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**Question Paper Code: 55706**

B.E. / B.Tech. DEGREE EXAMINATION, DEC 2020

Fifth Semester

Mechanical Engineering

01UME506 – APPLIED HYDRAULICS AND PNEUMATICS

(Regulation 2013)

Duration: 1.15 hrs

Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

**(Answer any six of the following questions)**

- Which fluid is used in hydraulic power systems
  - Water
  - Oil
  - Non Compressible Fluid
  - All the above
- One litre of water occupies a volume of
  - $100 \text{ cm}^3$
  - $250 \text{ cm}^3$
  - $500 \text{ cm}^3$
  - $1000 \text{ cm}^3$
- Rotary motion in a hydraulic power unit is achieved by using
  - hydraulic cylinder
  - pneumatic cylinder
  - hydraulic and pneumatic cylinder
  - one of the above
- \_\_\_\_\_ converts pressure energy of fluid into mechanical work.
  - Pump
  - Actuator
  - Compressor
  - Motor
- A \_\_\_\_\_ is designed into most hydraulic systems to prevent damage due to excessive pressure
  - Directional control valve
  - Relief valve
  - Lift control valve
  - Flow control valve

6. The most common accumulator circuit is
- (a) supplementing pump flow (b) making up for system leaks  
(c) emergency power supply (d) none of the above
7. Pneumatic systems usually do not exceed.
- (a)  $\frac{1}{2}$ -1 HP (b) 1-2 HP (c) 2-3 HP (d) 4 - 6 HP
8. The lubricator in a pneumatic circuit is the
- (a) first element in line (b) second element in line  
(c) last element in line (d) middle element in the line
9. Hydraulic and pneumatic circuits
- (a) perform the same way for all functions (b) perform differently for all functions  
(c) perform the same with some exceptions (d) none of the above
10. Find the sequence for the operations mentioned below
1. Cylinder *A* undergoes forward stroke
  2. Cylinder *B* undergoes forward stroke
  3. Cylinder *A* undergoes backward stroke
  4. Cylinder *B* undergoes backward stroke
- (a)  $A^- B^- A^+ B^+$  (b)  $A^+ B^- A^+ B^-$  (c)  $A^+ B^+ A^- B^-$  (d)  $A^+ B^- A^+ B^-$

PART – B (3 x 8= 24 Marks)

**(Answer any three of the following questions)**

11. Draw fluid power symbols of any six different types of valves. (8)
12. With a sketch, illustrate the working of a cylinder cushioning mechanism. (8)
13. With the help of a circuit, describe the application of the pressure reducing valve. (8)
14. Briefly discuss about synchronization of cylinder motion. Name the various methods to achieve it. (8)
15. Design a basic pneumatic circuit and explain it in detail. (8)