Roll No. ....

1st Year / Advance Diploma in Tool and Die Making
Subject:- Applied Physics

Time : 3Hrs.   M.M. : 100

SECTION-A

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

Q.1   Dimensional formula of momentum is
a) $[ML^2T^{-2}]$ b) $[ML^2T^{-1}]$
c) $[MLT^{-1}]$ d) $[MLT^{-2}]$

Q.2   SI unit of work is
a)   Watt   b)   Joule
c)   dyne   d)   Newton

Q.3   Energy has same unit as that of_____
a)   mass   b)   impulse
c)   force   d)   work

Q.4   Rate of change of velocity is called_____
a)   force   b)   acceleration
c)   momentum   d)   displacement

Q.5   Which scale is also called absolute scale of temperature?
a)   celsius   b)   kelvin
c)   Fahrenheit   d)   Reumer

Q.6   Action-reaction law is give by
a)   Kepler   b)   Kirchoff
c)   Sabine   d)   Newton

Q.7   Unit of electric field is
a)   N/C   b)   Joule/m
c)   V   d)   none of them

Q.8   When an electron jumps from outer levels to inner levels then it
a)   Emits energy   b)   absorbs energy
c)   No change in energy d)   none of the above

Q.9   In SHM, acceleration is proportional to
a)   Distance   b)   Velocity
c)   Displacement   d)   None of them

Q.10   To convert a galvanometer into ammeter, one should connect
a)   A high resistance in series with galvanometer
b)   A low resistance in series with galvanometer
c)   a low resistance in parallel with galvanometer
d)   A high resistance in parallel with galvanometer

SECTION-B

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

Q.11   The SI unit of power is_____

Q.12   The force required to move a body in a circle is called_____

Q.13 SI unit of frequency is_____

Q.14 The formula for kinetic energy is_____

Q.15 Newton's first law of motion is also called law of _____

Q.16 A device used to measure high temperature is called_____.

Q.17 _____ Law states that amount of total radiant heat power emitted from a surface is proportional to fourth power of its absolute temperature.

Q.18 1Kwh = _____joules.

Q.19 Resistance of a wire is_____ proportional to its length.

Q.20 Angular momentum of a system remains conserved if external force is_____

SECTION-C

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

Q.21 Derive the expression for acceleration of a body executing SHM.

Q.22 Derive the expression for P.E. of a body.

Q.23 Explain that Newton's second law is the real law of motion.

Q.24 Explain Lee's disc method for measurement of coefficient of thermal conductivity.

Q.25 Define the terms-torque and angular momentum.

Q.26 Define surface and cubical expansion and find the relation between them.

Q.27 Define horizontal range and time of flight in a projectile motion.

Q.28 Explain SONAR.

Q.29 Define echo and reverberation.

Q.30 State laws of refraction and define refractive index.

Q.31 Explain any two applications of ultrasonic.

Q.32 Write any five properties of heat radiations.

Q.33 Explain system of units.

Q.34 Explain free and forced vibrations.

Q.35 Check the correctness of equations.

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions.   (2x10=20)

Q.36 State and prove law of conservation of energy.

Q.37 a) Define diamagnetic and paramagnetic materials with an example of each.

   b) State and explain Kirchoff's law of current and voltage.

Q.38 Explain the modes of transfer of heat with example.