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Question Paper Code: 55706

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2022

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. When hydraulics is preferred over pneumatics? Why?
2. Name three fire resistant hydraulic fluids.
3. Why the centrifugal pump is not used in the fluid power system?
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. Write the difference between a strainer and filter?
8. Name the three types of positive displacement compressors that are commonly used in industry.
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) (i) How is Reynolds number determined? (4)

(ii) Draw fluid power symbols of any six different types of valves. (12)

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

Or

(b) Explain the working principle of piston motor with a neat sketch. Also write its advantages and disadvantages. (16)

13. (a) With the help of a circuit, describe the application of the pressure reducing valve. (16)

Or

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

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

Or

(b) In a pneumatic drilling circuit, cylinder *A* is used to clamp the work piece and cylinder *B* is used for drilling. The sequence of operations is: work piece is clamped, drilled, drill retracted and work piece is unclamped. Design a pneumatic sequencing circuit using cascade method. (16)

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

Or

(b) Brief about the operations of different fluidic devices. (16)