**REG.NO:**

**SEMBODAI RUKMANI VARATHARAJAN ENGINEERING COLLEGE**

**ACADEMIC YEAR 2014-2015/ODD SEMESTER**

**MODEL EXAM**

**DEPARTMENT OF MECHANICAL ENGINEERING**

**SUBJECT CODE/TITLE:** ME2305 APPLIED HYDRAULICS AND PNEUMATICS

**YEAR/SEM:** III/V **DATE:**

**DURATION: 3** HOURS **MAX.MARKS:** 100

**Answer ALL the Questions**

**PART A (10X2=20)**

1. Define Fluid power.
2. Explain the term friction factor.
3. What do you meant by non-positive displacement pump?
4. What is cylinder cushion?
5. Differentiate pressure control and pressure relief valve.
6. Write the function of solenoid valve.
7. What is the need for FRL unit?
8. Name the various types of filters used in pneumatics.
9. What is servo valve and how it is working?
10. What is ladder diagram?

**PART B (80 MARKS)**

1. (i) Explain the hydraulic and pneumatic fluid power system (12)  
   (ii)Discuss the properties of hydraulic fluids. (4)

(or)

1. How to calculate the frictional losses in the valves and fittings. (8)  
   (ii) Define Reynolds Number (2)  
   (iii) Differentiate between laminar and turbulent flow. (6)
2. (i) Explain the working principle of external gear pump (12)  
   (ii) Write short notes on variable displacement pump (4)

(or)

1. Explain the various mechanisms of hydraulic mounting. (16)
2. i) Explain the operational feature of check valve. (10)  
   ii) Write short notes on shuttle valve (6)

(or)

1. i) Explain air over oil intensifier system. (10)   
   ii) Explain the neat sketch of weight loaded accumulator. (6)
2. (i)Discuss the working principle of an air compressor (8)

(ii)Discuss the function of the FRL unit (8)

(or)

1. (i)Draw a neat sketch of an electro-hydraulic for sequencing drilling and clamping cylinders (10)

(ii)Explain the working principle of any two types of pneumatic position serving devices? (6)

1. i)Design of circuit with air pilot control of a double acting cylinder (8)

ii)Explain with a circuit diagram how is the control of an air motor is achieved. A flow control valve used to adjust the speed of the motor (8)

(or)

1. Explain the hydro mechanical servo system with suitable application (16)