Q.25 State any five applications of first law of thermodynamics. (CO3)
Q.26 What are the causes of entropy increases. (CO5)
Q.27 Write a short note on carnot cycle. (CO4)
Q.28 Explain the net work done in a cycle and air standard efficiency of a cycle. (CO4)
Q.29 Define any five properties of fluid. (CO6)
Q.30 Explain the measurement of pressure using Bourdan Gauge. (CO6)
Q.31 Explain any five applications of Bernoulli's theorem. (CO7)
Q.32 Draw the layout of a basic Hydraulic system with complete labelling. (CO8)
Q.33 Explain hydraulic accumulator. (CO8)
Q.34 What are the various components of a pneumatic system? Write their functions. (CO9)
Q.35 Explain pneumatic gun. (CO10)

SECTION-D

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

Q.36 Derive steady flow energy equation? Write any three application. (CO3)
Q.37 Explain the PV & TS diagram of otto cycle. (CO4)
Q.38 Explain construction and working of centrifugal pump with neat diagram. (CO8)

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4th Sem / Auto
Subject:- Basics of Thermodynamics, Hydraulics and Pneumatics

Time : 3Hrs. M.M. : 100

SECTION-A

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

Q.1 In which of the following systems does mass transfer occur across the system boundary? (CO1)
a) isolated system
b) closed system
c) open system
d) none of the mentioned

Q.2 The entropy of an isolated system can never _____ (CO1)
a) decrease
b) be zero
c) increase
d) none of the mentioned

Q.3 Heat does not spontaneously flow from a colder body to a hotter one. Which of the following thermodynamics law states this? (CO3)
a) Zeroth law of thermodynamics
b) First law of thermodynamics
c) Second law of thermodynamics

d) Third law of thermodynamics

Q.4 The working medium of an air standard cycle has constant_____ throughout the cycle. (CO2)

a) pressure b) volume
c) specific heat d) mass

Q.5 Which type of system uses 'oil under pressure' means for power transmission ? (CO4)

a) Fluid power system b) hydraulic system
c) Pneumatic system d) Stepper motors

Q.6 How many types of actuators are present in hydraulic systems? (CO5)

a) One b) Two
c) Three d) Four

Q.7 In which of the following conditions can the Bernoulli equation not be used? (CO5)

a) Viscose flow b) incompressible fluid
c) steady flow d) laminar flow

Q.8 What is the property of a screw pump? (CO7)

a) Discharge is continuous, smooth and non-pulsating
b) Very less vibration and noise
c) Has two or more rotating components
d) Consists of a left handed and a right handed screw

Q.9 In which type of system does power transmission takes place through compressed air? (CO8)

a) Fluid power system b) Hydraulic system
c) Pneumatic system d) Stepper motors

Q.10 What is the function of the air compressor? (CO9)

a) Decreases the pressure of air
b) Increases the pressure of air
c) Removes dust particles
d) Adds lubricating oil

SECTION-B

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

Q.11 Define boundary. (CO1)

Q.12 State Boyle's law. (CO2)

Q.13 State second law of thermodynamics. (CO3)

Q.14 Define combustion. (CO4)

Q.15 Define Surface Tension. (CO5)

Q.16 Define Manometers. (CO6)

Q.17 Define non uniform flow. (CO7)

Q.18 Define Hydraulic Ram. (CO8)

Q.19 Write down the advantages of Pneumatic system. (CO9)

Q.20 What is working principle of pneumatic gun.(CO10)

SECTION-C

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

Q.21 Differentiate between open system and closed system. (CO1)

Q.22 What is thermodynamic system? Define system, boundry and universe. (CO1)

Q.23 State and explain Charle's law. (CO2)

Q.24 Explain Vanderwall's equation. (CO2)