



Mechanical Department

Name of Programme: ME

Name of Course: Industrial Fluid Power (SEM-VI 2017-18)

Course Outcome: Able to list all major components of hydraulic system and draw its general layout.

Assignment –I

1. Describe essential properties of oils used in oil hydraulic circuits (any eight)
2. Draw sketch of a simple oil hydraulic circuit (general layout) and write down the name and working function of each of the components used in it.
3. State any eight merits and any eight limitations of hydraulic system.
4. Write any eight applications of hydraulic system.
5. Explain external gear pump with neat sketch.
6. Explain lobe pump with neat sketch.
7. Explain construction and working principle of Internal Gear pump.
8. Explain with neat sketch gerotor pump.
9. Explain with neat sketch the working of variable displacement vane pump.
10. Explain with neat sketch piston pump.
11. Explain with neat sketch swash plate axial piston pump.
12. State the importance of pump used in hydraulic system. Give its classification.
13. Explain any six criteria for selection of hydraulic pump in hydraulic system.
14. What are the effects of contaminants in the oil?
15. Enlist any four sources of heat generation in hydraulic system.
16. Write the causes and remedies for the following: (i) Excess heat in oil (ii) Noisy pump (iii) Low pressure in system.
17. Draw the symbol for following and state function,

- a. Reservoir
- b. Filter
- c. Unidirectional pump and Bidirectional pump
- d. Direction control valve
- e. Pressure Relief Valve

Last date of submission: -----

Name of course coordinator: -----



Mechanical Department

Name of Programme: ME

Name of Course: Industrial Fluid Power (SEM-VI 2017-18)

Course Outcome: Student should be able to describe working principle of various components used in hydraulic system.

Assignment –II

1. Draw neat sketch of 4/2 valve. Explain its working.
2. With a neat sketch, explain pressure operated flow control valve. Draw the symbol for the same.
3. Describe construction and working of pressure relief valve (directly operated) with neat sketch.
4. Describe construction and working of pilot operated check valve with neat sketch.
5. Explain construction and working principle of Rotary Spool type DC valve with sketch.
6. State advantages and disadvantages of poppet type directional control valve.
7. Classify flow control valves with their application.
8. Draw sketch of needle valve and explain its working.
9. What is hose? Enlist factors affecting on selection of hose in hydraulic system. State different layers of hose.
10. What are the various materials used for pipes in hydraulic circuit?
11. Enlist the factors to be considered for selection of seal. What are the main causes of seal failure?
12. What are the functions of hydraulic seals? Explain classification of hydraulic seals.
13. Classify hydraulic actuators.

14. Explain working of telescopic cylinder with neat sketch.
15. Explain with sketch the working of double acting cylinder.
16. What is Tandem cylinder? What is its beneficial property? Explain with sketch and draw its symbol.
17. Explain the importance of filters in hydraulic system. State the different locations where filters need to be fitted in hydraulic system.
18. Give classification of filters used in hydraulic system. Explain any one of them.
19. Why accumulators are used in hydraulic circuits? Explain any one with sketch.
20. Draw symbols of:
 - a) 2/2, 3/2, 4/2 & 4/3 direction control valve
 - b) Pilot operated pressure relief valve
 - c) Sequence valve
 - d) Hydraulic motors

Last date of submission: -----

Name of course coordinator -----



SARASWATI Education Society's
SARASWATI Institute of Technology

Learn Live Achieve and Contribute

Kharghar, Navi Mumbai - 410 210.

Mechanical Department

Name of Programme: ME

Name of Course: Industrial Fluid Power (SEM-VI 2017-18)

Course Outcome: Student should be able to choose valves, actuators and accessories required for simple hydraulic and pneumatic circuits.

Assignment –III

1. Sketch and explain Meter in hydraulic circuit to control the speed of extension of DAC. Also state advantages, disadvantages and applications of this circuit.
2. Explain meter out circuit with neat sketch.
3. Draw and explain working of Bleed off hydraulic circuit.
4. Explain regenerative hydraulic circuit with neat sketch.
5. With the help of neat sketch explain hydraulic circuit diagram for milling machine to control its table movement.
6. With the help of neat circuit diagram explain the functioning of hydraulic shaper.
7. Draw a neat diagram of sequential circuit and explain its working.
8. Using double acting cylinder, flow control valve with check valve, pressure relief valve, filter and DC valve, develop a circuit for speed control during a return stroke.

Last date of submission: -----

Name of course coordinator -----



SARASWATI Education Society's
SARASWATI Institute of Technology

Learn Live Achieve and Contribute

Kharghar, Navi Mumbai - 410 210.

Mechanical Department

Name of Programme: ME

Name of Course: Industrial Fluid Power (SEM-VI 2017-18)

Course Outcome: Able to list all major components of pneumatic system and draw its general layout and describe working principle of various components.

Assignment –IV

1. Draw a general layout and symbolic representation of pneumatic system.
2. Write any six advantages & limitations of pneumatic system.
3. Write any eight industrial applications of pneumatic system.
4. Give detailed classification of air compressor.
5. Explain double acting reciprocating compressor used in pneumatic system.
6. Compare pneumatic motor, hydraulic motor & electric motor.
7. Give the function of FRL unit. Draw it's symbol.
8. Draw a neat sketch of two stage air compressor and label it's parts.
9. Sketch and label construction details of air receiver of pneumatic system.
10. Sketch and label construction details of pneumatic hose.
11. Sketch and explain working of 5/2 DC pneumatic valve.
12. Explain what is ferrule fitting

Last date of submission: -----

Name of course coordinator -----



SARASWATI Education Society's
SARASWATI Institute of Technology

Learn Live Achieve and Contribute

Kharghar, Navi Mumbai - 410 210.

Mechanical Department

Name of Programme: ME

Name of Course: Industrial Fluid Power (SEM-VI 2017-18)

Course Outcome: Able to use hydraulic and pneumatic circuits for different applications. Also able to list probable causes of faults or defects in the hydraulic & pneumatic circuits.

Assignment –V

1. Explain with neat sketch bi directional motor.
2. Explain with neat sketch, working of double acting air cylinder.
3. Develop a pneumatic circuit for operation of two DA cylinders such that one operates after other at a certain time interval using time delay valve.
4. What is impulse pneumatic circuit? Explain.
5. What is sequencing operation? How will you sequence on DA pneumatic cylinder and one SA pneumatic cylinder using roller operated DC valve? Explain with circuit.
6. Sketch time delay pneumatic circuit and explain working of it.

Last date of submission: -----

Name of course coordinator -----