Q.28 Draw the distortion of velocity curve in a pipe. (CO2)

Q.29 State Bernoulli's theorem. (CO2)

Q.30 Explain water hammer. (CO3)

Q.31 Draw the distribution of velocity curve in a pipe. (CO3)

Q.32 Explain loss of head at entrance of pipe. (CO3)

Q.33 What is air compressor? Explain with the help of neat sketch. (CO4)

Q.34 Explain the principle of centrifugal pump. (CO5)

Q.35 Write the applications of pneumatic system. (CO6)

SECTION-D

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

Q.36 Explain basic component of a hydraulic system. (CO1)

Q.37 Explain air motor. Types and its applications. (CO4)

Q.38 Calculate the discharge through a pipe of diameter 300 mm when the difference of pressure head between the two end of pipe 600m apart is 5 m of water. Take the value of 'f' as 0.009. (CO5)

(**Note:** Course outcome/CO is for office use only)

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4th Sem / Mechatronics

Subject:- Hydraulics and Pneumatics Systems

Time : 3Hrs. M.M. : 100

SECTION-A

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

Q.1 Real fluids are (CO1)

a) Compressible
b) Viscus
c) Possess surface tension
d) All of these

Q.2 Which of the following substances has the highest viscosity? (CO1)

a) Hydrogen b) Air
c) Water d) Mercury

Q.3 Surface tension of liquid (CO2)

a) Increases with area
b) Decreases with temperature
c) Increases with temperature
d) Decreases with area

Q.4 When the velocity of flow increases, the pressure (CO2)

a) Decreases b) Increases
c) Remains d) Cannot be predicted

Q.5 1 Ns/m^2 = _____ poise. (CO2)
a) 1 b) 10
c) 100 d) 1000

Q.6 Bernoulli's theorem may be applied to (CO3)
a) Pivot tube b) Orifice meter
c) Venturimeter d) All of these

Q.7 The liquid used in an inverted U-tube differential manometer should be of (CO3)
a) Low density b) High density
c) High surface tension d) Low surface tension

Q.8 Atmospheric pressure at sea level is (CO4)
a) 0.1 N/mm^2 b) 0.2 N/mm^2
c) 0.3 N/mm^2 d) 0.4 N/mm^2

Q.9 Mercury is used in manometer because of its (CO4)
a) High density
b) Very low vapour pressure
c) Low compressibility
d) Both B and C

Q.10 Which of the following is the function of hydraulic oil? (CO5)
a) Lubricant b) Cooling
c) Sealing d) All of these

SECTION-B

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

Q.11 The specific weight of water is _____ (CO1)

Q.12 The S.I unit of surface tension is _____ (CO1)

Q.13 The density of water is maximum at_____ (CO1)

Q.14 The inlet length of venturimeter is _____ the outlet length. (CO2)

Q.15 Write the S.I. unit of pressure of liquid. (CO2)

Q.16 Laminar flow is also known as_____. (CO2)

Q.17 The S.I. Unit of discharge is_____. (CO3)

Q.18 Filters separate the _____particles. (CO3)

Q.19 Define pipe flow. (CO4)

Q.20 Define pneumatics. (CO5)

SECTION-C

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

Q.21 Define vapour pressure of liquid. (CO1)

Q.22 State Newton's law of viscosity. (CO1)

Q.23 Explain compressibility. (CO1)

Q.24 Write properties of ideal fluid. (CO2)

Q.25 Explain gauge pressure. (CO2)

Q.26 Explain absolute pressure. (CO1)

Q.27 Write the limitations of manometer. (any five)(CO1)