



SES's SARASWATI INSTITUTE OF TECHNOLOGY

**Mechanical Department
Assignment No. 01**

Sub:Strength Of Material
Class: SYME- Div: A

Sub Code: 17304
Year: 2017-18

- 1. Define elasticity and plasticity.**
- 2. State the relationship between Young's Modulus, Modulus of Rigidity and Bulk Modulus**
- 3. A bar 500mlong and 22 mm in diameter is elongated by 1.2 mm under the effect of axil pull of 105 kN. Calculated the intensities of stress, strain and the modulus of elasticity of the bar**
- 4. A metal rod 24 mm diameter and 2 meter long is subjected to an axial pull of 40 kN. If the elongation of the rod is 0.5mm, find the stress induced and the value of Young's modulus.**
- 5. What is meant by modular ratio?**
- 6. State any four assumptions made in Euler's theory.**
- 7. Define lateral strain.**
- 8. State Rankine's formula for column giving meaning of each term used in it.**



**Mechanical Department
Assignment No. 02**

Sub: Strength Of Material
Class: SYME- Div: A

Sub Code: 17304
Year: 2017-18

- 1. A simply supported beam of span 5 m carries two point loads of 5 kN and 7 kN at 1.5 m and 3.5 m from the left hand support respectively. Draw shear force and bending moment diagram**
- 2. A simply supported beam of span 9.75m is carrying full span u.d.l. of 10 kN/m. What is the magnitude and position of maximum bending moment developed?**
- 3. Define shear force and bending moment.**
- 4. Define point of contraflexure with a neat sketch.**
- 5. A cantilever beam of length 10m carries two points load of magnitude 20kN and 30 kN at 4m and free end respectively.**
- 6. Draw the S.F.D and B.M.D.**



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Mechanical Department Assignment No. 03

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- 1 Define moment of inertia & radius of gyration also state the unit for both.**
- 2 Find the MI of and right angle triangle having base 95 mm and height 125mm**
 - i. about the base of triangle**
 - ii. about the centroidal axis of triangle**
 - iii. about the apex of triangle**
- 3. State Parallel axis theorem with diagram and formula.**
- 4. State Perpendicular axis theorem with diagram and formula.**
- 5. Find the moment of inertia of a square of side 'a' about its outer edge.**



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**Mechanical Department
Assignment No. 04**

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Year: 2017-18

- 1. Define moment of inertia.**
- 2. Write short- note on centre of graving**
- 3. Define radius of gyration, state 51 un.**
- 4. State parallel axis theorem.**
- 5. State perpendicular axis theorem.**
- 6. Write equation of MI-**
- 7. Circle, Hollow Circle,Rectangle,Triangle,Semicircle.**



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**Mechanical Department
Assignment No. 05**

Sub:Strength Of Material
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Year: 2017-18

- 1. State any four assumptions made in the theory of simple bending.**
- 2. Assumptions**
- 3. Short note on Center of Gravity**
- 4. Define Radius of Gyration and state the SI unit**
- 5. State the bending equation and define moment of resistance**
- 6. What is meant by neutral axis**
- 7. Explain the flexure formula and explain the each term**
- 8. Draw the shear stress distribution diagram of rectangular section also state the relationship between the maximum and average shear.**



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**Mechanical Department
Assignment No. 06**

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- 1. Draw the core section for circular column of diameter 'd'**
- 2. Draw the core section for Rectangular section**
- 3. Define Axial Load**
- 4. Define direct load with formula**
- 5. State the Middle third rule.**



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**Mechanical Department
Assignment No. 07**

Sub:Strength Of Material
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Sub Code: 17304
Year: 2017-18

- 1. State any four assumptions made in the theory of pure torsion.**
- 2. Compare solid shaft and hollow shaft.**
- 3. Difference between pure bending and ordinary bending**
- 4. Write the equation of torque transmitted by the O.C. shaft giving meaning and unit of each term.**
- 5. A hollow shaft is required to transmit a torque of 36kN-m.
The inside diameter is 0.6 times the external diameter. Calculate both diameters,
if the allowable shear stress is 80 MPa.**