

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE- SEMESTER-V (NEW) EXAMINATION – WINTER 2020****Subject Code:3151913****Date:22/01/2021****Subject Name:Oil Hydraulics And Pneumatics****Time:10:30 AM TO 12:30 PM****Total Marks: 56****Instructions:**

1. Attempt any **FOUR** questions out of **EIGHT** questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

	<b>Marks</b>
<b>Q.1</b> (a) What are limit switches? How do they differ from push button switches?	<b>03</b>
(b) Which are the different function of hydraulic oil? Also list properties of hydraulic oil.	<b>04</b>
(c) Give ISO/ANSI symbol of following.	<b>07</b>
i. Single acting cylinder with spring return actuator	
ii. Bi-directional variable displacement pump	
iii. Pilot operated pressure relief valve	
iv. 4/3 directional control valve	
v. Adjustable flow control valve with throttle	
vi. FRL unit	
vii. Telescopic cylinder	
<b>Q.2</b> (a) Explain any one method of controlling air receiver pressure.	<b>03</b>
(b) Classify air compressors. Write a short note on selection criteria of compressor.	<b>04</b>
(c) Cite the classification of check valves and explain the function of pilot-operated check valve, giving the necessary drawing.	<b>07</b>
<b>Q.3</b> (a) Write a short note on fire resistant oil	<b>03</b>
(b) Explain 4/3 sliding spool direction control valve working.	<b>04</b>
(c) List different pressure control valves giving its application. Explain construction and working of any one in detail with the help of neat sketch.	<b>07</b>
<b>Q.4</b> (a) Explain 'cushioning' of pneumatic cylinder	<b>03</b>
(b) Write a short note on the Quick Exhaust valve	<b>04</b>
(c) Explain regenerative circuit with a suitable	<b>07</b>

- application.
- Q.5** (a) Draw a circuit for operation of single acting pneumatic cylinder using push button operated 3/2 DC valve. **03**
- (b) How continuous rotary air motors differs from limited rotation air motors? **04**
- (c) Explain sequencing of four double acting air cylinders with neat sketch. **07**
- Q.6** (a) In what ways, pneumatic circuits differ from the hydraulic circuits? **03**
- (b) Explain cascade system for circuit design using assumed sequence. **04**
- (c) Explain with suitable circuits how the single acting and double acting hydraulic cylinders are controlled. **07**
- Q.7** (a) Draw a circuit for operation of unidirectional motor using 3/2 direction control valve **03**
- (b) Compare fixed and flexible automation system with suitable example. **04**
- (c) Draw and explain sequencing circuit to operate two double acting cylinder using limit valves. **07**
- Q.8** (a) What do you mean by automation? List advantages and disadvantages of automation in fluid power systems. **03**
- (b) Give classification of automation in industry. Discuss the role of automation in hydraulic and pneumatic industry **04**
- (c) Write short note on programmed automation. **07**