

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER- VI EXAMINATION – SUMMER 2026

Subject Code:3162008

Date:22-05-2026

Subject Name:Hydraulic and Pneumatic Systems

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) List down advantages of fluid power system.	03
	(b) Differentiate between hydraulic motor and electrical motor.	04
	(c) Explain basic components of hydraulic system.	07
Q.2	(a) Draw the symbol of FRL unit, rotating cylinder, Heat exchanger.	03
	(b) Write a note on Biodegradable hydraulic fluids.	04
	(c) What is bi-pass filter? State its advantage and disadvantage.	07
	OR	
	(c) Explain open loop closed circuits and closed loop closed circuits for hydrostatic systems.	07
Q.3	(a) What is meaning of positive displacement pump? Describe it.	03
	(b) Give the detailed classification of pump.	04
	(c) Give comparison between Gear pumps, vane pump and piston pump.	07
	OR	
Q.3	(a) Explain construction of single acting cylinder with figure.	03
	(b) Give the detailed classification of Actuators.	04
	(c) With figure explain tandem cylinder and telescopic cylinder.	07
Q.4	(a) Define pressure control valve, flow control valve and direction control valve.	03
	(b) List down comparisons between pressure relief valve and pressure reducing valve.	04
	(c) Write down construction and working of time delay valve of pneumatic systems.	07
	OR	
Q.4	(a) Which factors should be consider while selecting control valves.	03
	(b) Explain classification of seals in Fluid power system.	04
	(c) Cite the classification of check valves and explain the function of pilot operated check valve, giving the necessary drawing.	07
Q.5	(a) Explain the importance of two hand operation circuits.	03
	(b) Draw hydraulic meter-in circuit to control the speed of retraction of DAC. Explain in brief.	04

- (c) Explain the control of a surface grinder table by pilot operated valve with detail drawing. **07**

OR

- Q.5** (a) Sketch and explain sliding spool type 2/2 DCV. **03**
(b) Write down classification of Air compressor. **04**
(c) List and explain the six basic components used in a pneumatic system. **07**
