

- Q.20 State the assumptions in the derivation of Bernoulli's equation.
- Q.21 Define viscosity and state Newton's law of viscosity.
- Q.22 Write down the advantages and disadvantages of pneumatic system.

SECTION-D

- Note:** Long answer type questions. Attempt any two questions out of three questions. (2x8=16)
- Q.23 Explain diesel cycle with PV and TC diagram. Write its assumptions also.
- Q.24 What is hydraulic brake? Explain construction and working with the help of neat sketch.
- Q.25 Explain the construction and working of a reciprocating air compressor with neat sketch.
- (Note : Course outcome/CO is for office use only)

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3rd Sem / Automobile

Subject:- Basics of Thermodynamics, Hydraulics and Pneumatics

Time : 3Hrs.

M.M. : 60

SECTION-A

- Note:** Multiple choice questions. All questions are compulsory (6x1=6)
- Q.1 When there is no transfer of mass and energy to and from the system, it is a type of
- a) isolated system b) closed system
c) open system d) constant flow system
- Q.2 Heat energy required to raise the temperature of unit mass of the substance by one degree is known as
- a) Enthalpy b) Entropy
c) Internal Energy d) Specific heat
- Q.3 Energy can neither be created nor be destroyed, but it can be transformed from one form to another. This statement is known as
- a) Zeroth law of thermodynamics
b) First law of thermodynamics

- c) Second law of thermodynamics
 - d) Kinetic theory of gases
- Q.4 Rain drops are spherical due to
- a) Viscosity
 - b) surface tension forces
 - c) atmospheric pressure
 - d) air resistance
- Q.5 Bernoulli's theorem deals with the law of conservation of
- a) mass
 - b) energy
 - c) momentum
 - d) none of the above
- Q.6 The lubricator in a pneumatic circuit is the
- a) first element in line
 - b) second element in line
 - c) third element in line
 - d) last element in line

SECTION-B

Note: Objective/Completion type questions. All questions are compulsory. (6x1=6)

- Q.7 Define Boyle's law.
- Q.8 Diesel cycle is also known as _____

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- Q.9 For a thermodynamic process to be reversible, the temperature difference between hot body and working substance should be _____
- Q.10 Pneumatic systems have _____ output to weight ratio.
- Q.11 Laminar flow is also called _____
- Q.12 Piezometer measures _____ pressure only.

SECTION-C

Note: Short answer type questions. Attempt any eight questions out of ten questions. (8x4=32)

- Q.13 State and explain Kelvin Planck's statement.
- Q.14 Describe the Carnot cycle with PV diagram.
- Q.15 Explain thermodynamic equilibrium and its types.
- Q.16 Find the pressure at a depth of 20m from the free surface of water in a reservoir.
- Q.17 Define laminar and turbulent flow.
- Q.18 Differentiate between pneumatic system and hydraulic system.
- Q.19 An accumulator has a ram of 25 cm diameter and a lift of 10m. If the liquid is supplied at a pressure of 6 MPa, find the capacity of accumulator.

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