

Register Number:

B.E., DEGREE EXAMINATIONS: MAY/JUNE 2013

Sixth Semester

MECHANICAL ENGINEERING

MEC116: Fluid Power Systems

Time: Three Hours

Maximum Marks: 100

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. Oil hydraulics employs
 - a) Pressurised liquid
 - b) Pressurised air
 - c) Both a and b.
 - d) Low pressure liquid.
2. Hydraulic systems are preferred for
 - a) Low load applications
 - b) High load applications
 - c) Low pressure applications
 - d) None of the above.
3. The pump widely used in oil application is
 - a) Centrifugal pump
 - b) Gear pump
 - c) Reciprocating
 - d) none of the above
4. A complete hydraulic balance is achieved in
 - a) Un balanced vane pump
 - b) Balanced vane pump
 - c) Internal gear pump
 - d) None of the above
5. Pressure control valve is a
 - a) Either a normally closed or normally opened valve
 - b) Normally opened valve
 - c) Normally closed valve
 - d) None of the above
6. The rate of flow through any orifice depends upon
 - a) Pressure difference between inlet and outlet
 - b) Outlet pressure
 - c) Inlet pressure
 - d) shape, size and form
7. In single acting cylinders the return stroke of the piston is due to
 - a) Either spring or gravity force
 - b) Spring force only
 - c) Gravity force only
 - d) Oil pressure

8. Regenerative circuit is used to speed up the
 - a) Extending speed of the double acting cylinder
 - b) Retracting speed of the double acting cylinder
 - c) Intermittent operation
 - d)) None of the above
9. Quick exhaust valve is fitted
 - a) Nearer to the cylinder port
 - b) Away from the cylinder port
 - c) Nearer to the relief valve
 - d) None of the above
10. A device which is used to control the noise caused by the exhausting air stream is called
 - a) Muffler
 - b) Lubricator
 - c) Pneumatic cylinder
 - d) None of the above

PART B (10 x 2 = 20 Marks)

11. Define fluid power?
12. Differentiate hydraulics and pneumatics?
13. Name few applications of hydraulics.
14. What is the function of intensifier?
15. What is the function of unloading valve?
16. Draw the symbol for pressure relief valve
17. What is meant by PLC?
18. What are the different types of compressors?
19. Name the components of pneumatic systems.
20. What is the function of quick exhaust valve?

PART C (5 x 14 = 70 Marks)

21. a) Draw and explain the working of telescopic and double acting cylinder with neat sketch.

(OR)

- b) Describe the working of cylinder cushioning mechanism and external gear motor with neat sketch.

22. a) Describe the working of unbalanced vane pump and balanced vane pump with neat sketch.

(OR)

b) Draw and explain the working of bend axis piston pump and radial piston pump with neat sketch.

23. a) With neat sketch explain different types of accumulators.

(OR)

b) Draw and explain the working of counterbalance valve circuit and pressure intensifier circuit.

24. a) Sketch and Explain the working of Air Filter and Lubricator.

(OR)

b) Explain Air Oil Cylinder and Air-Oil Intensifier Circuit.

25. a) Explain the construction of PLC with various approaches for entering program in to PLC.

(OR)

b) Design a system using cascade method in which a cylinder A is used to clamp the work piece, cylinder B is used for punching and cylinder C removes the work piece from the station.
