22/12/2022

Reg. No.												

Question Paper Code	11508

B.E. / B.Tech. - DEGREE EXAMINATIONS, NOV/DEC 2022

Sixth Semester

Mechanical Engineering

ME8694 - HYDRAULICS AND PNEUMATICS

(Regulations 2017)

Duration: 3 Hours | Max. Marks: 100

PART - A (10 × 2 = 20 Marks)

Answer ALL Questions

		Marks, K-Level, CO
1.	List the advantages of the fluid power.	*2,K1,CO1*
2.	Differentiate between positive pump and non-positive pump.	*2,K1,CO1*
3.	List the benefits of choosing the correct cylinder in a hydraulic system.	*2,K1,CO2*
4.	Point out the objectives of hydraulic valves.	*2,K1,CO2*
5.	Draw the different types of accumulator symbols.	*2,K1,CO3*
6.	Indicate the purpose of using fail safe circuit in any hydraulic system.	*2,K2,CO3*
7.	Give the standard graphical symbol for FRL unit.	*2,K1,CO4*
8.	List the basic components of pneumatic system.	*2,K2,CO4*
9.	Mention the key properties to be evaluated while inspecting the hydraulic oil.	*2,K2,CO6*
10.	List the probable effects of cavitation in the pump.	*2,K2,CO6*

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

11.	a)	Enumerate on the different types of fluid power system.	*13,K1,CO1*
		OR	
	b)	Explain in detail about the various losses in hydraulic fluid power systems.	*13,K1,CO1*
12.	a)	Enumerate the significant factors involved in the rating of hydraulic motors.	*13,K1,CO2*
		OR	
	b)	List the components used in the hydraulic systems and sketch the ANSI symbol of all the components in the hydraulic systems.	*13,K1,CO2*
13.	a)	Design and explain the working of a regenerative circuit.	*13,K2,CO3*

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create

OR

b) With a neat sketch, explain the construction and working of a piston type accumulator and diaphragm type accumulator. *13,K2,CO3*

14. a) Enumerate on the construction, working of piston type and vane type compressors. *13,K2,CO4*

OR

b) Explain the ladder logic diagram with a suitable example. *13,K2,CO4*

15. a) Design and draw a circuit using the hydraulic components for the Drilling operation. *13,K3,CO5*

OR

b) Design and draw a circuit using the hydraulic components for the Shaping operation. *13,K3,CO5*

PART - C (1 × 15 = 15 Marks)

16. a) Create a fail-safe control circuit using emergency cut off value and two-hand safety control circuit. *15,K3,CO6*

OR

b) Narrate a case study of low cost automation using the hydraulic and pneumatic system. *15,K3,CO6*