## **GUJARAT TECHNOLOGICAL UNIVERSITY**

**BE - SEMESTER-V (OLD) - EXAMINATION - SUMMER 2017** Subject Code: 153401 Date: 10/05/2017 **Subject Name: Applied 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. 0.1 (a) State the basic advantage and disadvantage of a hydraulic system? Differentiate 07 between mass, weight and force. Define the term fluid power. What are applications, advantages of fluid power? 07 **(b)** Mention the required properties of good hydraulic fluid. 07 **Q.2** (a) What are the applications of Intensifier? Explain with any one intensifier circuit. **(b)** 07 OR What is pressure compensated pump? Compare unbalanced vane pump with **(b)** 07 balanced vane pump with neat sketch. Explain various types of hydraulic cylinders and write the selection criteria for it. Q.3 07 (a) Briefly explain air pressure regulator with their functions, construction and **(b)** 07 operation using suitable figures. OR Explain the construction and working principle of hydro mechanical servo valves 07 **Q.3** (a) with neat diagram. With neat sketch explain tandem cylinders and cylinder cushioning. **(b)** 07 **Q.4** Explain Pilot operated Check Valve with neat sketch. 07 (a) Explain Shuttle valve and check valve. **(b)** 07 OR (a) Describe various selection criteria for pneumatic components. 07 **Q.4** What are the fluidic devices? Explain with simple circuit application. **(b)** 07 **(a)** Explain following Fluidics Logical Pneumatic Gates with suitable application: 07 **Q.5** 1) AND Gate 2) OR Gate 3) NOR Gate (b) How PLC is used in fluid power control? Explain with suitable application. 07 OR Explain and draw Penumo-hydraulic circuit for an application. **Q.5** 07 (a) What are the applications in fluid power control for SCADA? **(b)** 07

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