Quiz: Physics set 18

Q853: A particle moves with velocity v = 2t3 (m/s). The acceleration at t = 1 s is:

A) 2 m/s2
B) 4 m/s2
C) 6 m/s2
D) 8 m/s2

Q854: A projectile is fired at 20 m/s making an angle of 60 deg with horizontal. The time of flight (g = 10 m/s2) is:

A) 2 s
B) 3.46 s
C) 4 s
D) 5 s

Q855: Two particles of masses 1 kg and 3 kg move with same velocity 5 m/s. The kinetic energy of the system is:

A) 50 J
B) 62.5 J
C) 75 J
D) 100 J

Q856: The work done by force F = 3x2 (N) from x = 0 to x = 2 m is:

A) 4 J
B) 6 J
C) 8 J
D) 12 J

Q857: For a solid sphere rolling without slipping, the ratio of translational KE to total KE is:

A) 5/7
B) 2/7
C) 3/5
D) 1/2

Q858: The gravitational field inside a uniform spherical shell is:

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

Q859: Terminal velocity of a sphere in a viscous medium depends on:

A) Square of radius
B) Viscosity only
C) Density only
D) Gravity only

Q860: The dimensional formula of surface tension is:

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

Q861: In an isothermal expansion of ideal gas, the internal energy:

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

Q862: The maximum acceleration of a particle in SHM is:

A) omega2A
B) omegaA
C) A/omega
D) omega2/A

Q863: The speed of sound in air increases when:

A) Temperature increases
B) Pressure decreases
C) Density increases
D) Humidity decreases

Q864: The electric field at the surface of a charged conductor is:

A) sigma/epsilon0
B) sigma/2epsilon0
C) Zero
D) Infinite

Q865: The SI unit of electric flux is equivalent to:

A) N·m2/C
B) V/m
C) J/C
D) C/m2

Q866: If dielectric constant of a capacitor is doubled, the capacitance becomes:

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

Q867: The drift velocity of electrons in a conductor is inversely proportional to:

A) Number density
B) Electric field
C) Charge
D) Mobility

Q868: The magnetic field inside a long straight current carrying conductor is:

A) Zero
B) Uniform
C) Maximum at surface
D) Infinite

Q869: The SI unit of magnetic flux is:

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

Q870: Induced emf in a circuit is produced due to change in:

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

Q871: In an AC circuit with pure resistance, average power is:

A) VI
B) VIcosphi
C) VIsinphi
D) Zero

Q872: The focal length of a convex lens is:

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

Q873: A concave mirror forms a real image when object is placed:

A) Beyond focus
B) Between pole and focus
C) At pole
D) At infinity only

Q874: The fringe width in Young’s double slit experiment is inversely proportional to:

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

Q875: The stopping potential in photoelectric effect is independent of:

A) Intensity of light
B) Frequency
C) Nature of metal
D) Work function

Q876: The de Broglie wavelength of a particle increases when:

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

Q877: The binding energy per nucleon is maximum for:

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

Q878: The SI unit of radioactivity is:

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

Q879: The conductivity of a semiconductor increases with increase in:

A) Temperature
B) Pressure
C) Length
D) Area

Q880: In an n-type semiconductor, the majority carriers are:

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

Q881: The SI unit of electric potential is:

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

Q882: The escape speed from Earth depends on:

A) Mass and radius of Earth
B) Mass of body
C) Atmospheric pressure
D) Temperature

Q883: The SI unit of angular momentum is:

A) kg·m2/s
B) kg·m/s
C) N·m
D) J

Q884: The coefficient of viscosity of liquids decreases with increase in:

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

Q885: The pitch of a sound depends on:

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

Q886: The electric potential inside a conductor is:

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

Q887: The magnetic field inside a long solenoid is:

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

Q888: The power factor of an AC circuit is:

A) cosphi
B) sinphi
C) tanphi
D) 1/phi

Q889: A convex mirror always forms an image which is:

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

Q890: The refractive index of a medium decreases when:

A) Wavelength increases
B) Frequency increases
C) Density increases
D) Optical density increases

Q891: The work function of a metal depends on:

A) Nature of metal
B) Intensity of light
C) Frequency of light
D) Area of surface

Q892: The energy of a photon is given by:

A) hnu
B) hc
C) h/nu
D) h/lambda2

Q893: The decay constant of a radioactive element depends on:

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

Q894: The Fermi level in an intrinsic semiconductor lies:

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

Q895: The logic gate that gives output 1 when inputs are different is:

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

Q896: The SI unit of inductance is:

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

Q897: The phenomenon responsible for mirage is:

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

Q898: The SI unit of current density is:

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

Q899: Magnetic susceptibility of a diamagnetic material is:

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

Q900: Faraday’s law of electromagnetic induction states that induced emf is proportional to:

A) Rate of change of magnetic flux
B) Magnetic field
C) Area of loop
D) Resistance

Q901: The SI unit of magnetic moment is:

A) A·m2
B) T·m
C) Wb
D) N·m

Q902: The center of mass of an isolated system moves with constant velocity due to conservation of:

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