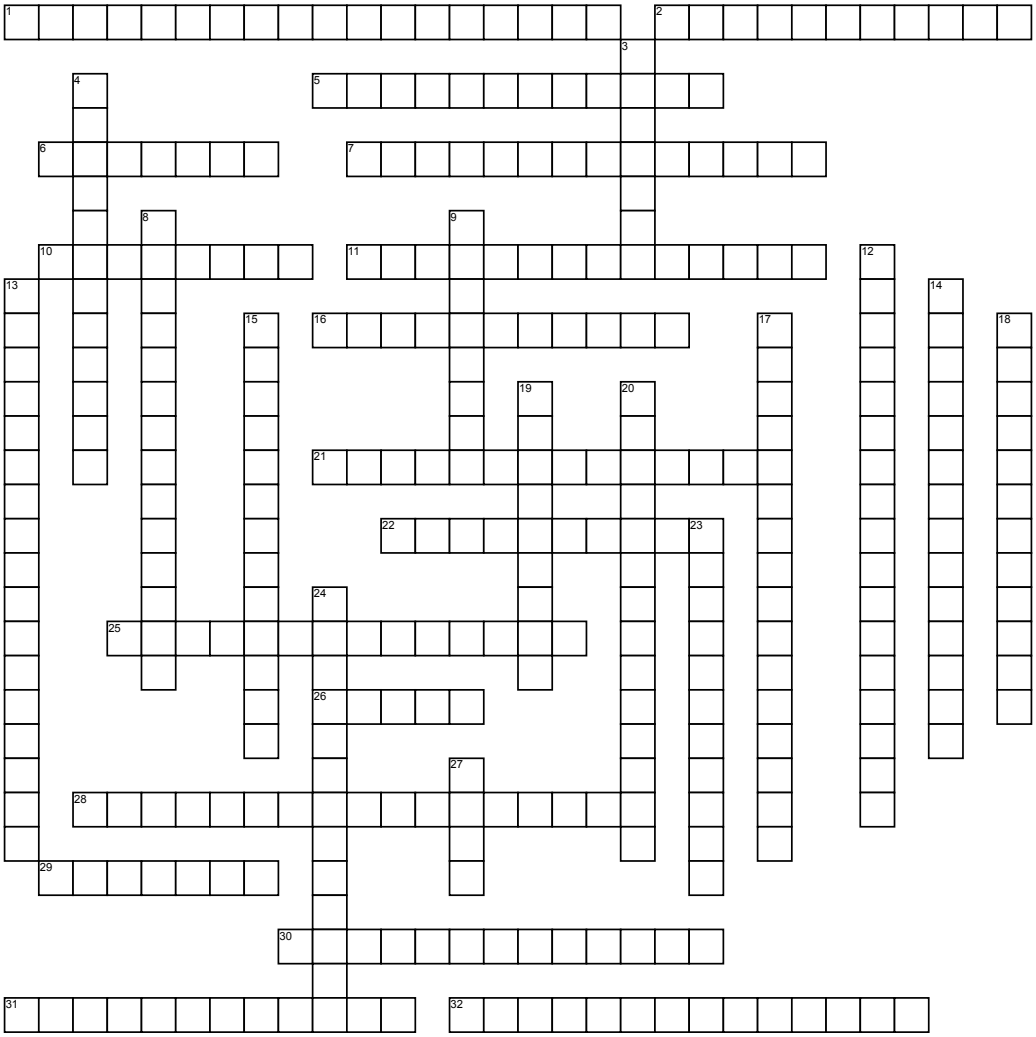
Name: _____ Date: _____

Mechanics of Materials CIVL 304



Across

1. Slope of a stress vs strain curve

2. The stress at the outer fibers of the beam would be zero, and the maximum value would occur at the N.A.

5. Is generally expressed as the ratio of total displacement to the original length.

6. Materials that exhibit little to no yielding before failure are known as

7. Shear stress that is caused by a torque

10. The point in which a material has reached its maximum stress is known as

11. The distribution of this stress on the cross-section of the beam represents a parabolic curve where the maximum value occurs at the z-axis of the beam

16. The transformation equations for plane stress can be represented in graphical form by a plot

21. A shaft's cross-sectional area about the shaft's longitudinal axis

22. Refers to the movement of a beam or node from its original position due to the forces and loads being applied to the member

25. Can be calculated by C+R

26. the amount of force per unit of cross-sectional area

28. (Q) simply measures the distribution of a beam sections's area relative to an axis

29. material that can be subjected to large strains before it fractures is

30. Lateral strain to longitudinal strain

31. the angle through which fixed end of a shaft rotates with respect to the free end

32. method of specifying the allowable load for a member is to use a

Down

3. The point where the material will rupture

4. a stress that occurs when a member is loaded by an axial force, also known as the force divided by the cross sectional area

8. Can be calcuated by C-R

9. the point at which the shear would be the highest, this lies along the NA

12. an angle between the major principal stress and the x-axis

13. equal to the ratio of the tangential force per unit area to the resulting angular deformationSymbol: G

14. used to calculate the yield stress of a material on a stress vs strain curve

15. The stress at these points on a beam are at a maximum on the outer portion of the beam

17. This varies linearly from zero at the neutral axis to a maximum at the outer fibers.

18. Is an analytical tool used in conjunction with structural analysis to help perform structural designs by determining the value of shear force.

19. Stress is equal to the M.O.E times the Strain

20. is an analytical tool used in conjunction with structural analysis to help perform structural designs by determining the value of the bending moment

23. The z axis that lies along the neutral surface

24. is a property of shape that is used to predict deflection, bending and stress in beams

27. stress that is represented by the forces inside the cylinder acting towards the circumference perpendicular to the length of the pipe.

Word Bank

Deflection	Bending Diagram	Polar Moment of I	Normal stress	Torsional shear
Bending stress	Brittle	Factor of Safety	Shear stress @ N.A.	Max Shear
Failure	Modulus of Elasticty	modulus of rigidity	Hooke's Law	Poisson's Ratio
Neutral Axis	Normal Strain	Angle of major P (Op)	Shear Diagram	Angle of twist
Hoop	Area Moment of I	Mohr's Circle	Ultimate	Minor Principal
Major Principal	Axial	Bending Stress @ NA	2% offset method	Shear Stress
Ductile	First Moment of Area			