

**1030****Code : 15MC33T**Register  
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**III Semester Diploma Examination, Nov./Dec.-2018****FLUID POWER ENGINEERING****Time : 3 Hours ]****[ Max. Marks : 100****Note :** Answer any **six** questions from Part – A & **seven** full questions from Part – B.**Published By:****PART – A**Answer any **six** questions.**5 × 6 = 30**

1. Define density and specific gravity of a fluid. 5
2. State Bernoulli's theorem. 5
3. With a neat sketch, explain working of centrifugal pump. 5
4. Write a circuit symbols for 5 × 1 = 5
  - (a) Double acting cylinder
  - (b) Compressor
  - (c) 3/2 DCV
  - (d) FRL
  - (e) Pressure relief valve
5. Build a circuit to actuate single acting hydraulic cylinder. 5
6. Build a circuit to actuate Double acting cylinder. 5
7. Build a pump unloading circuit. 5
8. Build a circuit to actuate forward speed of a single acting Pneumatic cylinder. 5
9. Build a circuit for pilot controlled double acting cylinder. 5

## PART – B

Answer any **seven** full questions.

10. (a) List advantages & disadvantages of fluid power system.  
(b) Explain Coanda effect.
11. (a) With a neat sketch, explain air filter.  
(b) Write a block diagram showing the components of oil power hydraulic system.
12. (a) Explain the FRL unit in pneumatic system.  
(b) With a neat sketch, explain 5/2 spool type DC valve.
13. (a) With a neat sketch, explain needle valve.  
(b) Explain with sketch gas loaded accumulator.
14. (a) Build a circuit to accuate double acting hydraulic cylinder.  
(b) Build a circuit to obtain automatic reciprocating of cylinders.
15. (a) Build a fail safe circuit against overloading and to prevent injury to the operator.  
(b) Build a circuit for actuating reverse speed of a double acting Pneumatic cylinder.
16. (a) Build a circuit for meter in of a Double acting Pneumatic cylinder.  
(b) Build a circuit for meter out of a Double acting Pneumatic cylinder.
17. Build a circuit for double acting cylinder to advance by actuation of a solenoid valve and it's retract movements is delayed by time lag through a timer.
18. Build a circuit to press fit a pin to a hole with a pre-condition that while actuating of the cylinder, both the hands of the operator should be engaged.
19. Build a circuit for a double acting cylinder extends if one or both 3/2 DC valves are operated. If both 3/2 DC valves are released then cylinder retracts (OR function).