Q.24 Explain vanderwall equation. (CO2)
Q.25 Explain steady flow energy equation. (CO3)
Q.26 Explain constant volume process with help of P V diagram. (CO4)
Q.27 Write a short note on Otto cycle. (CO4)
Q.28 Describe the Carnot cycle with PV diagram . (CO4)
Q.29 What are main five properties of fluids. (CO4)
Q.30 Explain five applications of Pascal's law. (CO4)
Q.31 Differentiate between steady and unsteady flow. (CO5)
Q.32 Explain the working of vane type pump. (CO8)
Q.33 Write a short note on rotary air compressor. (CO9)
Q.34 Differentiate between hydraulic system and pneumatic system. (CO9)
Q.35 Draw the layout of hydraulic system. (CO8)

SECTION-D

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

Q.36 Derive the expression for work done during isothermal process. (CO3)
Q.37 Explain the PV & TS diagram of diesel cycle. (CO4)
Q.38 Explain construction and working of reciprocating pump with neat diagram. (CO8)

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4th Sem / Branch : 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 What is thermodynamics? (CO1)
a) Study of the relationship between heat and other forms of energy
b) Study of the conversion of chemical energy to other forms of energy
c) Study of the relationship between mechanical energy to other forms of energy
d) Study of the conversion of mechanical energy to other forms of energy

Q.2 What is the name of the graph that is drawn, when the temperature is kept constant? (CO1)
a) Isotherm b) Isochronic and isobar
c) Isochoric d) Isobar

Q.3 Which of the following occurs without a change in the internet energy? (CO2)
a) Isochoric Process b) Isenthalpic process
c) Steady-state process d) None

Q.4 The air standard efficiency of an I.C. engine depends on_____ (CO2)

a) fuel used b) speed of engine
c) compression ratio d) none of the above

Q.5 The thermal efficiency of diesel engines is about_____ (CO3)

a) 15% b) 30%
c) 50% d) 70%

Q.6 The force developed in hydraulic systems is high due to _____ (CO4)

a) high pressure b) more oil
c) less pressure d) less oil

Q.7 What controls the direction of the flow of oil? (CO5)

a) Pressure relief valve
b) Direction control valve
c) Flow control valve
d) Actuator

Q.8 The compressed air flows to the actuator through _____ (CO7)

a) Pipes and valves b) Shafts
c) Motors d) Flow control valve

Q.9 Which among of the following are not the applications of pneumatic system? (CO9)

a) Aerospace
b) Packing systems
c) Mining
d) Agriculture types of equipment

Q.10 Which type of mechanical device is used to give energy to the liquid? (CO8)

a) Fluid power system
b) Hydraulic system
c) Pneumatic system
d) Hydraulic Pumps

SECTION-B

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

Q.11 Define Isolated system. (CO1)
Q.12 Define ideal gas? (CO2)
Q.13 Describe throttling process. (CO3)
Q.14 Define specific volume of fluid. (CO5)
Q.15 Define weight density of fluid. (CO5)
Q.16 Sate Pascal's law. (CO6)
Q.17 Write the practical application of Bernoulli's theorem. (CO7)
Q.18 Write main components of a centrifugal pump. (CO8)
Q.19 Write use of compressor. (CO9)
Q.20 What is use of Pneumatic wrench. (CO10)

SECTION-C

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

Q.21 Differentiate between heat and work. (CO1)
Q.22 Explain closed and isolated system. (CO1)
Q.23 Explain characteristic gas equation. (CO2)