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1st year / Branch : Advanced 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 power is _____ (CO1)

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

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

Q.2 The S.I. unit of work is_____ (CO3)

a) newton b) volt

c) watt d) joule

Q.3 The value of 0°C on Kelvin scale is_____ (CO5)

a) *272 K* b) *-273 K*

c) *273 K* d) *372 K*

Q.4 Frequency range of ultrasonic waves is _____ (CO6)

SECTION-D

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

Q.23 Define conversation of mechanical energy. Derive an expression for conversation of mechanical energy for freely falling bodies. (CO3)

Q.24 Define Elasticity. Explain different types of modulus of elasticity. (CO4)

Q.25 a) Explain centripetal force and centrifugal force with suitable example. (CO2)

b) Derive an expression for calculating the total resistances when three resistors of resistance R_1, R_2 and R_3 are connected in series. (CO8)

a) less than *20 Hz*

b) between *20 Hz* to *20 kHz*

c) Greater than *20 kHz*

d) None of the above

Q.5 The substance through which current cannot flow are called_____ (CO9)

a) Conductors b) Insulators

c) Semiconductors d) None of these

Q.6 The emission responsible for producing laser is_____ (CO10)

a) Spontaneous b) Stimulated

c) Ultraviolet d) Infrared

SECTION-B

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

Q.7 The formula of Gauss's law is_____ (CO8)

Q.8 What is refraction? (CO7)

Q.9 Write full form of S.H.M. (CO6)

Q.10 Define convection of heat transfer. (CO5)

Q.11 State Hook's Law. (CO4)

Q.12 Give formula of vector product of two vectors. (CO2)

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 third law of motion. Also give one example of each. (CO2)

Q.14 Convert work of 25 Joule into erg using dimensional analysis. (CO1)

Q.15 Define optical fibre. Give three applications of it. (CO10)

Q.16 Define diamagnetic and paramagnetic materials. Give one example of each. (CO9)

Q.17 Write four differences between alternating current and direct current. (CO8)

Q.18 What is total internal reflection? Write essential conditions for total internal reflection. (CO7)

Q.19 What is a cantilever? Write formula of time period for cantilever. (CO6)

Q.20 Write any four properties of heat radiation. (CO5)

Q.21 Check the correctness of (CO1)

a) $v^2 - u^2 = 2as$

b) $F = ma$

Q.22 Define atmospheric pressure and absolute pressure. (CO84)