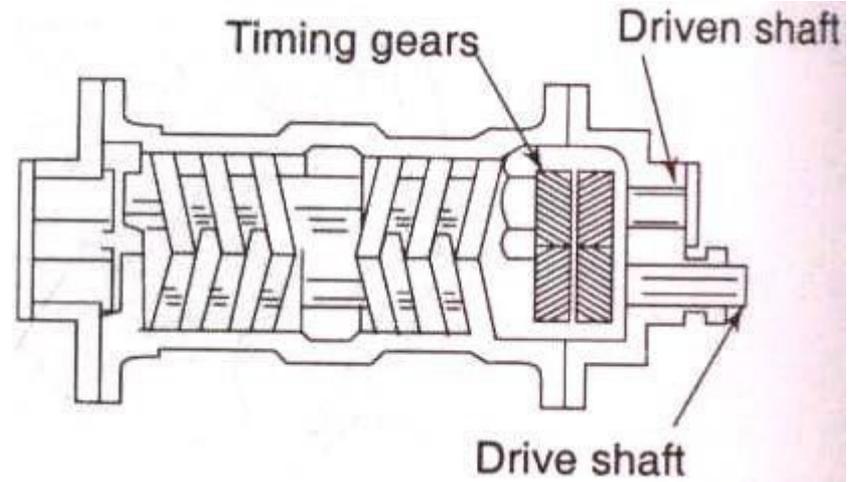
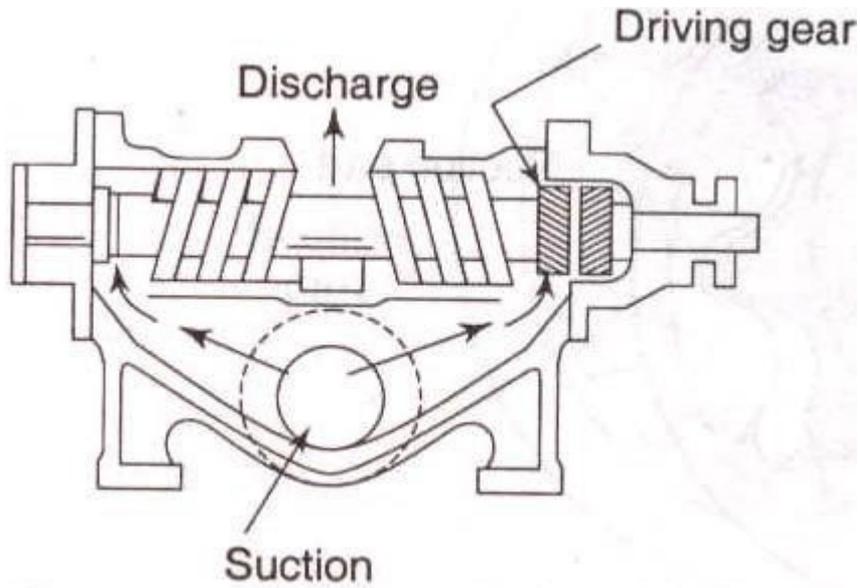


SCREW PUMP

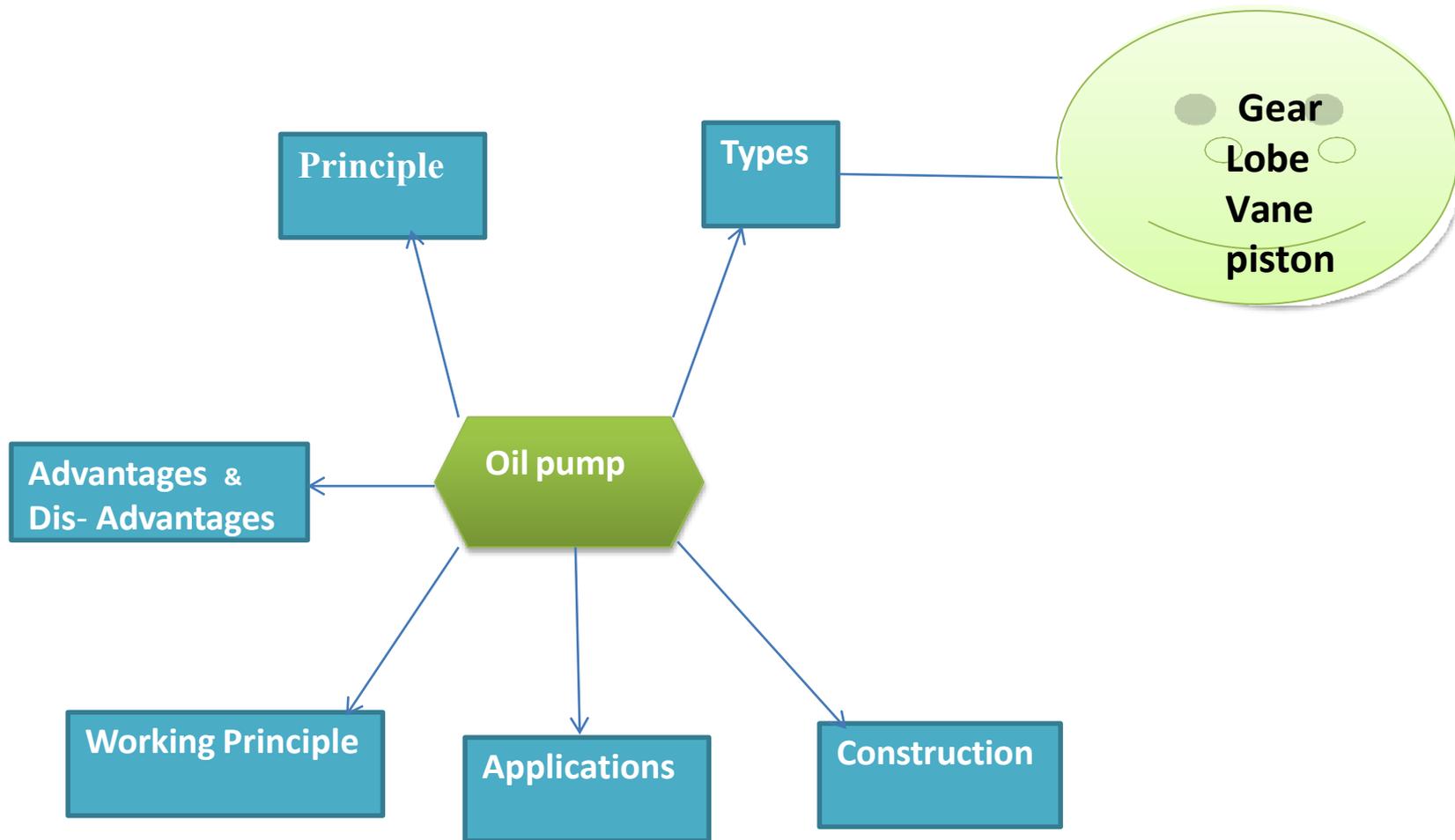


SCREW PUMP

- Axial flow positive displacement unit
- Three precision ground screws deliver non pulsating flow quietly & efficiently
- Two symmetrically opposed idler rotors acts as a rotating seals
- Idler rotors are in rolling contact with the central power rotor which are driven by the pressure of the liquid
- Operate up to 250 bar pressure at 1000 cm³per min.

ADVANTAGES:

1. Most reliable
2. Oil supply is pulsation free, continuous
3. No oil churning, pump turbulence etc.
4. Very quiet in operation



Questions

1. What is the advantages of vane pumps?
2. What is the difference between piston and vane pump?
3. Working of piston pump ?
4. What is pressure compensated vane pump?
5. How to calculate the pump performance?

Summary

- **GEAR PUMPS**
 - Least expensive
 - Lowest level of performance
 - Efficiency is rapidly reduced by wear
 - High maintenance cost
 - Simple in design
 - Widely used in fluid power industry

- **VANE PUMPS**

- Efficiency & cost fall between Gear and Piston pumps
- Have good efficiencies
- Last for longer time
- Leakage losses across the faces of rotor & between the bronze wear plates and pressure ring

- **PISTON PUMPS**

- Most expensive
- Provides highest level of overall performance
- Can be driven at high speeds (up to 5000 rpm)
- Produces non pulsating flow
- Operates at the highest pressure levels
- Highest efficiency
- Longer pump life
- Normally can not be repaired in the field because of their complex design

MCQ

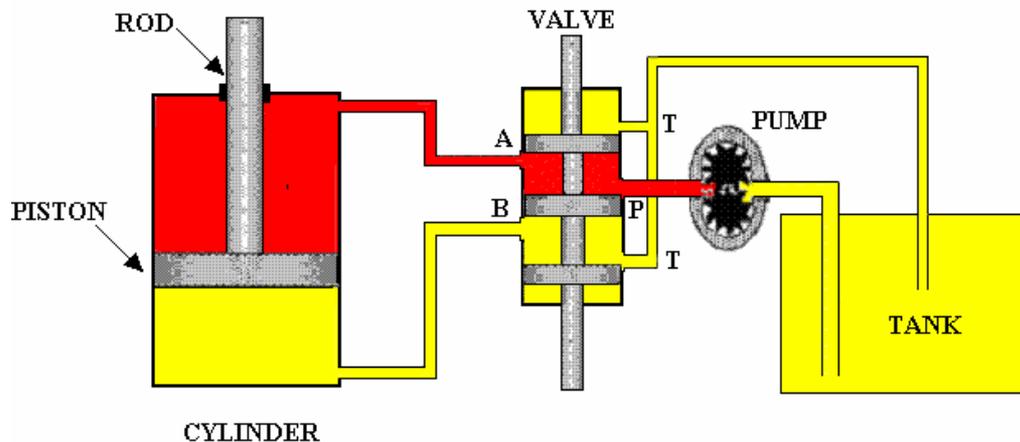
1. Hydraulic fluid transmits power almost instantaneously because _____.
 - A. it lubricates components
 - B. it is essentially non-compressible
 - C. it is compressible
 - D. it is heavier than water
2. A pump which develops a constant output is called _____.
 - A. a high efficiency pump
 - B. a positive displacement pump
 - C. a variable volume pump
 - D. an impeller pump
3. All pumps operate on the principle of _____.
 - A. an increasing and decreasing flow rate
 - B. an increasing and decreasing volume
 - C. mechanical work
 - D. restricted flow
4. The device used to power the pump in a hydraulic system is called _____.
 - A. a generator
 - B. an actuator
 - C. a prime mover
 - D. a power cell
5. Gear pumps:
 - a. can be variable volume.
 - b. cannot be variable volume
 - c. can be pressure compensated

Answer

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Higher Order Question

- Study the simple hydraulic system shown below and fill in the answers to the questions.



1. With the valve in the position shown, which way is the cylinder piston moving, UP or DOWN?
2. Which way must the valve be moved in order to reverse the motion of the load cylinder, UP or down?
3. What will happen to the pressure on the outlet of the pump when the load piston reaches the end of the travel? Will it INCREASE or DECREASE?