of unsymmetrical bending?

b) Drive Torsional equation.

OR

Q.8. A cylinder of internal diameter 205m and of thickness 5cm contain a gas. If the tensile stress in the material is not exceed 80N/mm^2 determine the internal pressure of the gas.

Q.9. a) What are the behaviour of material under tension? Explain in detail.

b) What do you mean by "Shear and torsion"? Explain in detail.

OR

Q.10. Explain in these terms (Explain in detail)

i) Bending moment

ii) Fatigue testing

iii) Impact and Hardness

iv) Compression

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