

GUJARAT TECHNOLOGICAL UNIVERSITY
BE – SEMESTER–VIII • Remedial EXAMINATION – WINTER 2013

Subject Code: 180204**Date: 12/09/2013****Subject Name: Automotive Hydraulics and Pneumatics****Time: 03:00 pm – 05:30 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) Enlist field of application of fluid power system and write down the function of the following fluid power elements. **07**
 i) Power unit ii) Actuators iii) Control valves
- (b) Draw symbols for following hydraulic elements. **07**
 i) 4/3 solenoid operated direction control valve.
 ii) Bidirectional variable displacement hydraulic motor.
 iii) Single acting cylinder with spring return.
 iv) Check valve with spring.
 v) Accumulator
 vi) Filter-Strainer
 vii) Fixed displacement unidirectional pump.
- Q.2** (a) Differentiate hydraulic and pneumatic power system. **07**
 (b) Enlist the functions of hydraulic fluid. Explain properties of hydraulic fluids. **07**
- OR**
- (b) Draw basic hydraulic circuit and explain the basic elements of oil hydraulic system. **07**
- Q.3** (a) Classify different types of hydraulic cylinder and hydraulic motor. Mention an application of each of them. **07**
 (b) Explain different types of pressure control valves. **07**
- OR**
- Q.3** (a) Explain the parameters required for selection of hydraulic cylinder. **07**
 (b) Explain sequence valve and draw hydraulic application circuit for sequence valve. **07**
- Q.4** (a) Explain meter-in and meter-out hydraulic circuit. **07**
 (b) Draw schematic diagram for basic pneumatic system. Enlist the components of pneumatic system and mention function of each. **07**
- OR**
- Q.4** (a) Explain the function and graphical symbol of following pneumatic valves. **07**
 a) Pneumatic shuttle valve or OR valve
 c) Quick exhaust valve
 d) Time delay valve
 (b) Explain working of reciprocating piston type air motor and vane type air motor. **07**
- Q.5** (a) Explain hydro-pneumatic suspension with neat sketch. **07**
 (b) Explain hydraulic circuit for hydraulic tipping mechanism. **07**
- OR**
- Q.5** (a) Enlist the different pneumatic position sensors and explain the working of each. **07**
 (b) Explain maintenance schedule for any hydraulic system. **07**
