

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-V (NEW) EXAMINATION – SUMMER 2021****Subject Code:3151913****Date:07/09/2021****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) State the Pascal's law and explain Bramah's press principle.	03
	(b) Draw the ISO symbol for following	04
	1. 5/3 DC valve (Open exhaust).	
	2. 5/3 DC valve (Open pressure)	
	3. Double acting cylinder	
	4. Throttle check valve	
	(c) Compare Hydraulic system with Pneumatic system.	07
Q.2	(a) Draw the detailed symbol of FRL unit. Explain any two components of the same in detail.	03
	(b) Classify the compressors used in pneumatics system and explain twin lobe compressor in brief.	04
	(c) With the help of sketch explain different locations of filters.	07
	OR	
	(c) Write a note about different factors to be considered for filter design.	07
Q.3	(a) Which are the sources of heat generation in hydraulic system?	03
	(b) Explain working of sequence valve with neat sketch.	04
	(c) Classify the pumps used for the hydraulic system and explain external and internal gear pump with neat sketches.	07
	OR	
Q.3	(a) List the special cylinder used in hydraulic system.	03
	(b) Write a short note on the Twin pressure and Quick Exhaust valve.	04
	(c) Classify the pumps used for the hydraulic system and explain working of pressure compensated vane pump with neat sketch.	07
Q.4	(a) List the different actuating mechanism used to operate the valve.	03
	(b) What is the flow equalizer and when it is used?	04
	(c) Explain regenerative circuit with neat sketch.	07
	OR	
Q.4	(a) Describe the cushioning in brief.	03
	(b) Give difference between Meter-in and Meter-out circuit.	04
	(c) Explain time delay circuit used in pneumatic system.	07
Q.5	(a) Explain Flash Point, HWCF and TAN with reference to hydraulic oil.	03
	(b) Which are the different control members in control chain?	04
	(c) Explain the construction of single acting cylinder with neat sketch.	07

OR

- Q.5** (a) Explain Mesh number, Micron Rating and Slit index with reference to filter. **03**
- (b) Which are the different logics can be used in pneumatic circuit design? **04**
- (c) Compare Air motor with electric motor. **07**
