

- Q.27 Describe the working of Reciprocating Compressor. (CO2)
- Q.28 Define Surface tension and Specific gravity. (CO1)
- Q.29 Explain Rate of flow and its unit. (CO1)
- Q.30 Explain briefly Continuity equation. (CO3)
- Q.31 State the applications of pneumatics. (CO2)
- Q.32 Differentiate between heat and work. (CO1)
- Q.33 Differentiate between heat pump and refrigerator. (CO2)
- Q.34 What is U-tube manometer? How will you measure vacuum pressure? (CO3)
- Q.35 Define Mass density and Specific weight. (CO1)

#### **SECTION-D**

- Note:** Long answer type questions. Attempt any two questions out of three questions. (2x10=20)
- Q.36 Explain the Construction and Working of Reciprocating pump with the help of neat sketch. (CO2)
- Q.37 Explain Diesel Cycle with P-V and T-S diagrams (CO3)
- Q.38 Write short note on the following: (CO1&2)
- a) Throttling and free expansion thermodynamic process.
  - b) Description of hydraulic accumulator.

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**3rd Sem / Auto**  
**Subject:- Basics of Thermodynamics , Hydraulics & Pneumatics**

Time : 3Hrs.

M.M. : 100

#### **SECTION-A**

**Note:** Multiple choice questions. All questions are compulsory (10x1=10)

- Q.1 The SI unit of characteristics gas constant is (CO2)
- a) J/kg
  - b) J/K/mol
  - c) J/kgk
  - d) KJ/kg
- Q.2 The Envelope which separates the thermodynamic system from surroundings is known as (CO1)
- a) Boundary
  - b) Universe
  - c) State
  - d) Process
- Q.3 A system which consists of single phase is known as (CO1)
- a) Heterogeneous system
  - b) Open system
  - c) Closed system
  - d) Homogeneous system
- Q.4 Manometer is used to measure (CO3)
- a) Velocity at a point in a fluid
  - b) Discharge of liquid
  - c) Pressure at a point in a fluid
  - d) All of the above

- Q.5 Mercury is used for \_\_\_\_\_ pressure range. (CO2)  
a) High                          b) Low  
c) Sensitive                      d) None of above

Q.6 First law of thermodynamics deals with (CO1)  
a) Conservation of energy  
b) Conservation of mass  
c) Conservation of force  
d) Conservation of momentum

Q.7 Surface Tension of a liquid (CO2)  
a) Increases with area  
b) Decreases with temperature  
c) Increases with temperature  
d) Decreases with area

Q.8 Pneumatic system usually do not exceed (CO3)  
a) 1 hp                            b) 1 to 2 hp  
c) 2 to 3 hp                     d) 4 to 5 hp

Q.9 Hydraulics is related to use of (CO1)  
a) Liquid                        b) Gas  
c) Both (a) & (b)              d) None of the above

Q.10 Which of the following quantity is dimensionless - (CO1)  
a) Specific gravity              b) Specific Volume  
c) Mass Density                d) Specific weight

## **SECTION-B**

**Note:** Objective type questions. All questions are compulsory. (10x1=10)

- Q.11 Boyle's law is applicable when pressure is kept constant (True/False) (CO2)

Q.12 SI unit of Surface tension is Newton per metre (True/False) (CO2)

Q.13 Pneumatic system is operated by \_\_\_\_\_ (CO2)

Q.14 The first law of thermodynamics is based upon law of conservation of energy. (True/False) (CO1)

Q.15 An envelope which separates the system from surroundings is called as \_\_\_\_\_ (CO5)

Q.16 What is cycle? (CO1)

Q.17 Define Closed system. (CO1)

Q.18 Air is compressible. (True/False) (CO1)

Q.19 Define non uniform flow. (CO2)

Q.20 What do you mean by viscosity. (CO1)

## **SECTION-C**

**Note:** Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)

- Q.21 Differentiate between Screw pump and gear pump. (CO2)

Q.22 Explain Bernoulli's theorem. (CO1)

Q.23 Give classification of air compressors. (CO2)

Q.24 What are the limitations of 1 law of Thermodynamics. (CO3)

Q.25 Describe Vander-wall's equation. (CO2)

Q.26 Explain second law of thermodynamics. (CO3)