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Assignment - 2 .

Aim :- Assignment on automobile or vehicle specifications and systems in passenger car .

Q] what is automobile or vehicle?
Explain the classification of vehicles.

Ans .

i] A vehicle or automobile is a machine that transports cargo, or people.
vehicle includes wagons, bicycles, motor vehicles, etc. Land vehicles are broadly classified by what is used to apply steering and drive forces .

Automobiles are classified as following

i] on the basis of load :-

a) Heavy Transport Vehicle (HTV)

b) Light Transport Vehicle (LTV)

c) Light Motor vehicle (LMV)

2] On the basis of wheels.

i) Two wheels, ii) Three wheels

iii) Four wheels iv) Six wheels.

3] On the basis of fuel used:-

i) Petrol ii) Diesel

iii) electric vehicle iv) steam vehicle.

4] On the basis of body :- purpose:-

i) Ambulance ii) Milk van

iii) Fire brigade etc.

5] On the basis of drive:-

i) Front wheel drive ii) Rear wheel drive.

iii) Four wheel drive.



2 Explain the function of vehicle chassis and explain its different types.

Ans.

i) Function of vehicle chassis is to carry load of passenger or goods carried in the body. To support the load of the body, engine, gear box, steering system, propeller or shaft etc. For withstand the forces causes due to sudden braking or acceleration and withstand the load cause due to bad road condition.

Types of vehicle chassis are as follows.

i) Ladder chassis:-

A ladder frame car chassis is a common type of frame used as a base for vehicles, creating a solid base from the shape that the name suggest.

ii) Backbone chassis:-

A substantial central component is necessary for a backbone car chassis

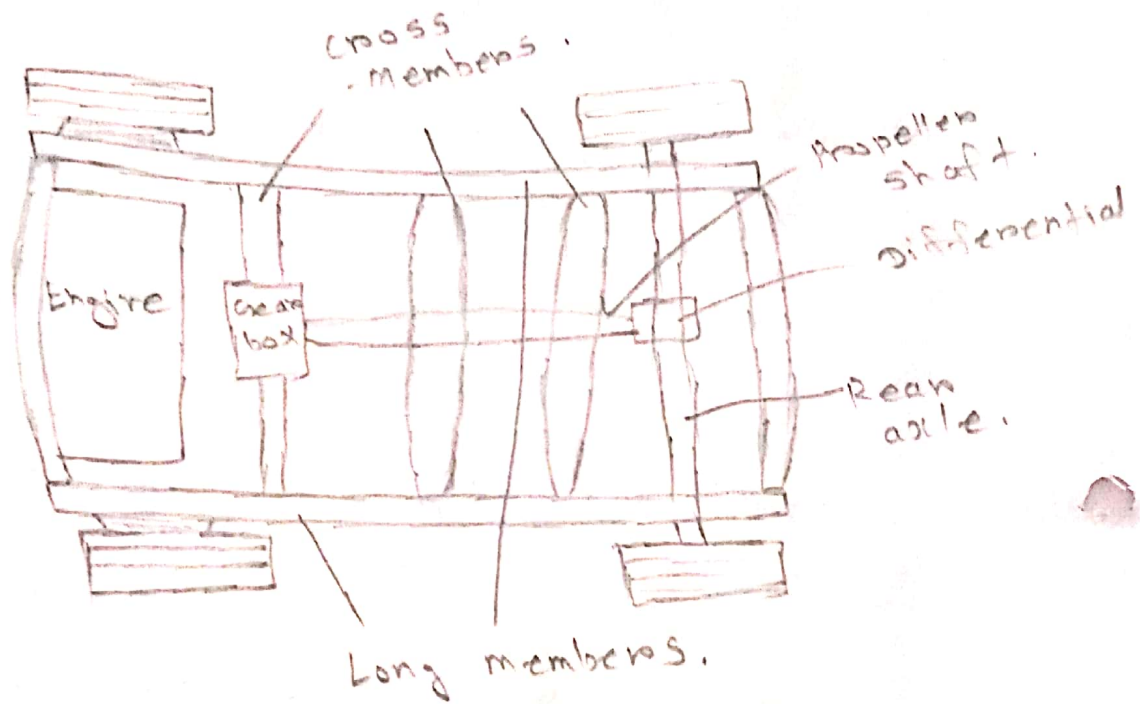


Fig. Ladder type chassis frame layout.



connecting the front and rear of the entire frame.

iii) Monocoque chasis:-

- A monocoque car chasis is one that uses metal that is molded from sheets of the material, which is the same method to build other parts of the frame. This type of chasis is similar to a unibody type.

iv) Space .

- A space chasis can also be known as tubular even though it is not tubular in the true sense. The components are welded together to create a strong frame that comprises some flexibility.

v) Combination chasis:-

- You will often find that a car chasis is not any single types, taking elements from a range of different types to create a version that is best suited to the car frame.

Q.3] Explain the functions of major components of an automobile.

Draw schematic diagram.

Ans. Components :-

i) Chassis and frame :- The chassis is formed by the frame with the frame side members and cross members. The function of chassis and frame is to support the body.

ii) Engine or Power plant :- The engine is the power plant of the vehicle. In general, internal combustion engine with petrol or diesel fuel is used to run a vehicle. An engine may either be a two-stroke engine or a four-stroke engine.

iii) Transmission System (Clutch and gear box).

- The power developed by the engine is transferred to the wheels by transmission system.

iv) Clutch :- The purpose of the clutch is to allow the driver to couple or decouple the engine



and transmission. When gears are to be changed while vehicle is running, the clutch permits temporary decoupling of engine and wheels, so that gears can be shifted.

v) Braking system :- Brakes are used to slow down or stop the vehicle.

vi) Gear Box :- Gear Box contain gearing arrangement to get different speeds.

vii) Steering System :- In front wheels can be turned to left and right by steering system so that the vehicle can be steered.

viii) suspension system :-
- suspension system isolate the body of the vehicle from shocks and vibrations generated due to irregularities on the surface of roads.

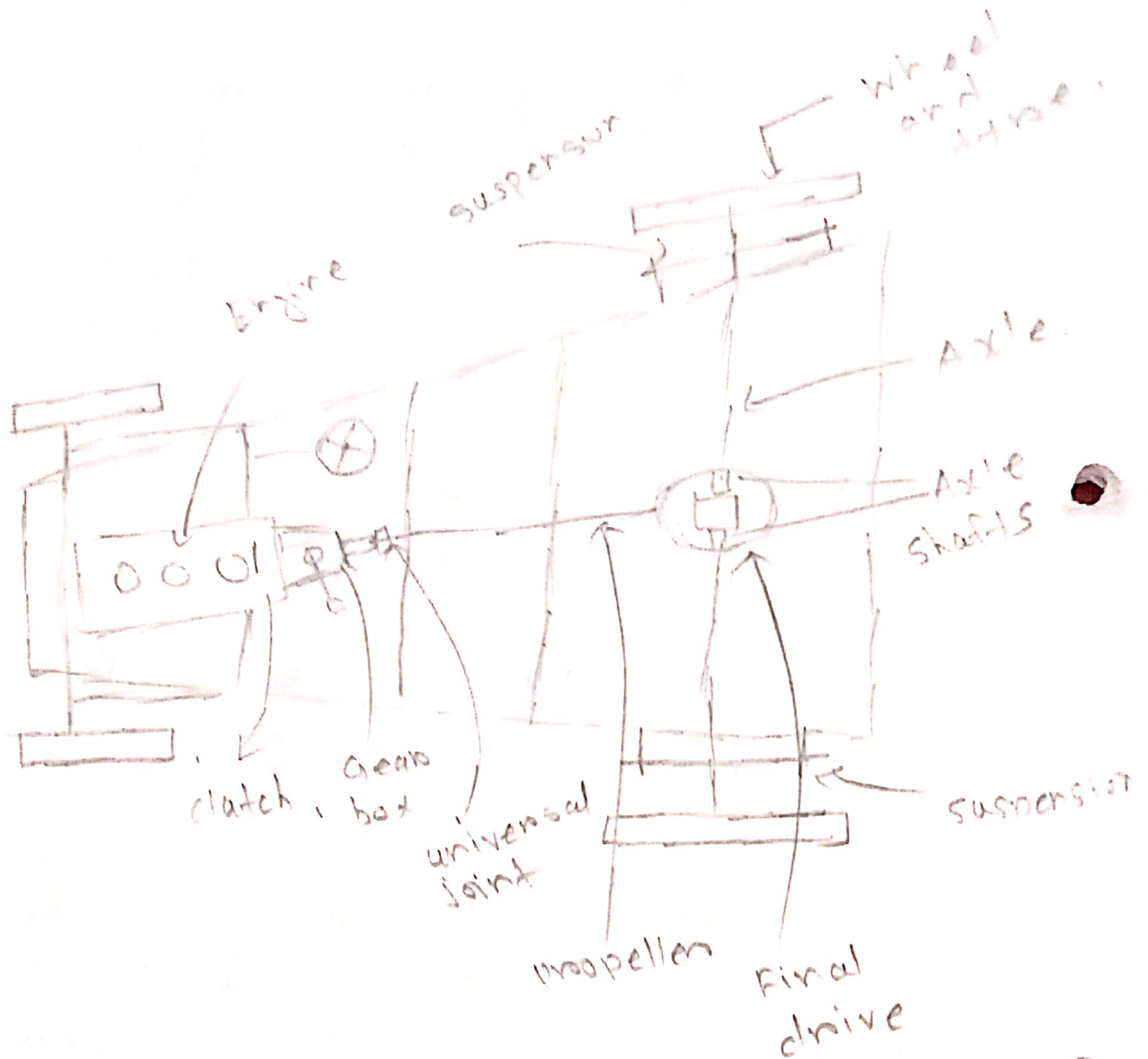


Fig. Major components of automobile.



Q.4] Explain the relative positioning of engine and drive axle layout of an automobile.

Ans. - The layout of a car is often defined by the location of the engine and drive wheels. It is divided into front wheel drive, rear wheel drive and four wheel drive. Many different combinations of engine locations and driven wheels are found in practice and the location of each is dependant on the application, for which the car will be used.

i) Front engine - a) Rear wheel drive,
b) Four wheel drive
c) Front wheel drive.

ii) Mid engine - a) Rear wheel drive
b) Four wheel drive
c) Front wheel drive.

iii) Rear engine - a) Rear wheel drive
b) Four wheel drive
c) Front wheel drive.



Q) Explain the specifications of passenger car.

Ans.

- i) Passenger cars are specially designed to carry passengers.
- ii) They are more safer than other vehicles.
- iii) They are much more luxurious according to the customer requirement.
- iv) Passenger vehicle don't has to carry much load, so there engine or types are smaller than other vehicles like trucks.
- v) Their cost is also relatively low, if u only get a passenger vehicle, no more luxurious.
- vi) They come with many advance features, like GPS, LCD, Cameras.

These are some specifications of a passenger car.