

GUJARAT TECHNOLOGICAL UNIVERSITY**BE- SEMESTER-V EXAMINATION – WINTER 2025****Subject Code:3151913****Date:17-11-2025****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) Discuss the advantages and disadvantages of hydraulic systems.	03
	(b) List the electric elements used in the hydraulic system with its use.	04
	(c) Draw the ISO/ANSI symbol of main components of a hydraulic system with its function.	07
Q.2	(a) Explain Brahma's press principle with help of neat sketch	03
	(b) Classify actuators. Explain working of double acting linear actuator with sketch.	04
	(c) List the main functions of hydraulic fluid and explain the properties of hydraulic oil.	07
OR		
	(c) Explain the working of by-pass type filter with its advantages.	07
Q.3	(a) Explain with neat sketch the working of pilot operated pressure relief valve.	03
	(b) Explain with circuit diagram application of accumulator as a leakage compensator.	04
	(c) Sketch and explain working of balanced vane pump.	07
OR		
Q.3	(a) Explain 4/3 sliding spool directional control valve working.	03
	(b) List the various functions of accumulators.	04
	(c) Explain working of external gear pump with neat sketch.	07
Q.4	(a) Explain the cushioning of cylinders.	03
	(b) Explain the working counter balance valve.	04
	(c) Draw and explain the working of 'Regenerative circuit'.	07
OR		
Q.4	(a) Describe application and advantages of pneumatic systems.	03
	(b) Sketch and explain shuttle valve construction and its working.	04
	(c) Sketch & explain application of quick exhaust valve in pneumatics.	07
Q.5	(a) Describe screw compressor for pneumatic system.	03
	(b) Write a brief note on Air Motors stating its classification and applications.	04
	(c) Explain FRL unit for pneumatic system.	07
OR		
Q.5	(a) State advantages and disadvantages of simulation.	03
	(b) Explain role of automation in hydraulic and pneumatic system.	04
	(c) Explain cascade method of sequencing.	07