

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-V (NEW) EXAMINATION – SUMMER 2024****Subject Code: 3151913****Date: 16-05-2024****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
Q.1	(a) Write the advantages and disadvantages of Fluid Power System.	03
	(b) Explain Brahma's principle with sketch.	04
	(c) List the function of basic components of a hydraulic system with ISO Symbol.	07
Q.2	(a) What is meant by check valve? Explain with neat sketch pilot check valve.	03
	(b) Write the primary functions of hydraulic fluid and explain basic properties of hydraulic fluid.	04
	(c) What is the purpose of filter in hydraulic system? Explain different locations of hydraulic filters with sketch.	07
	OR	
	(c) Explain the types of Filters and sources of Contaminations.	07
Q.3	(a) Explain the construction and working of (a) Pressure reducing valve, (b) Sequence valve.	03
	(b) How hydraulic accumulators are classified? Explain with neat sketch weight accumulator.	04
	(c) Explain the construction and working of Adjustable vane pump with neat sketch	07
	OR	
Q.3	(a) Write a short note on (a) Counter –balance valve, (b) Unloading valve.	03
	(b) What is meant by “Accumulator”? Explain various functions of accumulators.	04
	(c) Explain the construction and working of Axial piston pump with suitable application.	07
Q.4	(a) What are the types of hydraulic actuator? Explain single acting and double acting hydraulic cylinders with neat sketch.	03
	(b) Draw speed controlled actuator, Meter- out circuits for DAC for extension.	04
	(c) Draw and explain the working of ‘Sequential circuit’ for sequential operation of two - double acting cylinders, using two sequence valves.	07
	OR	
Q.4	(a) List the six basic components used in a pneumatic system with ISO symbol.	03
	(b) Explain construction and working of Telescopic and Tandem cylinder.	04
	(c) Bleed off Circuits – sketch & explain its working.	07

- Q.5** (a) Explain Selection of compressors for pneumatic system. **03**
(b) Construction and working of time delay valve of pneumatic systems. **04**
(c) Sketch & explain Pneumatic Circuit using Quick Exhaust valve. **07**
- OR**
- Q.5** (a) Explain role of simulation software in hydraulic and pneumatic. **03**
(b) State and explain types of automations in industry **04**
(c) Explain FRL unit in brief. **07**
