

GOVT . POLYTECHNIC , BHADRAK
INTERNAL ASSESSEMENT -1
BRANCH – MECH ENGG 6TH SEM

SUB :- AUTO & HYBRID VEHICLE

TIME - 1 HOUR

ANSWER ANY THREE QUESTIONS (Q.1 COMPULSORY)

1. Answer all the questions.

5*2=10

- (a) What is chassis and their types?
- (b) What is differential & their types.?
- (c) What is brake & their types.?
- (d) What is main parts of battery ignition system.?
- (e) What is shock absorber and their types.?

Answer any two questions

2*5=10

2. Describe the working function of magneto ignition system with neat sketch.?
3. Describe the working principle of telescopic shock absorber with neat sketch.?
4. What is the cooling system and their types & describe the water cooling system.?

INTERNAL ASSESMENT



GOVT. POLYTECHNIC, BHADRAK


Session - 2022-23

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Branch: Mechanical SEMESTER 6th

SUBJECT : AE & HV

REGD. NO.: F20157004001


Signature of Invigilator

1.

(a) chassis :-

chassis is the vehicles main support structure also known as frame

It bears all the stresses on the vehicles in the both static and dynamic condition.

there are three types

- Conventional control chassis
- Semi Forward control chassis
- Full Forward control chassis

(b) A differential is a gear train with three drive shafts. that has property that rotational speed of the one shaft is the average of the speed of the others

- open differential
- Locked differential
- Limited slip differential
- Torque differential
- Active

(c) Brake :-

- The brake is one of the most significant system of a vehicle
- It should slow a moving vehicle
- It should bring a vehicle to a stop

their types: mechanical brake Disc brake
Hydraulic brake, Drum brake
power brake, Air hydraulic brake

② Ignition Coil
Secondary winding
Primary winding
to the
Distributor
ignition switch
Contact breaker Points.

② Shock absorber are pump like devices which keep your vehicles types in contact with the road surface by compressing the rebound of their suspension spring their type:-

- Hydraulic Shock absorber
- Telescopic Shock absorber.

③ telescopic shock absorber:-

The Construction of the telescopic shock absorber there is fluid in space above valve a bottom valve is also in the space between the cylinder and the in is open tube

• This angular space is connected to the space below the valve is a gland is provided on the head.

• The fluid scraped off by the road is brought down into angular space through the inclined passage as shown in the head.

• The bottom eye is connected to the axle.

• The top eye is attached to the chassis frame.

• The fluid generally used is a mixture of oil & transformer oil and not pure oil.

Working Principle:-

When a vehicle moves across a bump the bump the bottom eye would move up there by the fluid will pass from the lower side of the valve to the upper side of the

- ① magnet
- ② pole pieces
- ③ plate condenser
- ④ plate as primary coil
- ⑤ secondary coil
- ⑥ The CB points
- ⑦ ignition cap
- ⑧ Distribution cap rotor arm
- ⑨ distributor cap
- ⑩ Spark plug

When magnet rotate they induce voltage

→ The magnet revolve where as the armature and pole pieces remain stationary.

→ In a base plate condenser and primary and secondary coil are mounted.

→ The CB points are also kept stationary

→ The ignition cap is attached to distributor shaft.

→ When the flywheel revolves the magnets also revolve.

→ It generates current in the coils as it magnetic field cuts across the coils winding.

This current flows through the primary winding gets earthed

→ When CB points are separated by an ignition cap a high current is generated in the secondary coil

→ It overvoltage across the point the HT current they pass into the distributor rotor arm

→ Any time the cap the current is delivered to spark plug through segment in distributor cap

→ and discharged as a spark with high intensity across plug gap and finally earthed to complete the circuit

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1. (a) Chassis :-

Chassis is the vehicles main support structure. also known as frame.

It bears all the stresses on the vehicles in the both static and dynamic condition.

There are three types

- Conventional Control chassis
- Semi forward control chassis
- Full forward control chassis

(b) A differential is a gear train with three drive shafts, that has property that rotational speed of the one shaft is the average of the speed of the others

- One differential
- Locked differential
- Limited slip differential
- Torque differential
- Active

(c) ~~Brake~~ Break:

• The break is one of the most significant system of a vehicle

• It should slow a moving vehicles

• It should bring a vehicle to a stop

their types: Mechanical brake, Disc brake

Hydraulic brake, Drum brake

Power brake, Air hydraulic brake

(d) Ignition Coil

secondary winding

Primary winding

Rotor

Distributor

Ignition switch

Control breaker points

(e) shock absorbers are pump like devices which keep your vehicles types in contact with the road surface by controlling the rebound of its suspension spring

their type:

• Hydraulic shock absorber

• Telespic shock absorber

3. Telescopic shock absorber :-

The Construction of the telescopic shock absorber

• There is fluid in space above valve A and also in the annular space between the cylinder and the inner tube.

• This annular space is connected to the space below the valve B. A gland is provided in the head.

• The fluid scraped off by the rod is brought down into annular space through the inclined passage as shown in the head.

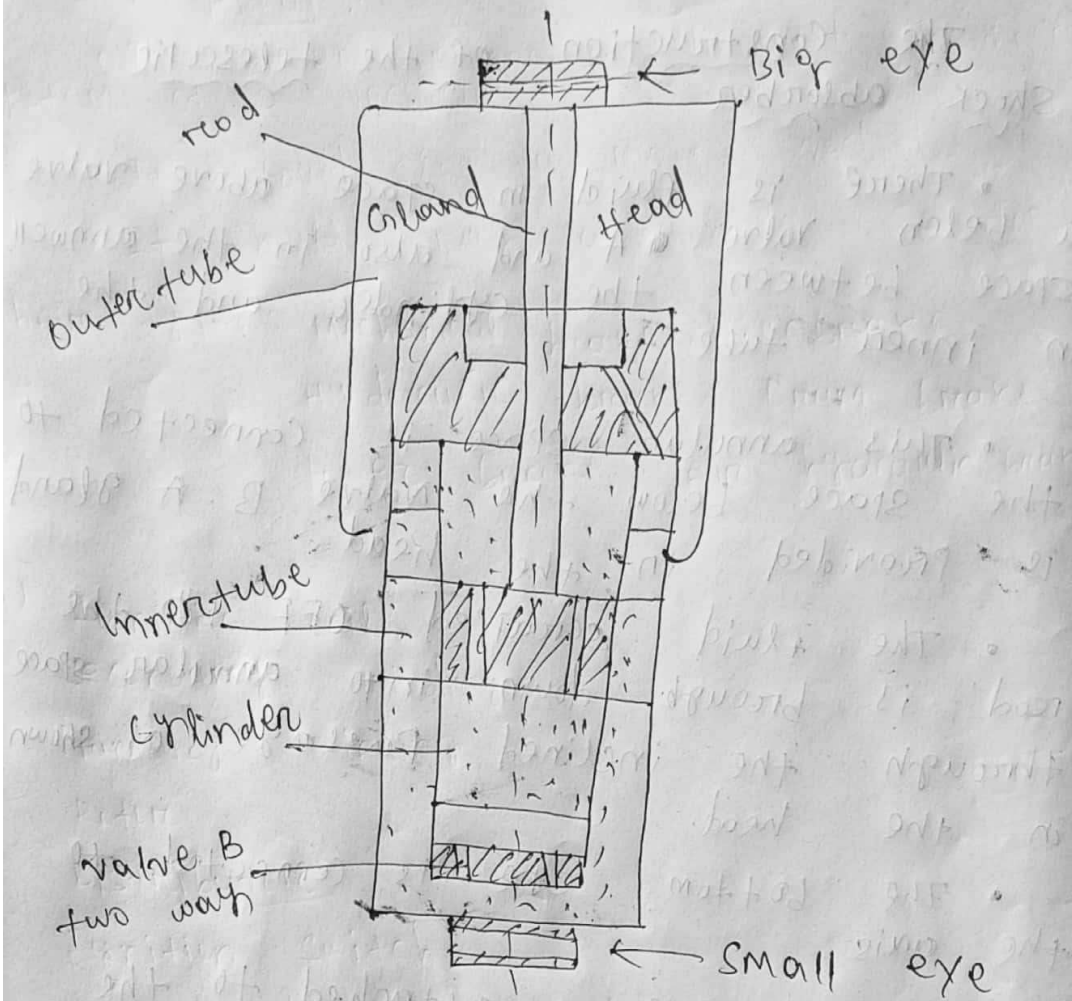
• The bottom eye is connected to the axis

• The top eye is attached to the chassis frame

• The fluid generally used is a mixture of 60% transformer oil and 40% turbine oil.

Working principle:

When a vehicle moves across a bump the bump the bottom eye would move up there by the fluid will pass from the lower side of the valve A to its upper side.



(telescopic absorber)

- The volume of the space above A is less by the volume of the rod
- Therefore the pressure above the valve will increase. This pressure also exerts on the valve
- So fluid will go to the under side of the valve B. This passing of the fluid through valve opening provides the damping.

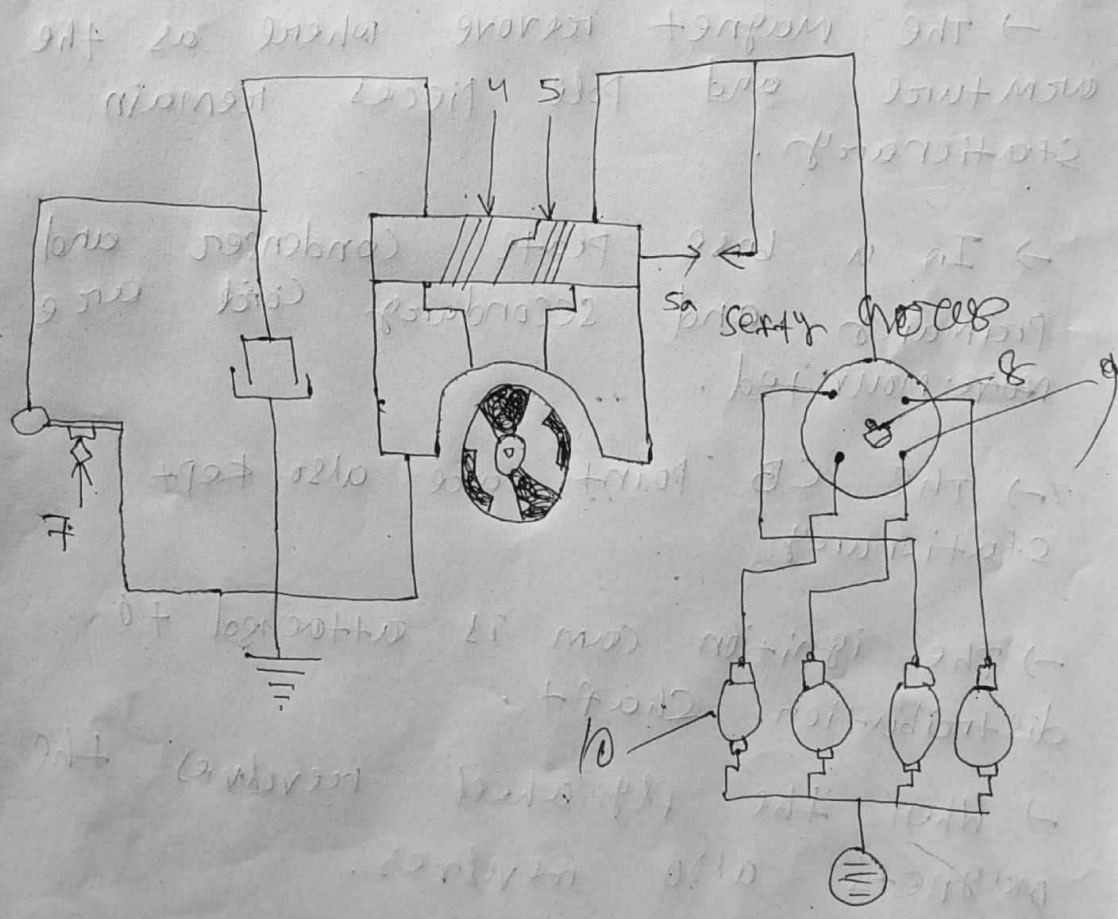
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2. Magneto ignition system

- The working of this ignition system is same as that of coil ignition system
- Only difference is in the source of electric supply



- ① Magnet
- ② Pole pieces
- ③ Plate condenser
- ④ Coprimary coil
- ⑤ secondary coil
- ⑥ The CB points
- ⑦ ignition cam
- ⑧ distributor rotor ARM
- ⑨ distributor cap
- ⑩ spark plug

When magnet rotate they induce armature

→ The magnet revolve where as the armature and pole pieces remain stationary.

→ In a base plate condenser and primary and secondary coil are mounted.

→ The CB points are also kept stationary

→ The ignition cam is attached to distribution shaft.

→ When the fly wheel revolves the magnets also revolves.