

**SUBJECT CODE NO:- P-484**  
**FACULTY OF ENGINEERING AND TECHNOLOGY**  
**T.E.(Mech) Examination MAY/JUNE-2016**  
**Industrial Hydraulics and Pneumatics**  
**(Revised)**

[Time: Three Hours]

[Max Marks:80]

“Please check whether you have got the right question paper.”

- N.B
- i) solve any three questions from each section
  - ii) Assume suitable data, if necessary.

**Section A**

- Q.1 a) What are the different laws that govern the hydraulic & pneumatic systems? State the laws 07  
 b) Classify the different fluids used in the hydraulic systems. What are the essential properties of these fluids? 06
- Q.2 a) Why symbols are used in hydraulic & pneumatic systems? What are the different standards used for symbols? 05  
 b) Draw neat symbol for the following 08
1. Air filter, regulator, lubricator
  2. Sequence valve
  3. Accumulator
  4. Pressure booster
- Q.3 With the neat sketch explain the construction and working of gear motor. Also explain the working of gear pump. 13
- Q.4 What are the different types of piston pumps? Explain with neat sketch the construction and working of axial piston pump. 13  
 State its limitations and applications.
- Q.5 Write short notes on 14
1. Oil additives
  2. Symbols and general rules that are followed in drawing them.
  3. Oscillators.
  4. Gerotor pump
  5. Hydraulic sump.

**Section B**

- Q.6 a) What are the main types of direction control valve? Explain with symbol each of them. 07  
 b) Write short note on hydraulic pipes, hoses and accessories. 06
- Q.7 Design and draw a circuit for a double acting cylinder being controlled by a solenoid operated three positions, normally closed four way directional control valves. Use standard components for the circuit. Explain its working 13
- Q.8 Draw a hydraulic counter balancing circuit. Use the standard components required for the circuit. Explain its working. 13
- Q.9 a) What are the essential components required in electrical control of a hydraulic or pneumatic system. Explain in brief 06  
 b) What is PLC? How PLC can be used in an electro hydraulic/pneumatic system? 07
- Q.10a) Write short notes on (any three) 14
1. Different speed control circuits
  2. Valve actuators
  3. Heat exchanger used in hydraulic system
  4. Air driers
  5. Hydraulic and pneumatic cylinders.