Unit D - Mechanical Systems
Review for Unit Test

You need to know how to solve the concepts below using formulas given. (review question sheets and textbook) You also need to know the units used for the formulas and answers below.

-Mechanical advantage
-Speed Ratio
-Efficiency
-Work (distance always in m)
-Pressure
-Output force on pistons

Define:

Subsystem-
Input force-
Speed Ratio-
Work-
Complex machine-
Mechanical Advantage-
Output force-
Function-
Design-

Understand:

Explain the 3 classes of levers and give examples of them
Describe a Lever
Describe a Pulley
Describe a Wheel and axle
Describe a Screw
Describe a Wedge
Describe an Inclined plane
Explain the 3 factors that can influence the development of a new mechanical device.
List some questions you would ask if you were evaluating a mechanical device.
Is there any difference between efficiency and effectiveness? (example)
Come up with an explanation of design and function as they relate to any device
Sketch a bike and label the subsystems within it

Unit D Calculation Review

1. You put 10 newtons of force on the handle of a can crusher. The crusher outputs 40 N of pressure on the can. What is the mechanical advantage?

2. The can crusher requires an input distance of 4 m to move 0.5 m. Find the Speed Ratio

3. Calculate the efficiency of the can crusher

4. 80 N of force is required to move the can crusher 4 meters Calculate the Work done on the crusher.

5. A force of 350N is applied to the input piston of this a ram. The piston has an area of .15m^2. How much pressure created?

6. A thin pipe full of water connects two pistons. The first piston has a surface area of 20cm^2. The second piston has a surface area of 15cm^2. A force of 300N is applied to the first piston