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Roll No. .....

1st Year / Branch : 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 The dimensional formula of energy is _____. (CO-1)

a) $[M^1 L^{-2} T^{-2}]$ b) $[M^1 L^2 T^{-3}]$

c) $[M^1 L^{-1} T^{-2}]$ d) $[M^1 L^2 T^{-2}]$

Q.2 The S.I. unit of power is _____. (CO-3)

a) newton b) joule

c) watt d) volt

Q.3 The value of 100°C on Kelvin scale _____ (CO-5)

a) 373 K b) -273 K

c) 273 K d) 372 K

Q.4 Frequency range of audible sounds are ___ (CO-6)

a) less than 20Hz

b) between 20Hz to 20 kHz

c) greater than 20kHz

d) none of the above

SECTION-D

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

Q.23 What is banking of roads? Derive an expression for angle of banking. (CO-2)

Q.24 Define Kinetic energy. Give example. Derive an expression for kinetic energy of the body. (CO-3)

Q.25 a) Define Surface tension. What is effect of temperature on surface tension? (CO-4)

b) Derive an expression for calculating the equivalent resistance when three resistors of resistance R_1, R_2 and R_3 are connected in parallel. (CO-8)

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

Q.5 The substances through which current can flow easily are called _____. (CO-9)

a) conductors b) insulators

c) semiconductors d) none of these

Q.6 The light source used in optical fibers is _____ (CO-10)

a) laser b) electric lamp

c) torch d) lighter

SECTION-B

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

Q.7 The formula of Ohm's law is _____. (CO-8)

Q.8 What is reflection? (CO-7)

Q.9 Write full form of SONAR. (CO-6)

Q.10 Define conduction of heat transfer. (CO-5)

Q.11 State Pascal's law. (CO-4)

Q.12 Give formula of scalar product of two vectors. (CO-2)

SECTION-C

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

Q.13 State Newton's first law and second law of motion. Also give one example. (CO-2)

Q.14 Convert force of 25 Newton into dyne using dimensional analysis. (CO-1)

Q.15 What is nano technology? Write three applications of nano technology. (CO-10)

Q.16 Define paramagnetic and ferromagnetic materials. Give one example of each. (CO-9)

Q.17 Write four properties of electric lines of force. (CO-8)

Q.18 What is microscope? Write any three uses of microscope. (CO-7)

Q.19 What are resonant and forced vibration? (CO-6)

Q.20 Write four differences between heat and temperature. (CO-5)

Q.21 Check the correctness of (CO-1)

a) $v = u + at$ b) $F = \frac{mv^2}{r}$

using dimensional analysis.

Q.22 Explain Young's Modulus and Bulk Modulus of Elasticity. (CO-4)