Q.27 Differentiate between heat and temperature based on kinetic theory.

Q.28 Explain basic principle of measurement of temperature.

Q.29 Write any five properties of heat radiations.

Q.30 Define wavelength, frequency and velocity and find relation between them.

Q.31 Explain SONAR.

Q.32 Explain production of ultrasonic waves by piezoelectric oscillator.

Q.33 Write any 5 properties of magnetic lines of force.

Q.34 Define magnetic field and write the expression for magnetic field around a current carrying conductor and solenoids.

Q.35 Write any five applications of optical fibre.

SECTION-D

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

Q.36 Define torque and angular momentum. Find the relation between them and hence explain law of conservation of angular momentum with example.

Q.37 a) Define force and derive its formula from Newton's second law of motion.

b) Explain Wheatstone bridge principle.

Q.38 Explain grouping of capacitors and find the relation for equivalent capacitance in series and parallel grouping.

No. of Printed Pages : 4 202013
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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 Law of inertia is also called

a) Newton's first law b) Newton's second law
c) Newton's third law d) Kepler's law

Q.2 A car travels a distance of 100m with a constant force of 20N. Then the work done by car is

a) 40 J b) 50 J
c) 2000 J d) 500 J

Q.3 The acceleration of a particle executing SHM is

a) wx b) w^2x
c) $-wx$ d) $-w^2x$

Q.4 The instrument used to measure high temperature is called

a) barometer b) thermometer
c) hygrometer d) pyrometer

Q.5 Kirchoff's voltage law states that:

a) total voltage in a closed loop is proportional to current

b) sum of EMF and potential difference around a closed loop is zero

c) total current in closed loop is proportional to voltage

d) current is directly proportional to resistance.

Q.6 SI unit of frequency is

a) Second b) Hertz

c) meter d) Newton

Q.7 Waves with frequency above the audible range are called

a) Supersonic b) Infrasonic

c) Ultrasonic d) hypersonic

Q.8 Echo occurs when

a) Sound is absorbed by a surface

b) Sound is reflected back to source

c) Sound is transmitted through a medium

d) Sound is refracted by a surface

Q.9 The total magnification of a compound microscope is

a) Eyepiece magnification

b) Eyepiece and objective lens magnification.

c) Objective magnification

d) Objective and light source magnification.

Q.10 To convert a galvanometer intovoltemeter, one should connect

a) A high resistance in series with glavanometer

b) A low resistance in series with galvanometer

c) A low resistance in parellel with galvanometer

d) A high resistance in parallel with galvanometer.

SECTION-B

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

Q.11 The SI unit of heat is _____

Q.12 Absolute scale of temperature is _____

Q.13 Define wave velocity.

Q.14 The formula for potential energy is _____

Q.15 Define refraction.

Q.16 Write the formula of Ohm's law.

Q.17 State Stefan's law of black body radiation.

Q.18 Define magnetic permeability.

Q.19 Write the full form of laser.

Q.20 Give an example of diamagnetic material.

SECTION-C

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

Q.21 Explain SI system and write the fundamental units of SI system.

Q.22 Define absolute and relative error.

Q.23 Derive the equation of time of flight of a projectile.

Q.24 Derive the expression for KE of a body.

Q.25 Define power and calculate power output of a motor lifting 500 kg weight vertically up 20 m in 15 seconds.

Q.26 Explain the principle of working of bimetallic thermometer.