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222013

1st Year / Advance Diploma in Tool and Die Making

Subject : Applied Physics

Time : 3 Hrs. M.M. : 60

SECTION-A

Note: Multiple choice questions. All questions are compulsory (6x1=6)

Q.1 Dimensional formula for power is

a) $[ML^2T^{-2}]$ b) $[ML^2T^{-1}]$

c) $[ML^2T^{-3}]$ d) $[LT^{-2}]$

Q.2 Linear momentum is conserved if

a) mass is constant b) force is zero

c) force is constant d) velocity is zero

Q.3 Si unit of surface tension is

a) Newton b) N/m

c) N-m d) Dyne

Q.4 Which of the following is an elastic body?

a) steel b) paraffin

c) mud d) none of the above

Q.5 Convection is the process of heat transfer in_____

a) solids b) liquids

c) gases d) Both liquids and gases

Q.6 Infrasonic waves have frequency

a) less than 20 hz b) greater than 20khz

c) less than 20khz d) greater than 20hz

SECTION-B

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

Q.7 Power of a lens is measured in_____

Q.8 Echo is caused due to _____

Q.9 Resistance is inverse of _____

Q.10 Give an example of resonance.

Q.11 Write the SI unit of electric current.

Q.12 n-type semiconductor material is produced by doping a pure semiconductor with_____

SECTION-C

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

Q.13 State and explain principle of homogeneity of equations with example.

Q.14 Derive the expression for kinetic energy of a particle.

Q.15 Explain types of optical fibers.

Q.16 Define refraction and polarization of light.

Q.17 State any four applications of microscope.

Q.18 State and explain Gauss's law of electrostatics.

Q.19 Explain parallel combination of resistances.

Q.20 Define magnetic flux and electromagnetic induction.

Q.21 Differentiate between transverse and longitudinal wave motion.

Q.22 Explain types of modulus of elasticity.

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x8=16)

Q.23 Explain characteristics of laser and its applications.

Q.24 Describe conductor, semiconductor and insulator based on band diagram.

Q.25 State and explain Newton's laws of motion giving an example of each.