# Quiz: Physics set 17

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**Q803: A particle moves with velocity v = 5t2 - 3t (m/s). The acceleration at t = 2 s is:**

A) 14 m/s2
B) 17 m/s2
C) 20 m/s2
D) 23 m/s2

**Q804: A projectile is launched with speed 50 m/s at 30 deg. The maximum height reached (g = 10 m/s2) is:**

A) 31.25 m
B) 50 m
C) 62.5 m
D) 75 m

**Q805: Two particles of masses 2 kg and 4 kg move with velocities 6 m/s and 2 m/s respectively in the same direction. The velocity of center of mass is:**

A) 3 m/s
B) 4 m/s
C) 4.67 m/s
D) 5 m/s

**Q806: The work done by a variable force F = 4x3 (N) in moving a body from x = 0 to x = 1 m is:**

A) 1 J
B) 2 J
C) 4 J
D) 8 J

**Q807: For a solid sphere rolling without slipping, the fraction of total kinetic energy that is rotational is:**

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

**Q808: The escape speed from a planet of mass M and radius R is proportional to:**

A) sqrt(M/R)
B) sqrt(R/M)
C) M/R
D) R/M

**Q809: The terminal velocity of a sphere of radius r falling through a viscous medium varies as:**

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

**Q810: The SI unit of coefficient of viscosity is:**

A) Pa·s
B) N/m
C) kg/m2
D) m2/s

**Q811: In an adiabatic process for an ideal gas, which relation holds?**

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

**Q812: The time period of a simple pendulum is doubled if:**

A) Length is quadrupled
B) Length is doubled
C) g is doubled
D) Mass is doubled

**Q813: The speed of sound in air depends on:**

A) Temperature
B) Pressure
C) Amplitude
D) Intensity

**Q814: The electric field inside a charged conducting sphere is:**

A) Zero
B) Maximum at center
C) Non-zero
D) Infinite

**Q815: The SI unit of electric dipole moment is:**

A) C·m
B) N·m
C) J/C
D) V·m

**Q816: The capacitance of a parallel plate capacitor increases when:**

A) Plate separation decreases
B) Area decreases
C) Dielectric removed
D) Charge increases

**Q817: The drift velocity of electrons in a conductor is directly proportional to:**

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

**Q818: The magnetic field at the center of a circular coil of radius R carrying current I is:**

A) mu0I/2R
B) mu0I/R
C) mu0R/I
D) mu0/IR

**Q819: The force between two long parallel current-carrying conductors is:**

A) Attractive if currents are in same direction
B) Always repulsive
C) Zero
D) Independent of current

**Q820: The induced emf in a coil is maximum when:**

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

**Q821: In a purely resistive AC circuit, the phase difference between current and voltage is:**

A) 0
B) pi/2
C) pi
D) pi/4

**Q822: The focal length of a concave mirror is equal to:**

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

**Q823: A convex lens forms a real image when the object is placed:**

A) Beyond focal length
B) Within focal length
C) At focus only
D) At infinity only

**Q824: In Young's double slit experiment, fringe width is proportional to:**

A) Wavelength
B) Slit separation
C) Inverse of screen distance
D) Intensity

**Q825: The stopping potential in photoelectric effect depends on:**

A) Frequency of incident light
B) Intensity of light
C) Area of metal
D) Time of exposure

**Q826: The de Broglie wavelength of a particle is inversely proportional to its:**

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

**Q827: The binding energy per nucleon is maximum for nuclei around mass number:**

A) 56
B) 4
C) 12
D) 235

**Q828: The SI unit of activity of a radioactive substance is:**

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

**Q829: The conductivity of a semiconductor increases with:**

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

**Q830: In a p-type semiconductor, the majority charge carriers are:**

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

**Q831: The SI unit of electric field is:**

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

**Q832: The escape speed from Earth is independent of:**

A) Mass of the body
B) Mass of Earth
C) Radius of Earth
D) Gravitational constant

**Q833: The SI unit of angular momentum is:**

A) kg·m2/s
B) kg·m/s
C) N·m
D) J

**Q834: The coefficient of viscosity of liquids decreases with:**

A) Increase in temperature
B) Increase in pressure
C) Increase in density
D) Decrease in volume

**Q835: The pitch of sound depends on:**

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

**Q836: The electric potential inside a conducting sphere is:**

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

**Q837: The magnetic field inside a long solenoid is:**

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

**Q838: The power factor of an AC circuit is:**

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

**Q839: 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

**Q840: The refractive index of a medium is inversely proportional to:**

A) Speed of light in medium
B) Wavelength
C) Frequency
D) Amplitude

**Q841: The work function of a metal depends on:**

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

**Q842: The energy of a photon is given by:**

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

**Q843: The decay constant of a radioactive element depends on:**

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

**Q844: The Fermi level in an intrinsic semiconductor lies:**

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

**Q845: The logic gate that gives output 1 only when inputs are different is:**

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

**Q846: The SI unit of inductance is:**

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

**Q847: The phenomenon responsible for mirage is:**

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

**Q848: The SI unit of current density is:**

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

**Q849: Magnetic susceptibility of a diamagnetic material is:**

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

**Q850: 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

**Q851: The SI unit of magnetic moment is:**

A) A·m2
B) T·m
C) Wb
D) N·m

**Q852: 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