

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

- (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

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