

GUJARAT TECHNOLOGICAL UNIVERSITY**BE SEM-VIII Examination May 2012****Subject code: 180204****Subject Name: Automotive Hydraulics & Pneumatics****Date: 08/05/2012****Time: 10.30 am – 01.00 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) Draw and explain in brief different elements of hydraulic system. **07**
 (b) Explain difference between Hydraulic and Pneumatic System. **07**
- Q.2** (a) Give Hydraulic/Pneumatic Symbol for following: **07**
 1) Pressure Relief Valve 2) Sequence Valve
 3) 4/3, Closed Centre, Solenoid operated directional valve
 4) Single Acting Cylinder with Spring Return
 5) Bidirectional Variable Displacement Motor
 6) Quick Exhaust Valve(Pneumatic)
 7) Pressure Compensated Flow Control Valve
 (b) Name and Explain properties that a hydraulic fluid should possess. **07**
- OR**
- (b) What are the four primary functions of a hydraulic fluid? How is the viscosity of hydraulic oil affected by temperature change? **07**
- Q.3** (a) State various types of Hydraulic valves? What is Direction Control Valve? Why it is need in a hydraulic System? **07**
 (b) Draw and Explain circuit diagram of Meter In speed control hydraulic system. **07**
- OR**
- Q.3** (a) Explain and Draw circuit diagram of Meter Out speed control pneumatic system. **07**
 (b) Why is pneumatic system selected for factory automation? Explain in brief elements of pneumatic system. **07**
- Q.4** (a) Explain and draw time delay pneumatic circuit and gives its application. **07**
 (b) What is servo valve? How does it work? Describe mechanical-hydraulic servo valve. **07**
- OR**
- Q.4** (a) Explain with schematic diagram automotive hydraulic brake system. Why it might exhibit a spongy feeling when driver pushes on brake pedal. **07**
 (b) Describe air suspension with schematic diagram. **07**
- Q.5** (a) Write short note on Hydraulic power steering with neat sketch. **07**
 (b) List down most common causes of hydraulic system breakdown and suggest remedy. **07**
- OR**
- Q.5** (a) Write short note on Shuttle valve and twin pressure valve with its construction details and symbols. **07**
 (b) List down pneumatic sensors used in pneumatic circuit and explain it in brief. **07**
