



| | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|
| | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|

P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belagavi)

Eighth Semester, B. E. - Industrial and Production Engineering

Semester End Examination; July - 2021

Hydraulic and Pneumatic Systems

Time: 3 hrs

Max. Marks: 100

Note: Answer any FIVE full questions.

- 1 a. With a neat block diagram, explain the structure of hydraulic power system. 10
- b. State Pascal's law. With a neat diagram, explain the working principle of a typical hydraulic gear pump. 10
- 2 a. How are the hydraulic pumps classified? Describe the working of a single acting cylinder. 10
- b. Explain with a neat sketch, the operation of Vane motor in the hydraulic system. 10
- 3 a. With a neat sketch, explain the working of a pilot operated check valve. 10
- b. With a sketch, explain construction and operation of 3/2 and 4/3 directional control valves. 10
- 4 a. Explain the working principle of pilot controlled pressure relief valve along with their symbols. 10
- b. Explain briefly with neat sketch, the working of pressure compensated flow control valve used in hydraulic system. 10
- 5 a. Explain double pump hydraulic system, with a neat hydraulic circuit. 10
- b. Explain with a hydraulic circuit of regenerative cylinder operation. 10
- 6 a. Explain the difference between meter-in and meter-out circuit with a sketch. 10
- b. What is an accumulator? Explain with a neat circuit diagram, the use of accumulator as a hydraulic shock absorber. 10
- 7 a. Explain three basic types of filtering methods used in hydraulic system with diagram. 10
- b. Explain general types of fluids used in fluid power system. 10
- 8 a. What are the effects of solid contaminant? Explain with a simple sketch influence of contaminant on lubricating fluid. 10
- b. Write short notes on;
 - i) Sealing devices 10
 - ii) Reservoir system
- 9 a. List and briefly explain the important characteristics of compressed air. 10
- b. Explain with a block diagram, the structure of a pneumatic system. 10
- 10 a. Write a short notes on:
 - i) Reciprocating compressor 10
 - ii) Two stage compressor
- b. Explain with a neat sketch, the working of piston motor in pneumatic system. 10