Quiz: Physics set 23

Q1093: A particle starts from rest and moves with uniform acceleration. The distance travelled in the nth second is proportional to:

A) n
B) 2n-1
C) n2
D) n3

Q1094: A projectile is projected at angle theta. The ratio of maximum height to range is:

A) tantheta/4
B) tantheta/2
C) sintheta/2
D) costheta/2

Q1095: Two bodies of masses m and 4m have same momentum. The ratio of their kinetic energies is:

A) 1 : 4
B) 4 : 1
C) 1 : 2
D) 2 : 1

Q1096: A block moves on a rough horizontal surface with constant speed. The frictional force is:

A) Equal to applied force
B) Zero
C) Greater than applied force
D) Less than applied force

Q1097: The work done by centripetal force in circular motion is:

A) Zero
B) Maximum
C) Minimum
D) Infinite

Q1098: For a satellite orbiting close to Earth, its orbital speed is:

A) Less than escape speed
B) Equal to escape speed
C) Greater than escape speed
D) Zero

Q1099: The terminal velocity of a body falling in a viscous medium is attained when:

A) Net force becomes zero
B) Acceleration is maximum
C) Velocity is zero
D) Gravity is zero

Q1100: The dimensional formula of surface tension is:

A) MT^-2
B) ML^-1T^-2
C) MLT^-2
D) M0LT^-2

Q1101: In an isothermal process, which quantity remains constant for an ideal gas?

A) Temperature
B) Pressure
C) Volume
D) Internal energy

Q1102: The angular frequency of SHM is related to time period T as:

A) omega = 2pi/T
B) omega = T/2pi
C) omega = pi/T
D) omega = T/pi

Q1103: The speed of sound in air is least when air is:

A) Cold and dry
B) Hot and humid
C) Hot and dry
D) Cold and humid

Q1104: The electric field at the center of a uniformly charged ring is:

A) Zero
B) Maximum
C) Infinite
D) Depends on radius

Q1105: The SI unit of electric flux is:

A) N·m2/C
B) V/m
C) C/m2
D) J/C

Q1106: If the dielectric constant of a medium is k, the capacitance becomes:

A) k times
B) 1/k times
C) k2 times
D) Unchanged

Q1107: Drift velocity of electrons in a conductor depends on:

A) Electric field
B) Length only
C) Area only
D) Temperature only

Q1108: The magnetic field inside a toroid is:

A) Confined within core
B) Zero everywhere
C) Uniform outside
D) Infinite

Q1109: The SI unit of magnetic flux density is:

A) Tesla
B) Weber
C) Henry
D) Ampere

Q1110: Induced emf in a circuit is produced due to change in:

A) Magnetic flux
B) Magnetic field only
C) Area only
D) Resistance only

Q1111: In a purely resistive AC circuit, the current is:

A) In phase with voltage
B) 90 deg ahead
C) 90 deg behind
D) Zero

Q1112: The focal length of a concave mirror is:

A) R/2
B) R
C) 2R
D) R/4

Q1113: A convex lens forms a virtual image when the object is placed:

A) Within focal length
B) Beyond focal length
C) At infinity
D) At center of curvature

Q1114: In Young's double slit experiment, fringe width depends on:

A) lambdaD/d
B) d/lambdaD
C) lambda/d
D) D/lambda

Q1115: The photoelectric effect shows that emission of electrons depends on:

A) Frequency
B) Intensity only
C) Area only
D) Time

Q1116: The de Broglie wavelength of a proton is maximum when its:

A) Velocity is minimum
B) Velocity is maximum
C) Energy is maximum
D) Mass is maximum

Q1117: The binding energy per nucleon is least for:

A) Hydrogen
B) Iron
C) Carbon
D) Helium

Q1118: The SI unit of half-life is:

A) Second
B) Becquerel
C) Gray
D) Sievert

Q1119: The conductivity of an intrinsic semiconductor is maximum at:

A) High temperature
B) 0 K
C) Low temperature
D) Any temperature

Q1120: In a p-type semiconductor, minority carriers are:

A) Electrons
B) Holes
C) Ions
D) Protons

Q1121: The logic gate equivalent to a combination of NOT followed by OR is:

A) NAND
B) NOR
C) AND
D) XOR

Q1122: Escape velocity from Earth is approximately:

A) 11.2 km/s
B) 7.9 km/s
C) 5 km/s
D) 15 km/s

Q1123: The SI unit of electric potential difference is:

A) Volt
B) Joule
C) Coulomb
D) Ampere

Q1124: The phenomenon responsible for red colour of sunset is:

A) Scattering
B) Refraction
C) Reflection
D) Diffraction

Q1125: The energy of a photon of wavelength lambda is:

A) hc/lambda
B) hlambda/c
C) h/lambda
D) hclambda

Q1126: The Fermi level in n-type semiconductor lies:

A) Near conduction band
B) Near valence band
C) Mid-gap
D) Outside bands

Q1127: The SI unit of resistance is:

A) Ohm
B) Volt
C) Ampere
D) Farad

Q1128: The electric potential energy of a system of charges is measured in:

A) Joule
B) Volt
C) Coulomb
D) Newton

Q1129: The average kinetic energy of gas molecules at absolute zero is:

A) Zero
B) Maximum
C) Infinite
D) Constant

Q1130: The moment of inertia of a body depends on:

A) Axis of rotation
B) Angular velocity
C) Torque
D) Time

Q1131: Power factor of a purely inductive AC circuit is:

A) 0
B) 1
C) 0.5
D) Depends on frequency

Q1132: The SI unit of magnetic moment is:

A) A·m2
B) Tesla
C) Weber
D) N·m

Q1133: The center of mass of an isolated system remains at rest if:

A) Initial momentum is zero
B) Energy is zero
C) Force is zero
D) Velocity is zero

Q1134: Which quantity is conserved in radioactive decay?

A) Charge
B) Mass
C) Kinetic energy
D) Volume

Q1135: The magnetic field at the center of a circular loop is proportional to:

A) Current
B) Radius
C) Resistance
D) Voltage

Q1136: The refractive index of a medium increases when the speed of light in it:

A) Decreases
B) Increases
C) Remains same
D) Becomes zero

Q1137: The work function of a metal is defined as:

A) Minimum energy to remove electron
B) Maximum KE of electron
C) Photon energy
D) Threshold intensity

Q1138: The decay constant of a radioactive element has unit:

A) s^-1
B) s
C) kg
D) J

Q1139: The SI unit of power is:

A) Watt
B) Joule
C) Volt
D) Ampere

Q1140: The electric field lines inside a conductor are:

A) Absent
B) Circular
C) Radial
D) Parallel

Q1141: The phenomenon of total internal reflection occurs when light travels from:

A) Denser to rarer medium
B) Rarer to denser
C) Vacuum to glass
D) Air to water

Q1142: Which physical quantity has the same unit as torque?

A) Work
B) Force
C) Momentum
D) Power