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Code : 9ME-44

Register Number | | | | | | | |

IV Semester Diploma Examination, April/May 2013

FLUID POWER ENGINEERING

3 Hours] [Max. Marks : 100

(ii) Draw neat sketch, if necessary.

(iii) Answer any **two** full questions from each Section – **II, III & IV.**

SECTION – I

1) Fill in the blanks with appropriate words : 5

(i) To store the potential energy of an incompressible fluids held under pressure _____ are used.

(ii) Lubrication is used in _____ system.

(iii) In hydraulic system _____ is used as working fluid.

(iv) For overload protection _____ is used in hydraulic system.

(v) Fluidic technology is based on the _____ phenomenon.

b) Explain fluidic bi-stable flip-flop with neat sketch. 5

SECTION – II

a) Write in brief about historic perspective on fluid power engineering. 5

b) Write any five advantages of automation. 5

c) Write any five advantages of fluid power. 5

a) Define hydraulic pump and write any four advantages of positive displacement pump. 5

b) With neat sketch explain lobe pump. 5

c) With neat sketch explain hydraulic pressure relief valve. 5

a) Draw neat labelled sketch of double acting hydraulic cylinder. 6

(b) With neat sketch explain working of telescopic cylinder. 4

(c) Explain the radial piston actuator with neat sketch. 5

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SECTION – III

5. (a) With neat sketch explain oil reservoir.
   (b) Explain any three types of pipe connections in hydraulic system.
   (c) With neat sketch explain non-separate type gas accumulator.

6. (a) With neat sketch explain lubricator used in pneumatic system.
   (b) With neat sketch explain rotary sliding vane compressor.
   (c) Explain with neat sketch the double acting pneumatic cylinder.

7. (a) Write a brief note on port markings.
   (b) Describe time delay circuit for sorting of objects.
   (c) With neat sketch explain speed control pneumatic circuit for double ac cylinder.

SECTION – IV

8. (a) Explain necessity of combination systems.
   (b) Explain air-oil intensifier circuit with a neat sketch.
   (c) Explain mechanical-hydraulic servo system.

9. (a) Write any five applications of fluidics.
   (b) Explain fluidic NOR gate.
   (c) Describe jet sensor.

10. Write short notes on any **three** of the following : 3 x
   (a) Time delay circuit
   (b) Common faults in hydraulic system
   (c) Hydraulic circuit for a Robot Arm.
   (d) Pneumatic symbols as per ISO 1219
