

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER– VIII(OLD) – EXAMINATION – WINTER – 2017

Subject Code: 180204**Date: 10-11-2017****Subject Name: Automotive 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.

- Q.1** (a) Give Hydraulic/Pneumatic symbols for Following. **07**
 1. Back Pressure Valve, 2. Unloading Valve, 3. Uni-Directional Motor, 4. 4/3 Direction Control Valve-Closed Centre, Solenoid Operated, 5. Shuttle Valve, 6. Twin Pressure Valve, 7. Hydrostatic Transmission.
- (b) Explain FRL unit Used in Pneumatic System? State purpose and explain importance of the FRL unit. **07**
- Q.2** (a) Explain Properties of Hydraulic Oil in details. **07**
- (b) Draw layout of Air Brake and label all its components. Explain its working. **07**
- OR**
- (b) Explain hydraulic steering system using neat sketch **07**
- Q.3** (a) Explain various Hydraulic Actuators and write selection criteria for it. **07**
- (b) Describe Sequence Valve with neat sketch. Draw Hydraulic application circuit using sequence valve. **07**
- OR**
- Q.3** (a) Explain with neat sketch Regenerative Hydraulic Circuit. **07**
- (b) List down common cause of Failure of Pneumatic System and Suggest remedy for the same. **07**
- Q.4** (a) Draw hydraulic circuit diagram for tipping mechanism. **07**
- (b) Explain Pneumatic Suspension System of Modern Automobile with schematic diagram **07**
- OR**
- Q.4** (a) Develop Pneumatic Circuit to control Double Acting Pneumatic Cylinder with 5/2 DCV. **07**
- (b) Explain Spool type 4/3 Direction Control Valve with neat sketch. **07**
- Q.5** (a) With neat sketch explain the construction and operation of Pressure Relief Valve. **07**
- (b) Explain following Logic Gates used in Pneumatic Circuit with proper application. 1) AND Gate 2) OR Gate 3) NOT gate **07**
- OR**
- Q.5** (a) Describe with neat sketch Quick Exhaust Valve with application. **07**
- (b) Explain and draw hydraulic circuit used for the quick return mechanism of a shaper. **07**
