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**Question Paper Code: 35076**

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2017

Fifth Semester

Mechanical Engineering

01UME506 – APPLIED HYDRAULICS AND PNEUMATICS

(Regulation 2013)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. State the four primary functions of hydraulic fluids.
2. List five fields of applications of fluid power.
3. Why is the operation of a screw pump quiet?
4. How is single acting cylinder retracted?
5. What is the function of pressure reducing valve?
6. What is the use of shuttle valve?
7. Why filters are used in pneumatic systems?
8. Differentiate meter-in and meter-out speed control circuits.
9. Compare PLC and a computer on the basis of fluid power applications.
10. Define Coanda effect.

PART - B (5 x 16 = 80 Marks)

11. (a) Draw fluid power symbols of any six different types of valves. (16)

Or

(b) Discuss the factors to be considered in the selection of hydraulic fluids. (16)

12. (a) With a sketch, illustrate the working of a cylinder cushioning mechanism. (16)

Or

(b) With a neat sketch explain the working principle of gear pump. (16)

13. (a) Classify the ways of applying flow control valves? Differentiate meter-in and meter-out controls. (16)

Or

(b) Discuss in detail about any two types of accumulator. (16)

14. (a) Write a short note on compressor. With a neat sketch explain the working principle of piston type compressor. (16)

Or

(b) Briefly discuss about synchronization of cylinder motion. Name the various methods to achieve it. (16)

15. (a) Design a basic pneumatic circuit and explain it in detail. (16)

Or

(b) What are the various approaches for entering the program in PLC? Explain why interfacing is necessary in a microprocessor control of fluid power. (16)