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3th Sem / Automobile Engineering

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 Constant pressure process is also known as (CO1)

a) Isobaric process b) Isochoric process

c) Isothermal process d) Adiabatic process

Q.2 Auto cycle is known as- (CO1)

a) Constant Pressure cycle

b) Constant Temperature cycle

c) Constant entropy cycle

d) Constant volume cycle

Q.3 Pneumatic is related to- (CO1)

a) water b) Air

c) Both A& B d) None of these

Q.4 Poise is the unit of - (CO2)

a) Surface tension b) Density

c) Viscosity d) Capillarity

Q.5 The standard value of Atmospheric pressure is(CO2)

a) 760mm of Mercury b) 50 mm of Mercury

c) 60 mm of Mercury d) 1000 mm of Mercury

Q.29 Define surface tension, specific gravity and vapour pressure ? (CO-1)

Q.30 Describe the working of hydraulic brake (CO-1)

Q.31 Explain carnot cycle. (CO-2)

Q.32 Differentiate the uniform and no uniform flow. (CO-3)

Q.33 What are differential manometers? (CO-1)

Q.34 Derive Bernoulli's equation. (CO-3)

Q.35 Explain Charle's law (CO-2)

SECTION-D

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

Q.36 Differentiate between carnot cycle and Otto cycle (with Diagrams.). (CO-2)

Q.37 a) A horizontal venturimeter of size 200x100 is used to measure the flow of oil of specific gravity 0.9. The discharge of oil through venturimeter is 50 litre / sec. Calculate the mercury oil manometer reading.C=0.98 (CO-3)

b) Vander-Wall's equation

Q.38 Define construction and working of reciprocating air compressor with its Application. (CO-2)

Q.6 Hydraulic Ram works on the principle of (CO1)

a) water hammer
b) centrifugal action
c) Reciprocating action
d) Gear pump

Q.7 If the fluid particles moves in zig-zag way , the flow is (CO2)

a) Laminar flow b) Turbulent flow
c) Steady flow d) All of the above

Q.8 Atmospheric pressure is also called (CO1)

a) Absolute pressure b) Barometric pressure
c) Gauge pressure d) None of the above

Q.9 Bomb calorimeter is an example of - (CO1)

a) Closed system b) Open system
c) Isolated system d) Homogeneous system

Q.10 Bernoulli's theorem deals with the law of conservation of - (CO1)

a) Mass b) Energy
c) Momentum d) None of the above

SECTION-B

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

Q.11 Specific volume is the reciprocal of mass density. (True/False) (CO-01)

Q.12 The Diesel cycle is known as pressure cycle. (True/False) (CO-01)

Q.13 SI unit of surface tension is newton per meter . (True/False) (CO-02)

Q.14 Define universe (CO-02)

Q.15 What is zeroth law of thermodynamics ? (CO-01)

Q.16 Name the types of rotary pumps . (CO02)

Q.17 Hydraulic_____is work on the principle of water hammer. (CO02)

Q.18 The SI unit of Discharge is _____. (CO-02)

Q.19 What do you mean by entropy . (CO-3)

Q.20 Define peizometer. (CO-2)

SECTION-C

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

Q.21 Differentiate between pneumatic screw driver and pneumatic wrenches. (CO-1)

Q.22 State first law of thermodynamic and second law of thermodynamic. (CO-2)

Q.23 Explain rate of flow and its unit. (CO-3)

Q.24 Describe the working of hydraulic Ram (CO-1)

Q.25 Define gauge pressure and vacuum pressure. (CO-1)

Q.26 Describe the working of hydraulic accumulator. (CO-1)

Q.27 What is U-tube manometer ? How will you measure vacuum pressures ? (CO-3)

Q.28 Prove that $Cp-C_v=R$ (CO-3)