

GBCS SCHEME

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21MT43

(10 Marks)

Fourth Semester B.E. Degree Examination, June/July 2024 Hydraulics and Pneumatics

Time: 3 hrs. Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Illustrate the structure of hydraulic system with a neat diagram. (10 Marks)
 - b. Explain the construction and working of external gear pump.

OR

- 2 a. Describe the advantages, limitations and applications of hydraulic system. (10 Marks)
 - b. Explain pumping theory and classify different types of hydraulic pumps. (10 Marks)

Module-2

- a. With a neat diagram, explain i) Cylinders cushioning ii) Check value. (10 Marks)
 - b. A rotary vane motor has displacement volume of 80cm³/rev and operates at 1750rpm. The system pressure is 7 bar. Calculate the flow rate and power output of the motor. (10 Marks)

OR

- 4 a. Explain the construction and working of:
 - i) Quick exhaust value
 - ii) Time delay valve.
 - b. A pump supplies oil at 0.0016 cubic meter per second to 40mm diameter double acting hydraulic cylinder,. If the load is 5000N (extending and retracting) and root diameter is 20mm find:
 - i) Hydraulic pressure during extension and retraction
 - ii) Piston velocity during extension and retraction
 - iii) Power developed in the cylinder during extension and retraction. (10 Marks)

Module-3

- 5 a. With a neat diagram, design a hydraulic circuit for sequencing operation. (10 Marks)
 - b. What are the functions of reservoir in a hydraulic system, explain with a neat diagram.

(10 Marks)

(10 Marks)

OR

- 6 a. Using a neat diagram design a hydraulic circuit for synchronization of cylinders. (10 Marks)
 - b. What are the desirable properties of hydraulic fluids? Explain. (10 Marks)

Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

Important Note: 1.

On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.

		Module-4						
7	a.	Illustrate the structure of pneumatic system with a neat diagram.	(10 Marks)					
	b.	Explain supply air throttling and exhaust air throttling.	(10 Marks)					
		OR						
8	a.	Explain Direct and Indirect actuation of pneumatic cylinders.	(10 Marks)					
	b.	Describe the advantages, limitations and applications of pneumatic system.	(10 Marks)					
		Module-5						
9	a.	With the help of pneumatic system, explain the use of logic OR gate.	(10 Marks)					
	b.	With the help of motion control diagram explain the control of double acting cylir	nder.					
			(10 Marks)					
		OR						
10	a.	Using pneumatic systems describe the use of logic AND gate.						
	b.	Explain the working of solenoid, and give a practice example.	(10 Marks) (10 Marks)					