Motion Transmission Systems

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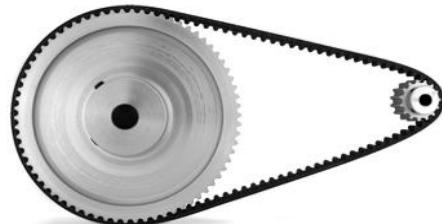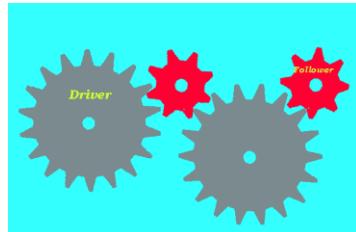
Made up of:

Driver	
Driven	
Intermediate	

Reversibility

_____

_____

Speed change

The speed of the driver or driven will depend on 2 factors:

- _____

- _____

Formula: Speed ratio = # of teeth of driver   or   diameter of driver

                                    # of teeth of driven   diameter of driven

| Small gear to large gear	Large gear to small gear	Same size gears

Ex:
1) If a driver gear has 20 teeth and the driven gear has 10 teeth, what is the speed ratio?


2) If a driver gear with a diameter of 20 cm and the driven gear has a diameter of 40 cm, what is the speed ratio?

Speed change with driver, driven and intermediates

- Must ignore intermediates when determining the speed change.

Type	Explanation	Picture	Rev?
Gear train			
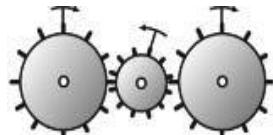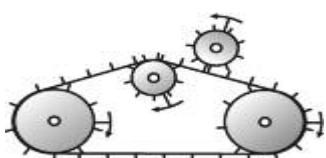
|			
Chain and sprocket		Bikes	
Worm and worm gear		Wine bottle opener	
Friction gear systems		Printers	
Belt and pulley system		Motors	
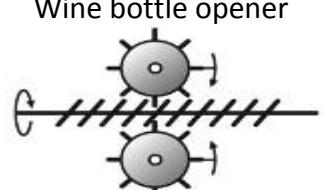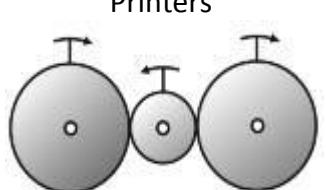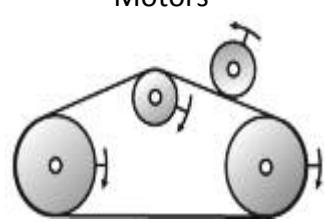
Motion Transformation Systems

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_____
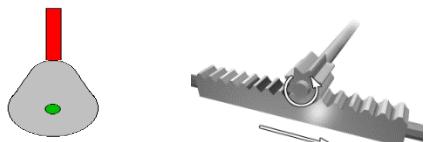
- Has a driver and driven, but no intermediate

Reversibility

_____

_____

Type	Explanation	Picture	Rev?
Rack and pinion			
Screw gear System Type 1			
Screw gear system Type 2			
Cam and follower			
Slider and crank mechanism			
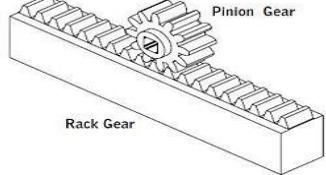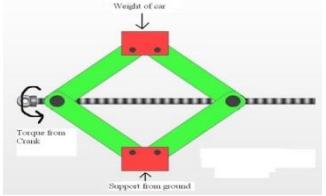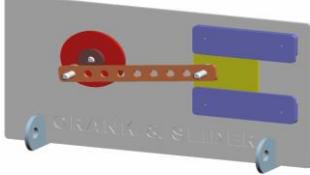
Past exam question

1. The mechanism illustrated below moves a paper flower in and out of a container.
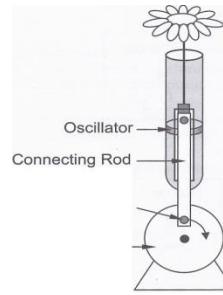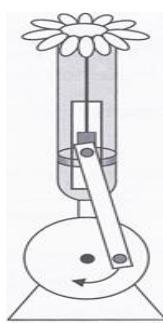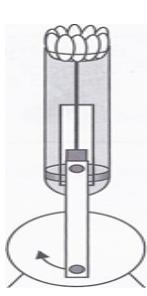
a- Is this a motion transmission or motion transformation mechanism?
b- Is the system reversible?
c- From the list of changes suggested below, choose the combination of **two** changes that should be made to the mechanism so that the flower can come further out of the container.
    Change 1- Increase the diameter of the crank.
    Change 2- Decrease the diameter of the crank.
    Change 3- Move the connecting rod pivot away from the center of the crank.
    Change 4- Move the connecting rod pivot closer to the center of the crank.