Q.25 What do you mean by Quasi-static Process?

Q.26 Explain First Law of Thermodynamics.

Q.27 Explain five chemical properties of Non-Metals.

Q.28 Explain Otto Cycle with P-V Diagram.

Q.29 Explain any five terms related to IC Engines.

Q.30 Explain Intensive and Extensive properties of a system.

Q.31 Explain the function of connecting Rod, Crankshaft and Piston in engine.

Q.32 Differentiate between reversible and irreversible process.

Q.33 Explain five properties of Ceramics.

Q.34 Explain the open, closed and adiabatic system with examples.

Q.35 Explain the concept of system, surroundings and boundary.

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (10x2=20)

Q.36 Explain the Working of Two-Stroke SI engine with the help of a neat sketch.

Q.37 Classify different engineering materials & explain any five mechanical properties of materials.

Q.38 Explain the following:

a) Kelvin Plank's statement

b) Stress-Strain Diagram.

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3rd Sem / Mech. Engg.

Subject:- Mechanical Engineering Fundamentals

Time : 3Hrs. M.M. : 100

SECTION-A

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

Q.1 A petrol engine works on :

a) Otto Cycle c) Diesel Cycle

b) Rankine Cycle d) Carnot Cycle

Q.2 The property of a material by which it can be beaten or rolled into thin sheets is called

a) Elasticity c) Ductility

b) Plasticity d) Malleability

Q.3 The ratio of lateral strain to longitudinal strain is called:

a) Modulus of Elasticity

b) Modulus of Rigidity

c) Bulk Modulus

d) Poisson's Ratio

Q.4 Two stroke petrol engine is used in :

a) Scooters c) Moped

b) Two wheeler d) All of above

Q.5 When there is no transfer of mass and energy to and from the system, it is a type of

a) Closed System
b) Open System
c) Isolated System
d) Constant flow system

Q.6 A system which consists of single phase is known as:

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

Q.7 The sum of internal energy (U) and the product of pressure and volume (p.v) is known as :

a) Work done
b) Entropy
c) Enthalpy
d) none of these

Q.8 First law of thermodynamics deals with

a) conservation of heat
b) conservation of momentum
c) conservation of mass
d) conservation of energy

Q.9 Modulus of rigidity is defined as the ratio of

a) Shear stress and shear strain
b) volumetric stress and volumetric strain
c) Lateral stress and lateral strain
d) Longitudinal stress and longitudinal strain

Q.10 The property of a material to offer resistance to fracture under shock loads is called

a) Creep
b) Toughness
c) Ductility
d) Fatigue

SECTION-B

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

Q.11 Write the full form of SI Engine.
Q.12 What is the use of Spark Plug?
Q.13 Write the SI units of Stress.
Q.14 Define Modulus of Rigidity.
Q.15 Define Enthalpy.
Q.16 Define Heterogeneous System.
Q.17 Define Entropy.
Q.18 Define Hardness.
Q.19 What is Factor of Safety.
Q.20 Expand TDC.

SECTION-C

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

Q.21 Explain Zeroth Law of Thermodynamics.
Q.22 State any five industrial applications of metals.
Q.23 Define Strain and explain its different types.
Q.24 State and explain Hooke's Law.