Materials
Internet Device, Pencils, Notes/Textbook

Secondary 4 Science and Technology

Automotive Transmission: Mechanical Engineering [Chapter 13]

https://youtu.be/RQWejyx0gi8?t=2m30s

1) a) Which one of the five types of motion transmission systems is used in the transmission system of a car?

b) What are its advantages and disadvantages?

Advantages	Disadvantages

2) a) The gear on the drive shaft*spins freely. What are the characteristics of the link between this gear and the drive shaft?

*The drive shaft is the rotating beam that connects the transmission system to the rear wheels.

Removable/Non-Removable	Direct/Indirect
Partial/Complete	Rigid/Flexible

b) The clutch sleeve* on the drive shaft does not spin freely; when it turns the entire drive shaft turns with it. However, the clutch sleeve can slide along the drive shaft. What are the characteristics of the link between the clutch sleeve and the drive shaft?

*The clutch sleeve is a piece of metal that covers part of the drive shaft. It is the part that is moved when shifting gears

Removable/Non-Removable	Direct/Indirect
Partial/Complete	Rigid/Flexible

3) The example in the video was of a very old transmission system. Modern cars tend to have seven gear positions (including neutral). In the following table fill in the missing information using what is given.

Gear	**Engine (Driver) Gear Size**	**Driven Gear Size**	**Gear Ratio** Driver / Driven	**Driven Direction (same or opposite)**
1st	20 teeth	60 teeth		Same
2nd	20 teeth		0.5	
3rd		30 teeth	0.66	Same
4th	20 teeth		1.0	Same
5th	20 teeth	15 teeth		
Reverse	20 teeth		0.33	

4) a) What are the advantages of having different gear ratios available in an automobile transmission system?

b) What would happen if a vehicle got stuck in 5th gear and couldn't shift down?

c) What would happen if a vehicle was instead stuck in 1st gear?