

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-V (NEW) EXAMINATION – WINTER 2022****Subject Code:3151913****Date:04-01-2023****Subject Name:Oil Hydraulics And Pneumatics****Time:10:30 AM TO 01:00 PM****Total Marks:70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

		MARKS
Q.1	(a) Draw ISO/ANSI symbol of pump, oil tank, filter, oil reservoir, cooler and heater.	03
	(b) Explain function of any four electrical elements used in hydraulic system.	04
	(c) What is FRL unit? Why is it required? Briefly explain function of each component.	07
Q.2	(a) Draw ISO/ANSI symbol of 2/2 DCV, 4/2 DCV, 5/3 DCV, pressure relief valve, flow control valve, nozzle.	03
	(b) Compare pneumatic and hydraulic power system.	04
	(c) What is purpose of filter in hydraulic system? Explain any two filter with purpose and location in hydraulic system.	07
OR		
	(c) Write short note on fire resistance fluids.	07
Q.3	(a) What is positive displacement pump? Write its advantages.	03
	(b) Write desirable properties of hydraulic oil.	04
	(c) Draw basic hydraulic circuit with ISO symbol of components and explain its working.	07
OR		
Q.3	(a) State type of control valves used in hydraulic system with their function.	03
	(b) Explain biodegradable oil.	04
	(c) Draw basic pneumatic circuit with ISO symbol of components and explain its working.	07
Q.4	(a) Explain working of poppet type 3/2 DCV.	03
	(b) Describe working of twin pressure valve with neat sketch.	04
	(c) Classify pump and explain working of external gear pump with neat sketch.	07
OR		
Q.4	(a) Explain working of time delay valve.	03
	(b) Classify DCV according to method of actuation.	04
	(c) Explain construction and working of pressure relief valve.	07
Q.5	(a) Draw basic circuit for control of double acting cylinder.	03
	(b) Explain working of diaphragm type compressor.	04
	(c) Develop and explain hydraulic sequential circuit to operate two double acting cylinders.	07

OR

- Q.5** (a) Describe advantages and disadvantages of automation in fluid power system. **03**
- (b) Explain meter in circuit. **04**
- (c) Develop pneumatic circuit for OR logic. **07**

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