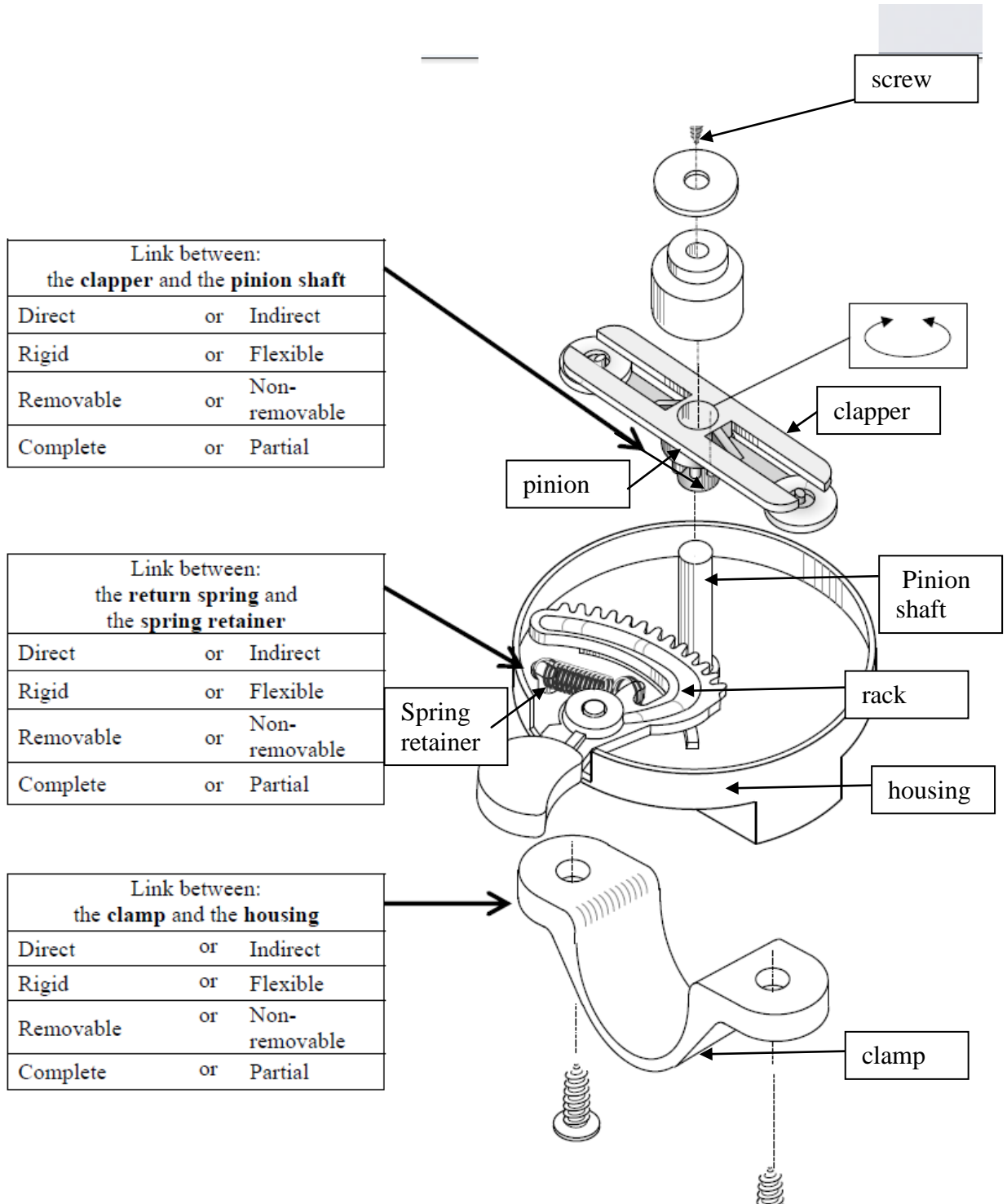


ST
Pretest 3.3

1. (a) First clearly identify the 3 links. (b) Then in the tables below, choose the right characteristic for each link. This is an exploded view bicycle bell.



2. a) In the rack and pinion, what transformation of motion is involved?



- b) Although this system is often used in steering, how could you use this system to lift a weight? Hint: you would need to add a part that would support a weight.

- c) Where would you add the lubricant?

3. a) In this screw-gear system, which part is in a fixed position?

- b) Why is it practical to have the other part moving?



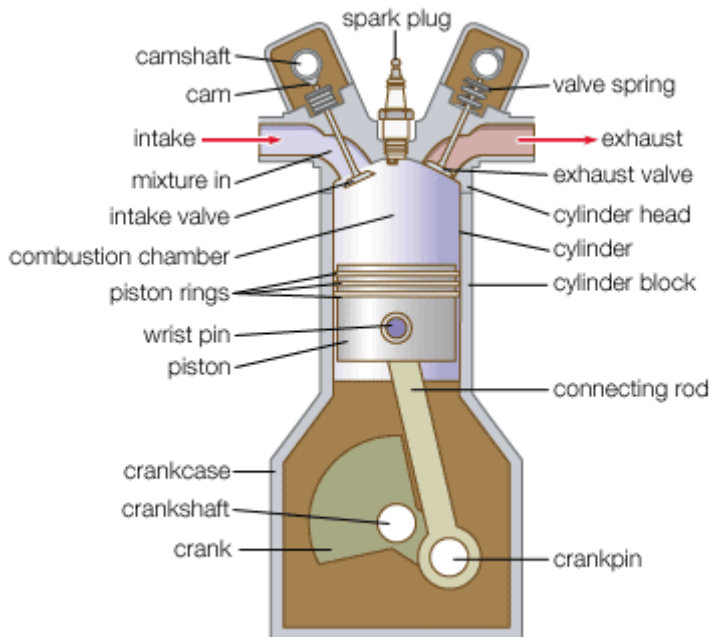
4. a) In the slider-crank system, what part of the engine is moving up and down?

See diagram

- b) What's powering the up and down motion?

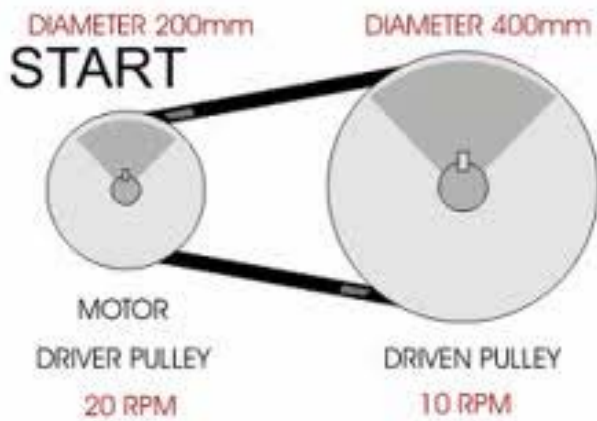
- c) What kind of motion is experienced by the crank?

- d) Is the link between the crank and piston direct? Why?



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5. a) If we turn the small gear(11 teeth) so that it make 34 turns, how many turns will the large gear(17 teeth) complete?
 a) How much more turning force (find the mechanical advantage) does the large gear have?
6. a)What makes this system different from a chain-sprocket system? Give two differences



b) Calculate the speed(velocity ratio)of this system.

7. You want the motor to spin a certain gear very quickly, but you want the other gear that's attached to the 1st one to move very slowly.

What kind of gear system will work best?

8. A machine requires no toothed gears, and you don't want any belts either. What kind of gear system can be used?

9. Show two ways of making the same transformation system operate the up and down motion of a toy dog's head or tongue.

For flashback, study these topics. This is from the school board and government's checklist to get you ready for the ST exam.

	Yes	Not Yet
Biodiversity		
I understand and can use the definition of biodiversity of a community as ' <i>the relative abundance of species it comprises</i> '		
I would be able to explain and interpret factors that affect the biodiversity of a given community		
Disturbances		
I understand and can use the definition of a disturbance in a community		
I would be able to explain and interpret how certain factors can disturb the ecological balance of a community (e.g. human activity, natural disasters)		
Trophic Relationships		
I understand and can describe the trophic levels (producers (autotrophs), consumers (heterotrophs), decomposers) in an ecosystem		
I would be able to explain and interpret the relationships between the trophic levels of a food web		