

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-V EXAMINATION – SUMMER 2025****Subject Code:3151913****Date:13-05-2025****Subject Name:Oil Hydraulics And Pneumatics****Time:02:30 PM TO 05:00 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
<b>Q.1</b>	(a) Draw the general layout of hydraulic system. Explain the function of oil reservoir.	<b>03</b>
	(b) List down the properties of hydraulic oil.	<b>04</b>
	(c) Draw the detailed symbol of FRL unit. Explain lubricator with neat sketch.	<b>07</b>
<b>Q.2</b>	(a) Write the application of hydraulic system and pneumatic system.	<b>03</b>
	(b) Write a short note on air receiver.	<b>04</b>
	(c) Draw symbol of filter. Explain the working of by-pass filter with neat sketch. Also state its advantages and disadvantages.	<b>07</b>
	<b>OR</b>	
	(c) Discuss hydrostatic transmission system with its advantages and disadvantages.	<b>07</b>
<b>Q.3</b>	(a) Classify flow control valves.	<b>03</b>
	(b) Write a short note on the Quick Exhaust valve.	<b>04</b>
	(c) Explain construction and operation of shuttle valve. Illustrate its application through a typical pneumatic circuit.	<b>07</b>
	<b>OR</b>	
<b>Q.3</b>	(a) How does a pressure relief valve differ from a pressure reducing valve?	<b>03</b>
	(b) State different types of Accumulator. Explain one in detail.	<b>04</b>
	(c) Explain construction and operation of time delay valve. Illustrate its application in setting delay in closing time through a typical pneumatic circuit.	<b>07</b>
<b>Q.4</b>	(a) What are different sources of heat generation and what is the effect of heat generated in hydraulic system.	<b>03</b>
	(b) Sketch and explain pneumatic circuit using quick exhaust valve.	<b>04</b>
	(c) Explain power losses in flow control circuits.	<b>07</b>
	<b>OR</b>	
<b>Q.4</b>	(a) Draw working of bleed off circuit for extension and uncontrolled for retraction.	<b>03</b>
	(b) List some basic and industrial circuits.	<b>04</b>
	(c) Draw pneumatic circuit for operating DAC by 4/3 lever operated – detent type DCV.	<b>07</b>

- Q.5** (a) Give difference between Meter-in and Meter-out circuit. **03**  
(b) Draw basic circuit for control of single acting cylinder using 3/2 handle operated-spring return DCV. **04**  
(c) Draw pneumatic to operate two DAC in sequence using limit switch and double solenoid 4/2 DCV. Explain in brief. **07**

**OR**

- Q.5** (a) With general layout explain the automation in fluid power system. **03**  
(b) State advantages and disadvantages of automation. **04**  
(c) Give classification of automation. Discuss the role of automation in pneumatic and hydraulic control systems. **07**

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