

PARUL UNIVERSITY
FACULTY OF ENGINEERING & TECHNOLOGY
M.Tech., Summer 2018 - 19 Examination

Semester: 2**Subject Code: 203219186****Subject Name: Hydraulics & Pneumatics****Date: 13/05/2019****Time: 10:30 am to 01:00 pm****Total Marks: 60****Instructions:**

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1 A) Compare hydraulic and pneumatic systems. **(05)**

B) Give symbols for any five control valves. **(05)**

C) Differentiate between pressure reducing valve and pressure relief valve. **(05)**

Q.2 Answer the following questions. (Attempt any three) (Each five mark) **(15)**

A) Draw systematic circuit arrangement with appropriate symbol positioning for speed control of hydraulic cylinder through flow control valve in bypass circuit.

B) How does external gear pump differ from internal gear pump with diagram?

C) Write short note on cylinder synchronizing circuits.

D) Describe the following:

1. Quick Exhaust valve
2. Shuttle Valve

Q.3 A) Consider a simple operation where a double-acting cylinder is used to transfer parts from a magazine. The cylinder is to be advanced either by operating a push button or by a foot pedal. Once the cylinder is fully advanced, it is to be retracted to its initial position. A 3/2-way roller lever valve is to be used to detect the full extension of the cylinder. Design a pneumatic circuit for the above-mentioned application. **(07)**

B) Explain construction and operation of Time Delay Valve. **(08)**

OR

B) Differentiate between unbalanced fixed displacement vane pump and balanced fixed displacement vane pump. **(08)**

Q.4 A) Explain various centre conditions for spool valves. **(07)**

OR

A) Give detail classification of directional control valve. Explain construction and working of 3 way valve with neat sketch. **(07)**

B) Draw and explain meter-out circuit for hydraulic system. **(08)**