No. of Printed Pages : 4
Roll No. .....

170345

4th Sem. / Automobile Engg.

Subject : Basics of thermodynamics, hydraulics and pneumatics

Time : 3 Hrs. M.M. : 100

SECTION-A

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

(Course Outcome/CO)

Q.1 Everything external to the system is called as_____. (CO-1)

Q.2 In an open system both mass and_____may cross the boundary. (CO-1)

Q.3 Charle's law is applicable when temperature is kept constant.(True/False) (CO-2)

Q.4 In isothermal process, the_____ remain constant. (CO-3)

Q.5 Otto cycle is also known as _____. (CO-4)

Q.6 Compressibility is the reciprocal of____. (CO-5)

Q.7 Gauge pressure is always less then the absolute pressure. (True/False) (CO-6)

SECTION-D

Note: Long answer type questions. Attempt any three questions out of four question. 3x10=30

Q.33 Explain Otto cycle with PV and TS diagram and write different operations involved in it. (CO-4)

Q.34 Derive the expression for work done during adiabatic expansion. (CO-3)

Q.35 Explain construction and working of reciprocating pump with neat diagram. (CO-8)

Q.36 Explain the following terms:

(a) Bourdon tube pressure gauge. (CO-6)

(b) Differentiate between hydraulic and pneumatic system. (CO-9)

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

Q.8 Bernoulli's equation is invalid for unsteady flow. (True/False). (CO-7)

Q.9 Hydraulic press work on _____. (CO-8)

Q.10 Pneumatic system is operated by ____. (CO-9)

SECTION-B

Note: Very Short answer type questions. Attempt any ten questions out of twelve questions. 10x2=20

Q.11 Define Isolated system. (CO-1)

Q.12 State Boyle's law. (CO-2)

Q.13 State first law of Thermodynamics. (CO-3)

Q.14 Define specific Volume of fluid. (CO-5)

Q.15 Define Surface Tension. (CO-5)

Q.16 Define Manometers. (CO-6)

Q.17 Define steady Flow. (CO-7)

Q.18 Write the practical application of Bernoulli's theorem. (CO-7)

Q.19 Write main components of a centrifugal pump. (CO-8)

Q.20 Define Hydraulic Ram. (CO-8)

Q.21 Write down the advantages of Pneumatic system. (CO-9)

Q.22 Give the relationship between absolute pressure , atmospheric pressure and gauge pressure. (CO-6)

SECTION-C

Note: Short answer type questions. Attempt any eight questions out of ten question. 8x5=40

Q.23 Differentiate between open system and closed system. (CO-1)

Q.24 Explain characteristic gas equation. (CO-2)

Q.25 Explain steady flow energy equation. (CO-3)

Q.26 Write a short note on carnot cycle. (CO-4)

Q.27 if the mass density of a fluid is 790kg/m3 , find its specific weight and specific volume. (CO-5)

Q.28 Name the various types of manometers. (CO-6)

Q.29 State Bernoulli's theorem. (CO-7)

Q.30 Explain hydraulic accumulator. (CO-8)

Q.31 Draw the layout of hydraulic system. (CO-8)

Q.32 Explain pneumatic gun. (CO-10)