

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VII (NEW) EXAMINATION – SUMMER 2021****Subject Code:2171912****Date:04/08/2021****Subject Name:Oil Hydraulics & 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.

		MARKS
Q.1	(a) Classify the functions of hydraulic fluid.	03
	(b) Give ISO/ANSI symbol of following.	04
	1. Hydraulic quick coupling with check valves	
	2. Pressure reducing valve	
	3. Variable flow control valve	
	4. Spring loaded accumulator	
	(c) Explain construction and working of pressure relief valve using schematic diagram.	07
Q.2	(a) Draw the general layout of hydraulic system. Explain the function of each component.	03
	(b) Explain different locations of filter in hydraulic circuit.	04
	(c) Give the classification of Pumps. Sketch & Explain working of external gear pump.	07
OR		
	(c) Explain pressure compensated flow control using neat schematic diagram.	07
Q.3	(a) Distinguish between Hydraulic system & Pneumatic system.	03
	(b) Write applications of hydrostatic transmission.	04
	(c) Enlist different types of accumulators. Explain dead weight and spring loaded accumulators. Differentiate between them.	07
OR		
Q.3	(a) Give sources of heat generation in hydraulics system.	03
	(b) State reservoir accessories and their functions.	04
	(c) Cite the classification of check valves and explain the function of pilot-operated check valve, giving the necessary drawing.	07
Q.4	(a) Classify and explain hydraulic cylinders according to construction.	03
	(b) Explain working of Regulator in FRL unit with sketch. Draw pneumatic symbol of pressure regulator.	04
	(c) Draw and explain Meter-in, Meter out and By-pass speed control circuits. Also differentiate among them.	07
OR		
Q.4	(a) What is the influence of following properties of hydraulic fluid on hydraulic systems? (i) Bulk modulus (ii) Flash point (iii) Vapour pressure	03
	(b) Draw and explain the regenerative circuit. What are the advantages and disadvantages of it?	04
	(c) Prepare the pneumatic system to perform automatic to and fro motion of double acting pneumatic cylinder and explain working of it.	07
Q.5	(a) Classify automation by control system.	03
	(b) Differentiate with sketches the function and characteristics of closed centre and open centre Direction Control valves.	04

- (c) Explain working of shuttle valve, twin pressure valve and quick exhaust valve in detail. Give critical application of each. **07**

OR

- Q.5** (a) Explain briefly the construction and compare the spool valves and poppet valves. **03**
- (b) Differentiate between Unbalanced fixed displacement Vane pump and Balanced fixed displacement Vane pump. **04**
- (c) In a press stamping operation to be performed using a stamping machine. Before stamping, work piece has to be clamped under stamping station. Then stamping tool comes and performs stamping operation. Work piece must be unclamped only after stamping operation. **07**
