Quiz: Physics set 22

Q1053: A particle moves in a straight line with acceleration a = 3 m/s2. If its initial velocity is 2 m/s, the distance covered in 4 s is:

A) 32 m
B) 28 m
C) 24 m
D) 20 m

Q1054: A projectile has maximum range when projected at an angle of:

A) 30 deg
B) 45 deg
C) 60 deg
D) 90 deg

Q1055: The impulse acting on a body is equal to change in:

A) Momentum
B) Kinetic energy
C) Force
D) Velocity

Q1056: The potential energy of a spring stretched by x is:

A) (1/2)kx2
B) kx
C) kx2
D) (1/4)kx2

Q1057: The centripetal acceleration of a body moving with speed v in a circle of radius r is:

A) v2/r
B) vr
C) r/v2
D) v/r2

Q1058: The value of acceleration due to gravity inside Earth varies with distance r from center as:

A) proportional r
B) proportional 1/r
C) proportional 1/r2
D) Constant

Q1059: In an inelastic collision, which quantity is always conserved?

A) Momentum
B) Kinetic energy
C) Mechanical energy
D) Potential energy

Q1060: The SI unit of modulus of rigidity is:

A) N/m2
B) N/m
C) J
D) kg/m2

Q1061: For an ideal gas in adiabatic process, which quantity remains constant?

A) PV^gamma
B) PV
C) T/V
D) P/T

Q1062: The total energy of a particle executing SHM is proportional to:

A) Square of amplitude
B) Amplitude
C) Frequency
D) Time period

Q1063: The speed of sound in a gas depends on:

A) Temperature
B) Pressure only
C) Density only
D) Amplitude

Q1064: The electric flux through a closed surface enclosing charge q is:

A) q/epsilon0
B) epsilon0q
C) q2/epsilon0
D) Zero

Q1065: The capacitance of a capacitor depends on:

A) Geometry and dielectric
B) Charge
C) Potential difference
D) Time

Q1066: Drift velocity of electrons increases when:

A) Electric field increases
B) Length increases
C) Area increases
D) Resistance increases

Q1067: The magnetic field inside a long solenoid is:

A) Uniform
B) Zero
C) Non-uniform
D) Infinite

Q1068: The SI unit of magnetic field is:

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

Q1069: Induced emf in a circuit is maximum when:

A) Rate of change of flux is maximum
B) Flux is maximum
C) Flux is zero
D) Area is maximum

Q1070: In a purely inductive AC circuit, the average power is:

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

Q1071: The image formed by a convex mirror is always:

A) Virtual and erect
B) Real and inverted
C) Real and erect
D) Virtual and inverted

Q1072: The fringe width in Young's double slit experiment increases if:

A) Wavelength increases
B) Slit separation increases
C) Screen distance decreases
D) Intensity increases

Q1073: Photoelectric effect supports the particle nature of:

A) Light
B) Electron
C) Photon mass
D) Energy

Q1074: The de Broglie wavelength of an electron accelerated through potential V is proportional to:

A) 1/sqrtV
B) sqrtV
C) V
D) 1/V

Q1075: The energy released in nuclear fission comes from:

A) Mass defect
B) Charge loss
C) Neutron emission
D) Electron emission

Q1076: The SI unit of decay constant is:

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

Q1077: The conductivity of a semiconductor increases due to:

A) Increase in temperature
B) Decrease in temperature
C) Increase in pressure
D) Decrease in length

Q1078: In an n-type semiconductor, the Fermi level lies closer to:

A) Conduction band
B) Valence band
C) Mid-gap
D) Outside bands

Q1079: The logic gate whose output is 0 only when all inputs are 1 is:

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

Q1080: Escape velocity from Earth is independent of:

A) Mass of object
B) Mass of Earth
C) Radius of Earth
D) Gravitational constant

Q1081: The SI unit of electric field is:

A) N/C
B) V
C) J/C
D) C/N

Q1082: The phenomenon responsible for rainbow formation is:

A) Dispersion and total internal reflection
B) Diffraction
C) Scattering
D) Reflection only

Q1083: The energy of a photon is directly proportional to:

A) Frequency
B) Wavelength
C) Amplitude
D) Speed

Q1084: The Fermi level in intrinsic semiconductor lies:

A) Midway between bands
B) Near conduction band
C) Near valence band
D) Outside bands

Q1085: The SI unit of capacitance is:

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

Q1086: The electric potential inside a conductor is:

A) Constant
B) Zero
C) Maximum at center
D) Minimum at surface

Q1087: The average kinetic energy of a gas molecule depends only on:

A) Temperature
B) Pressure
C) Volume
D) Mass

Q1088: The moment of inertia depends on:

A) Mass distribution
B) Angular velocity
C) Torque
D) Time

Q1089: The SI unit of power factor is:

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

Q1090: The unit of magnetic moment is:

A) A·m2
B) Tesla
C) Weber
D) N·m

Q1091: The center of mass of an isolated system remains at rest due to conservation of:

A) Linear momentum
B) Energy
C) Angular momentum
D) Force

Q1092: Which quantity is conserved in both elastic and inelastic collisions?

A) Momentum
B) Kinetic energy
C) Mechanical energy
D) Potential energy