

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
SECOND SEMESTER M. TECH. DEGREE EXAMINATION, MAY 2016

Branch: Mechanical Engineering

Specialization: Machine Design

04 ME 6522 OIL HYDRAULICS AND PNEUMATICS

Max. Marks : 60

Duration: 3 Hours

Part A (8x3=24 marks)

1. Explain Fluid power.
2. Sketch Hydraulic cylinder structure.
3. Explain the working principle of Shuttle valve.
4. Briefly explain the working of Pressure Relief Valve with neat sketch.
5. Explain Counter balance circuit.
6. Explain Sequential circuit.
7. Sketch Pneumatic direction control valve.
8. What is Hydro pneumatic system?

Part B (6x6=36marks)

9. Explain the various applications of Fluid power

OR

10. Explain Hydraulic symbols with neat sketch.

11. Explain the classification of Hydraulic Cylinders.

OR

12. Explain the various forces in mounting a hydraulic cylinder. A horizontally mounted cylinder is required to extend against a load of 22000 N that is at an angle of 30^0 to the cylinder axis. Cylinder has a bore diameter of 50 mm. What is the required pressure?

13. With a neat circuit diagram explain the controlling of Single acting cylinder.

OR

14. With a neat circuit diagram explain the controlling of a 3 way DCV.

15. Explain the application of Pressure reducing valve.

OR

16. Explain METER –IN and METER-OUT circuits.

17. Explain Cylinder Synchronous circuit

OR

18. Explain Unloading circuit.

19. With a neat sketch and symbol explain the working of Pneumatic double acting cylinder.

OR

20. Design circuit for operation of a Hydraulic press.

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