Q.33 If $4.5m^3$ of an oil weight 40 kN, Finds its specific weight and relation density.

Q.34 Explain Bourdon tube pressure gauge.

Q.35 Explain Diesel cycle with PV and TS diagram. With the help of Example.

SECTION-D

Note : Long Answer type question. Attempt any two questions. (2x10=20)

Q.36 Derive the expression for work done during isothermal process. (CO3)

Q.37 Explain construction and working of centrifugal pump with neat diagram. (CO8)

Q.38 Explain the following terms:

(a) Sate limitations of First law of the thermodynamics. (CO6)

(b) What do you mean by a perfect gases. (CO2)

No. of Printed Pages : 4 170345/30331

Roll No.....

4th Sem / Automobile Engg.

Subject : Basics of Thermodynamics, Hydraulics & Pneumatics

Time : 3 Hrs. **M.M. : 100**

SECTION-A

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

Q.1 Heat & work are _____ functions. (CO1)

a) Line b) Point

c) Both A & B d) None of these

Q.2 Specific Volume is _____ property. (CO1)

a) Extensive b) Expensive

c) Intensive d) All of these

Q.3 Charle's law is applied when _____ is constant. (CO2)

a) Temperature b) Pressure

c) Volume d) None of these

Q.4 In isentropic process, the _____ remain constant. (CO3)

a) External energy b) Internal energy

c) Heat energy d) All of these

Q.5 Duel cycle is also known as _____ (CO4)

a) Semi diesel cycle b) Diesel cycle

c) Petrol cycle d) All of these

Q.6 Whether the SI unit of surface tension is Nm is True or False. (CO5)

a) True b) False

c) Neither true of false d) Can't say

Q.7 Write the SI units of specific gravity_____. (CO5)

a) Newton b) Newton metre

c) No unit d) Metre

Q.8 Vacuum pressure is also called _____ (CO6)

a) Gauge pressure

b) Absolute pressure

c) Negative gauge pressure

d) All of these

Q.9 The SI unit of discharge is _____. (CO7)

a) Metre per second b) Metre cube per second

c) Metre d) All of these

Q.10 Hydraulic pumps convert mechanical energy into _____ energy. (CO9)

a) Pressure b) Electrical

c) Both A & B d) None of these

SECTION-B

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

Q.11 Define open system. (CO1)

Q.12 Define boundary. (CO1)

Q.13 State Boyle's law. (CO2)

Q.14 Define Universal gas constant. (CO2)

Q.15 State second law of thermodynamics. (CO3)

Q.16 Define weight density of fluid. (CO5)

Q.17 Define specific volume of fluid. (CO5)

Q.18 Sate Pascal's law. (CO6)

Q.19 Define atmospheric pressure. (CO6)

Q.20 Define non uniform flow. (Co7)

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 Vanderwall's equation. (CO2)

Q.23 Explain steady flow energy equation. (CO3)

Q.24 Write a short note on Otto cycle. (CO4)

Q.25 What are the causes of entropy increases. (CO5)

Q.26 Explain Bourdon tube pressure gauge. (CO6)

Q.27 Explain Bernoulli's theorem. (CO7)

Q.28 Explain hydraulic brake. (CO8)

Q.29 Differentiate between pneumatics system and Hydraulic system.

Q.30 Explain the measurement of pressure using differential monometer.

Q.31 Explain Five application of Pascal's law.

Q.32 Explain any five application of first law of thermo dynamics.