Quiz: Physics set 8

Q352: A body is projected horizontally from the top of a tower with speed 10 m/s. If the height of the tower is 20 m (g = 10 m/s2), the time taken to reach the ground is:

A) 1 s
B) 2 s
C) 3 s
D) 4 s

Q353: The range of a projectile is maximum when the angle of projection is:

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

Q354: A constant force F acts on a body. The work done by the force in moving the body by displacement s is:

A) Fs
B) Fs costheta
C) F/s
D) Fs sintheta

Q355: A body of mass M breaks into two parts m and (M-m). If no external force acts, which quantity is conserved?

A) Linear momentum
B) Kinetic energy
C) Velocity
D) Acceleration

Q356: The rotational kinetic energy of a body rotating with angular speed omega and moment of inertia I is:

A) (1/2)Iomega2
B) Iomega
C) Iomega2
D) (1/2)omega2/I

Q357: The escape velocity from Earth depends on:

A) Radius of Earth
B) Mass of Earth
C) Mass of the body
D) Both A and B

Q358: The buoyant force acting on a body immersed in a liquid is equal to:

A) Weight of the body
B) Weight of displaced liquid
C) Density of liquid
D) Volume of body

Q359: The SI unit of coefficient of volume expansion is:

A) K^-1
B) K
C) m3
D) m3/K

Q360: For an ideal gas, the internal energy depends only on:

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

Q361: The mean position in SHM corresponds to:

A) Maximum velocity
B) Maximum acceleration
C) Zero velocity
D) Maximum displacement

Q362: The wavelength of a sound wave is related to its speed v and frequency f by:

A) lambda = v/f
B) lambda = vf
C) lambda = f/v
D) lambda = v2/f

Q363: The electric field inside a charged spherical conductor is:

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

Q364: The SI unit of electric flux is:

A) N·m2/C
B) N/C
C) V/m
D) C/m2

Q365: If the separation between plates of a parallel plate capacitor is doubled, its capacitance becomes:

A) Double
B) Half
C) Four times
D) Unchanged

Q366: The drift velocity of electrons is directly proportional to:

A) Electric field
B) Temperature
C) Length of conductor
D) Resistance

Q367: The magnetic field at the center of a current carrying circular loop is proportional to:

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

Q368: The SI unit of magnetic permeability is:

A) H/m
B) T
C) Wb
D) A/m

Q369: The induced emf in a conductor moving in a magnetic field is given by:

A) Blv
B) Bv/l
C) B/lv
D) Bl/v

Q370: The average power consumed in an AC circuit depends on:

A) Power factor
B) Frequency only
C) Amplitude only
D) Phase only

Q371: The focal length of a plane mirror is:

A) Infinite
B) Zero
C) Positive
D) Negative

Q372: The refractive index of a medium is the ratio of:

A) Speed of light in vacuum to that in medium
B) Speed in medium to vacuum
C) Wavelengths
D) Frequencies

Q373: In Young's double slit experiment, destructive interference occurs when path difference is:

A) (2n+1)lambda/2
B) nlambda
C) lambda
D) Zero

Q374: The stopping potential in photoelectric effect measures:

A) Maximum kinetic energy of electrons
B) Intensity of light
C) Work function
D) Frequency

Q375: The de Broglie wavelength of a particle decreases when its:

A) Velocity increases
B) Mass decreases
C) Energy decreases
D) Momentum decreases

Q376: The radius of a nucleus varies with mass number A as:

A) $A^{(1/3)}$
B) A
C) $1/A$
D) A2

Q377: The energy released in nuclear fission is due to:

A) Mass defect
B) Charge defect
C) Volume defect
D) Energy absorption

Q378: The SI unit of dose equivalent is:

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

Q379: The conductivity of a semiconductor increases when it is:

A) Heated
B) Cooled
C) Compressed
D) Stretched

Q380: In an n-type semiconductor, the majority charge carriers are:

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

Q381: The SI unit of angular acceleration is:

A) rad/s2
B) rad/s
C) m/s2
D) N·m

Q382: The center of mass of an isolated system moves with constant velocity due to conservation of:

A) Momentum
B) Energy
C) Force
D) Torque

Q383: The SI unit of torque is:

A) N·m
B) J
C) W
D) kg·m2

Q384: The speed of sound in air is maximum when air is:

A) Hot
B) Cold
C) Humid only
D) At low pressure

Q385: The electric potential at infinity due to a point charge is:

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

Q386: The magnetic field inside a toroid is:

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

Q387: In an AC generator, electrical energy is obtained from:

A) Mechanical energy
B) Thermal energy
C) Chemical energy
D) Nuclear energy

Q388: The power factor of a purely resistive AC circuit is:

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

Q389: The magnification produced by a plane mirror is:

A) +1
B) -1
C) 0
D) Depends on distance

Q390: The angular resolution of a telescope improves when:

A) Aperture increases
B) Wavelength increases
C) Focal length decreases
D) Intensity increases

Q391: The work function of a metal is defined as the minimum energy required to:

A) Eject an electron
B) Excite an atom
C) Ionize nucleus
D) Produce radiation

Q392: The energy of a photon is proportional to its:

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

Q393: The decay constant of a radioactive substance depends on:

A) Nature of nucleus
B) Temperature
C) Pressure
D) Chemical state

Q394: The Fermi level of an intrinsic semiconductor lies:

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

Q395: The logic gate that gives output 0 only when all inputs are 1 is:

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

Q396: The SI unit of capacitance is named after:

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

Q397: The phenomenon responsible for mirage is:

A) Total internal reflection
B) Refraction only
C) Diffraction
D) Scattering

Q398: The SI unit of electric current density is:

A) A/m2
B) A/m
C) C/m2
D) V/m

Q399: The unit of magnetic susceptibility is:

A) Dimensionless
B) T
C) H/m
D) A/m

Q400: The law which relates induced emf to rate of change of magnetic flux is:

A) Faraday's law
B) Lenz's law
C) Ampere's law
D) Gauss's law