

- Q.26 State Bernoulli's equation with assumption made. (CO1)  
 Q.27 What is the criteria of selection of air compressors?(CO4)  
 Q.28 Write a short note on compressible fluids. (CO3)  
 Q.29 Draw the ISO symbols of any five components of hydraulic and pneumatic systems. (CO5)  
 Q.30 What are the advantages and disadvantages of poppet valve? (CO2)  
 Q.31 List and briefly explain the important characteristics of compressed air. (CO3)  
 Q.32 What is the important of priming in centrifugal pumps? (CO2)  
 Q.33 Draw meter-in and meter out circuit. (CO5)  
 Q.34 Differentiate between reciprocating and rotary air compressors. (CO4)  
 Q.35 What is the meaning of positive displacement pump? State its purpose in fluid power systems. (CO2)

#### SECTION-D

**Note: Long answer questions. Attempt any two questions out of three Questions. (2x10=20)**

- Q.36 Differentiate between reciprocating and rotary air compressors. (CO4)  
 Q.37 What is the meaning of positive displacement pump? State its purpose in fluid power systems? (CO2)  
 Q.38 Write short notes on the following: (CO4)  
 a) Cushioning of air cylinder  
 b) Applications of air motors  
 Q.39 Draw a neat sketch of a pneumatic circuit and explain the different components.  
 Q.40 Explain construction and working of a reciprocating pump with a neat sketch. (CO2)

No. of Printed Pages : 4

202441

Roll No. ....

#### 4th Sem. / Mechatronics

#### Sub. Hydraulic & Pneumatic Systems

Time : 3 Hrs.

M.M. : 100

#### SECTION-A

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

- Q.1 The power system in which the heavy lifting work is accomplished by transferring fluid in big machines is known as \_\_\_\_\_ system. (CO1)  
 a) Reciprocating                      b) Pneumatic  
 c) Hydraulic                          d) Hybrid  
 Q.2 The property by virtue of which the upper surface of a liquid behaves like a stretched membrane is known as (CO1)  
 a) Viscosity  
 b) Compressibility  
 c) Surface tension  
 d) Deformation under shearing force  
 Q.3 The primary purpose of a hydraulic system is (CO2)  
 a) Transfer of energy from one location to another  
 b) Resistant of fluctuating load  
 c) To lubricate all parts  
 d) None of these  
 Q.4 In a hydraulic circuit a pump is provided with two outlet paths, one where load is attached and other to the reservoir. Which path will oil choose to flow first? (CO5)  
 a) Oil will flow to the path where load is attached  
 b) Oil will flow back to the reservoir first  
 c) Oil will flow through both the paths simultaneously  
 d) None of the above

- Q.5 What controls the direction of the flow of oil? (CO4)  
 a) Pressure relief valve  
 b) Direction control valve  
 c) Regulator  
 c) Actuator
- Q.6 Which type of motion is transmitted by hydraulic actuator. (CO2)  
 a) Linear motion                      b) Rotary motion  
 c) Both A & B                      d) None of these
- Q.7 The fluids in which the density changes with the application of external pressure are termed as \_\_\_\_\_ fluids. (CO3)  
 a) Incompressible                      b) Compressible  
 c) Both A & B                      d) None of the above
- Q.8 What is the principle used in the operation of gear pumps? (CO2)  
 a) Two gears rotate in the same direction  
 b) Two gears rotate in the opposite direction  
 c) Direction does not matter  
 d) None of the above
- Q.9 Types of air motor are (CO4)  
 a) Vane motors only  
 b) Turbine motors only  
 c) Piston type motors only  
 d) All of the above
- Q.10 Compressible fluid flow is assumed to be (CO3)  
 a) Isentropic                      b) Adiabatic  
 c) Polytropic                      d) Both A & B

## SECTION-B

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

- Q.11 SI unit of Specific weight \_\_\_\_\_. (CO1)
- Q.12 The hydraulic system is most suitable system for mining applications. (True/False) (CO1)
- Q.13 Impeller is the part of \_\_\_\_\_ pump. (CO2)
- Q.14 The \_\_\_\_\_ valves are used to protect the hydraulic components from excessive pressure. (CO2)
- Q.15 The reservoir acts as the main \_\_\_\_\_ container for the entire pneumatic system. (CO4)
- Q.16 Flow Control valve is used between \_\_\_\_\_ and \_\_\_\_\_. (CO2)
- Q.17 Reciprocating pumps are most commonly used when large discharge is required. (True/False) (CO2)
- Q.18 Meter-out circuit is suitable for high pressure systems. (True/False) (CO5)
- Q.19 In the pneumatic system, the medium used is \_\_\_\_\_. (CO4)
- Q.20 \_\_\_\_\_ is used to convert the power of hydraulic pressurized oil into mechanical energy. (CO2)

## SECTION-C

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

- Q.21 What are the advantages of hydraulic systems over pneumatic systems? (CO1)
- Q.22 Write the applications of hydraulic actuators. (CO2)
- Q.23 Differentiate between the hydraulic system and pneumatic system. (CO1)
- Q.24 What are the different functions performed by control valves? (CO2)
- Q.25 Differentiate between single acting and double acting cylinder? (CO4)