



## College of Engineering & Technology

Department: Mechanical Engineering

Marks: 15

Lecturer: Dr. Rola Afify

Time: 3:15- 4:00

Course Code: ME464

Date: 25/3/2014

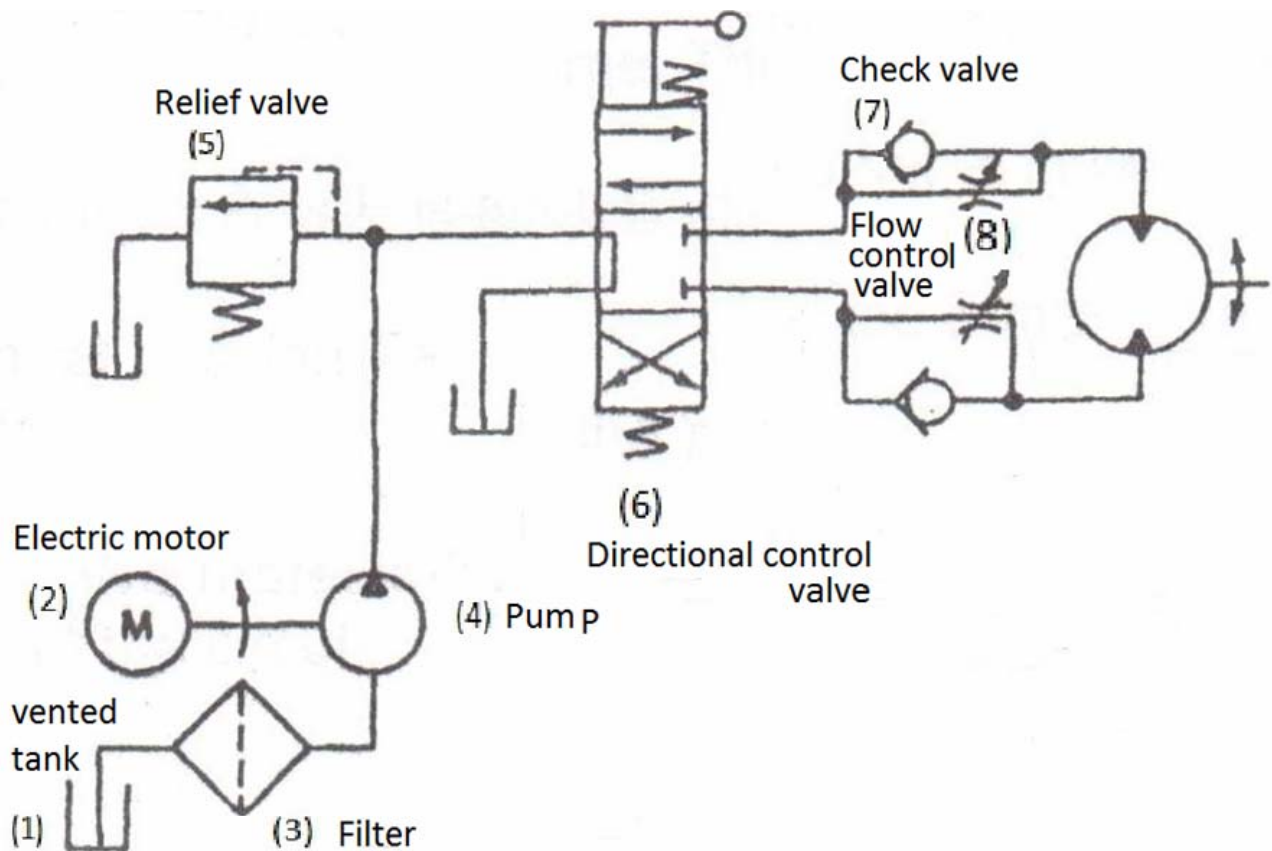
Name: **Model Answer**

Code:

**Answer the following questions:**

### **Question one (4 marks)**

Write the name of each component in the following Hydraulic circuit



### **Question two (5 marks)**

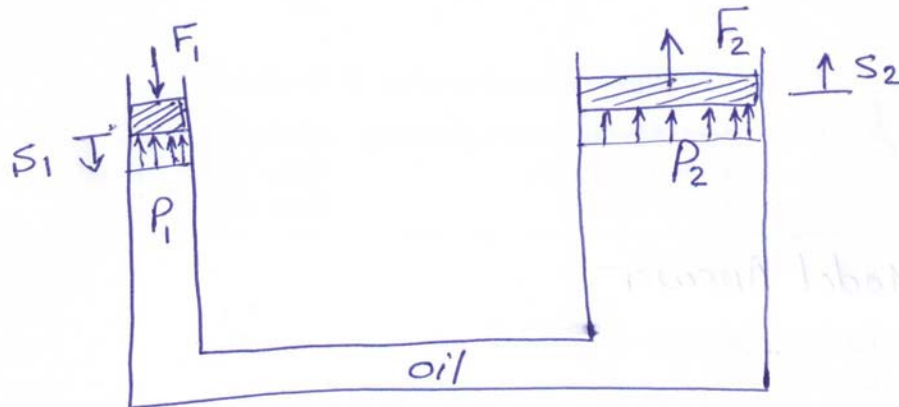
What are the Hydraulic fluid functions?

Hydraulic fluid functions are:

- 1 – Transmit power.
- 2 – Lubricate moving parts
- 3 – Seal clearances between mating parts.
- 4 – Dissipate heat.
- 5 – Prevent corrosion.

**Question three (6 marks)**

Does a Hydraulic Jack produce More Energy than it receives?



$$P_1 = P_2$$

$$\frac{F_1}{A_1} = \frac{F_2}{A_2}$$

$$\frac{F_2}{F_1} = \frac{A_2}{A_1} \longrightarrow \textcircled{1}$$

$$\text{Volume 1} = \text{Volume 2}$$

$$A_1 S_1 = A_2 S_2$$

$$\frac{S_1}{S_2} = \frac{A_2}{A_1} \longrightarrow \textcircled{2}$$

from  $\textcircled{1}$  &  $\textcircled{2}$

$$\frac{F_2}{F_1} = \frac{A_2}{A_1} = \frac{S_1}{S_2}$$

$$\boxed{F_1 S_1 = F_2 S_2}$$

No, it doesn't.