

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER VIII- • EXAMINATION – SUMMER-2015

Subject Code: 180204**Date:05/05/2015****Subject Name: Automotive Hydraulics and Pneumatics****Time:10.30AM-01.00PM****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) (i) Compare Hydraulic system with Mechanical system in context to **07**
a) Power to Weight Ratio
b) Speed Control
c) Overload Safe Protection
(ii) Telescopic Cylinder is considered as suitable choice for Dump Truck. Justify the statement.
- (b) Explain with neat sketch Regenerative Hydraulic Circuit. **07**
- Q.2** (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 Properties of Hydraulic Oil in details. **07**
- OR**
- (b) Explain Pneumatic Suspension System of Modern Automobile with schematic diagram. **07**
- Q.3** (a) With neat sketch explain the construction and operation of Pressure Relief Valve. **07**
- (b) Develop Hydraulic Circuit for Automatic Cylinder Reciprocating System. **07**
- OR**
- Q.3** (a) Explain operation of Time Delay Valve with neat sketch. **07**
- (b) Develop Pneumatic Circuit to control Double Acting Pneumatic Cylinder with 5/2 DCV. **07**
- Q.4** (a) Explain with neat sketch 2 Stage Pilot Operated Spool Servo valve. **07**
- (b) Explain Spool type 4/3 Direction Control Valve with neat sketch. **07**
- OR**
- Q.4** (a) Write short note on Hydraulic Power Steering with line diagram. **07**
- (b) Explain FRL unit Used in Pneumatic System? State purpose and explain importance of the FRL unit. **07**
- Q.5** (a) Describe with neat sketch Quick Exhaust Valve with application. **07**
- (b) Describe Pressure Compensated Flow Control Valve with diagram. **07**
- OR**
- Q.5** (a) Explain following Logic Gates used in Pneumatic Circuit with proper application. **07**
1) AND Gate 2) OR Gate 3) NOT gate
- (b) List down common cause of Failure of Pneumatic System and Suggest remedy for the same. **07**
