

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-V (NEW) EXAMINATION – WINTER 2021****Subject Code:3151913****Date:15/12/2021****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) Draw the basic hydraulic circuit. Explain the components.	03
	(b) State and explain the advantages and disadvantages of oil hydraulic power transmission system.	04
	(c) Explain various symbols for Hydraulic and Pneumatic as per ISO/ANSI.	07
Q.2	(a) What is regeneration in hydraulic system?	03
	(b) Classify the types of hydraulic cylinders. Describe the working of a double acting tandem cylinder.	04
	(c) Draw meter in & meter out circuit giving a suitable example.	07
OR		
	(c) State functions of hydraulic motor with the help of suitable sketch, explain construction and operation of Gear motor, and difference between vane and gear motor.	
Q.3	(a) What is the function of Pressure Reducing Valve?	03
	(b) What are advantages of fluidics system.	04
	(c) Draw the symbol FRL unit and explain its role in pneumatic system in detail.	07
OR		
Q.3	(a) Explain working of 4/3 sliding spool direction control valve.	03
	(b) Write Short notes on: 1. Ram type actuators 2. Telescopic type actuators.	04
	(c) Explain difference between Hydraulics System and Pneumatics system. Explain main three components of each of them.	07
Q.4	(a) Explain non-return valve with suitable sketch.	03
	(b) State and explain the merits and demerits of oil hydraulic power transmission	04
	(c) How speed control is achieved in Pneumatic systems? Explain fixed flow and variable flow control valve with sketch.	07
OR		
Q.4	(a) What is the requirement of control valves?	03
	(b) Show the application of counterbalance valve with the help of suitable circuit diagram.	04
	(c) List the different types of accumulator. Describe working of any two of them.	07
Q.5	(a) State function of cushioning mechanism of hydraulic cylinder and state function of valves used in it.	03
	(b) Discuss principle of variable flow control valve.	04

- (c) Why do you prefer the reciprocating pumps over rotary pumps? With the help of a neat sketch, explain the working principle of an Inline piston pump. **07**

OR

- Q.5** (a) How speed control is achieved in Pneumatic systems? **03**
(b) Draw and explain twin lobe compressor. **04**
(c) Sketch & explain Pneumatic Circuit using Quick Exhaust valve and twin pressure valve. **07**
