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Question Paper Code: 35706

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2018

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. What is fluid power?
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. What is fluidics?
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 properties which a hydraulic fluid should possess. (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) An electro-hydraulic circuit uses two pressure switches and a solenoid operated direction control valve for continuous reciprocation of the hydraulic cylinder. Develop circuit with a suitable ladder diagram. (16)
