

NEET Mock test – Physics – Answers and Solutions

Note: examination time for physics paper only : 1 hour 6 minutes max. There are two sections in latest 2026 format

Section A:

35 Nos. questions, all compulsory, all MCQ's, marking system is +4 for right answers, -1 for wrong answers , total 140 MARKS. (35x 4=140)

Section B:

10 Nos. choice questions out of total 15 questions, all MCQ's, marking system is +4 for right answers, -1 for wrong answers. Total 40 MARKS (10 x 4 =40)

Total marks: 140+40= 180 MARKS

✓ SECTION A — 35 Questions (MCQs)

1. A particle moves in a circle of radius r with constant speed v . The centripetal acceleration is:

- A. $\frac{v}{r}$
- B. $\frac{v^2}{r}$
- C. $\frac{r}{v^2}$
- D. vr

In uniform circular motion, acceleration is directed towards the centre and given by

$$a_c = \frac{v^2}{r}$$

Answer: B

2. A block slides down a frictionless incline of angle 30° . Its acceleration is:

- A. g
- B. $g \cos 30^\circ$
- C. $g \sin 30^\circ$
- D. $g \tan 30^\circ$

Component of weight along the incline: $mg \sin \theta$

Net force along incline = $mg \sin \theta$.

$$\text{Acceleration: } a = \frac{mg \sin \theta}{m} = g \sin \theta$$

$$\text{For } \theta = 30^\circ: a = g \sin 30^\circ = g \times \frac{1}{2} = \frac{g}{2}$$

Answer: C

3. A spring of constant $k = 200 \text{ N/m}$ is compressed by 0.1 m . Stored energy is:

- A. 1 J
- B. 0.5 J
- C. 2 J
- D. 10 J

Elastic potential energy: $U = \frac{1}{2}kx^2$

Substitute: $U = \frac{1}{2} \times 200 \times (0.1)^2 = 100 \times 0.01 = 1 \text{ J}$

Answer: A

4. A charge of $2 \mu\text{C}$ is placed in an electric field of 5000 N/C . Force experienced is:

- A. 0.01 N
- B. 0.005 N
- C. 0.02 N
- D. 0.5 N

$$F = qE$$

Here $q = 2 \times 10^{-6} \text{ C}$, $E = 5000 \text{ N/C}$:

$$F = 2 \times 10^{-6} \times 5000 = 10^{-6} \times 10^4 = 10^{-2} = 0.01 \text{ N}$$

Answer: A

5. A capacitor of $5\ \mu\text{F}$ is charged to $100\ \text{V}$. Energy stored is:

- A. $0.025\ \text{J}$
- B. $0.5\ \text{J}$
- C. $0.05\ \text{J}$
- D. $25\ \text{J}$

$$U = \frac{1}{2}CV^2$$

$C = 5 \times 10^{-6}\ \text{F}$, and $V = 100\ \text{V}$:

$$\begin{aligned} U &= \frac{1}{2} \times 5 \times 10^{-6} \times 100^2 = \frac{1}{2} \times 5 \times 10^{-6} \times 10^4 = \frac{1}{2} \times 5 \times 10^{-2} \\ &= 2.5 \times 10^{-2} = 0.025\ \text{J} \end{aligned}$$

Answer: A

6. Resistivity depends on:

- A. Length only
- B. Material only
- C. Area only
- D. Temperature only

Resistivity ρ is a **material property** (and also depends on temperature), but among given options, the primary dependence is on **material**.

Answer: B

7. A wire's length is doubled and area halved. Resistance becomes:

- A. Same
- B. Double
- C. Four times
- D. Half

The general equation for resistance : $R = \rho \frac{L}{A}$

Initial: $R_1 = \rho L / (A_1)$ Final: $L_2 = 2L$, thus $A_2 = \frac{A_1}{2}$

$$R_2 = \rho \frac{2L}{A_1/2} = \rho \frac{4L}{A_1} = 4R_1$$

Answer: C

8. Magnetic flux through a conducting wire loop is maximum when field is:

- A. Parallel to loop
- B. Perpendicular to loop
- C. At 45°
- D. Zero

Magnetic flux , $\Phi = BA \cos \theta$

Maximum when $\cos \theta = 1 \Rightarrow \theta = 0^\circ$, i.e., field **perpendicular to plane of loop**.

Answer: B

9. A projectile is fired at 45° . Range is maximum when speed is:

- A. Minimum
- B. Maximum
- C. Zero
- D. Independent of speed

Range is given by $R = \frac{u^2 \sin 2\theta}{g}$

For fixed angle $\theta = 45^\circ$, $\sin 90^\circ = 1$:

$$R = \frac{u^2}{g}$$

So range increases with u^2 . Maximum range $\rightarrow$ **maximum speed.**

Answer: B

10. In an Atwood machine, acceleration is:

- A. g
- B. $\frac{(m_1 - m_2)g}{m_1 + m_2}$
- C. $\frac{g}{2}$
- D. $\frac{m_1 g}{m_2}$

Net force = $(m_1 - m_2)g$, and whereas the Total mass = $m_1 + m_2$

$$a = \frac{(m_1 - m_2)g}{m_1 + m_2}$$

Answer: B

(see stunning images and explanations under Chapter 5 in www.physicsmodels.com)

11. Snell's law is:

A. $n_1 + n_2 = \sin i$

B. $n_1 \sin i = n_2 \sin r$

C. $\sin i = \sin r$

D. $n_1 r = n_2 i$

Law of Refraction: $n_1 \sin i = n_2 \sin r$

Answer: B

12. Half-life of a substance is 2 hours. Fraction remaining after 6 hours:

A. $1/2$

B. $1/4$

C. $1/8$

D. $1/16$

Number of half-lives: $n = \frac{6}{2} = 3$

Fraction remaining:

$$\left(\frac{1}{2}\right)^3 = \frac{1}{8}$$

Answer: C

13. Work done in isothermal expansion is:

A. PdV

B. $nRT \ln(V_2/V_1)$

C. $\frac{1}{2}PV$

D. Zero

For ideal gas isothermal process: $W = nRT \ln \left(\frac{V_2}{V_1} \right)$

Answer: B

14. Lens formula is:

A. $v = fu$

B. $\frac{1}{f} = \frac{1}{v} - \frac{1}{u}$

C. $f = uv$

D. $f = v - u$

Thin lens formula: $\frac{1}{f} = \frac{1}{v} - \frac{1}{u}$

Answer: B

(correct the question paper as per Answer B)

15. Heat produced in resistor is:

A. IRt

B. I^2Rt

C. Vt

D. It/R

Joule heating/ : $H = I^2Rt$

Answer: B

16. A body of mass 2 kg moves with velocity 5 m/s. Kinetic energy is:

- A. 10 J
- B. 25 J
- C. 5 J
- D. 50 J

$$K = \frac{1}{2}mv^2 = \frac{1}{2} \times 2 \times 5^2 = 1 \times 25 = 25 \text{ J}$$

Answer: B

17. Time period of a simple pendulum is proportional to:

- A. $\sqrt{L}$
- B. L
- C. $\frac{1}{L}$
- D. $1/\sqrt{L}$

$$T = 2\pi \sqrt{\frac{L}{g}} \Rightarrow T \propto \sqrt{L}$$

Answer: A

18. A wave has frequency 50 Hz and wavelength 2 m. Speed is:

- A. 25 m/s
- B. 50 m/s
- C. 100 m/s
- D. 2 m/s

$$v = f\lambda = 50 \times 2 = 100 \text{ m/s}$$

Answer: C

19. A transformer works on:

- A. DC
- B. AC
- C. Both
- D. Neither

Transformer requires changing magnetic flux, so it works on AC.

20. A photon's energy is:

- A. hf
- B. h/f
- C. $\frac{f}{h}$
- D. h^2f

$E = hf$ (where h = Planck's constant)

Answer: A

21. Bohr radius depends on:

- A. Charge only
- B. Mass only
- C. Planck constant only
- D. All of the above

Bohr radius: $a_0 = \frac{4\pi\epsilon_0\hbar^2}{m_e e^2}$

It depends on $\hbar$ (Planck constant), electron mass m_e , and charge e .

Answer: D

22. Drift velocity increases when:

- A. Area increases
- B. Temperature increases
- C. Electric field increases
- D. Resistivity increases

$v_d = \mu E$. Drift velocity proportional to electric field E .

Answer: C

23. A convex lens forms a real image when object is placed:

- A. At focus
- B. Beyond $2f$
- C. Between lens and focus
- D. At optical centre

Convex lens: Object beyond $f \rightarrow$ real image.

- Specifically, beyond $2f \rightarrow$ real, inverted, diminished.

Answer: B

24. A body floats when:

- A. Density $>$ fluid
- B. Density $<$ fluid
- C. Density = fluid
- D. None

For floating, the “average density” condition of the body, $\rho_{\text{body}} < \rho_{\text{fluid}}$

Answer: B

25. Escape velocity depends on:

- A. Mass of body
- B. Mass of planet
- C. Temperature
- D. Pressure

$v_e = \sqrt{\frac{2GM}{R}}$, where 'M' is the mass of planet . The escape velocity thus depends on planet's mass M and radius R , not on body's mass.

26. A satellite in orbit has:

- A. Zero energy
- B. Positive energy
- C. Negative energy
- D. Infinite energy

Total energy of bound orbit: $E = -\frac{GMm}{2r} < 0$

Answer: C

27. A current-carrying conductor in magnetic field experiences a force:

- A. Always zero
- B. Maximum when perpendicular
- C. Maximum when parallel
- D. Independent of angle

$F = BIL \sin \theta$, it is maximum when $\sin \theta = 1 \Rightarrow \theta = 90^\circ$.

Answer: B

28. A diode allows current in:

- A. Both directions
- B. Reverse direction
- C. Forward direction
- D. No direction

Ideal diode conducts in **forward bias** only.

Answer: C

29. A transistor is used for:

- A. Amplification
- B. Reflection
- C. Refraction
- D. Absorption

Main use: **signal amplification**.

Answer: A

30. Binding energy per nucleon is highest for:

- A. Hydrogen
- B. Uranium
- C. Iron
- D. Helium

Peak of binding energy per nucleon curve is around **iron (Fe)**.

Answer: C

31. A blackbody absorbs:

- A. All radiation
- B. No radiation
- C. Only visible
- D. Only infrared

Ideal blackbody: **perfect absorber** of all wavelengths.

Answer: A

32. A photon has:

- A. Mass
- B. Charge
- C. Momentum
- D. Volume

Photon: zero rest mass, no charge, but has momentum:

$$p = \frac{E}{c} = \frac{hf}{c}$$

33. A thermodynamic process at constant pressure is:

- A. Isochoric
- B. Isothermal
- C. Adiabatic
- D. Isobaric

Constant pressure → **isobaric**.

Answer: D

34. A wave with particles oscillating perpendicular to direction of propagation is:

- A. Longitudinal
- B. Transverse
- C. Both
- D. Neither

Perpendicular oscillation → **transverse wave**.

Answer: B

35. A capacitor blocks:

- A. AC
- B. DC
- C. Both
- D. Neither

Ideal capacitor:

- For DC: after charging, current becomes zero → **blocks DC**.
- For AC: allows current (reactive) → does **not** block AC.

Answer: B

✓ **SECTION B — 10 Questions (Attempt any 10)**

36. A ball is thrown upward with speed 20 m/s. Maximum height:

- A. 10 m
- B. 20 m
- C. 15 m
- D. 5 m

$$v^2 = u^2 - 2gH$$

At top, $v = 0$: Thus, $u^2 - 0 = 2gH \Rightarrow H = \frac{u^2}{2g}$

Take $g = 10 \text{ m/s}^2$: Hence, $H = \frac{20^2}{2 \times 10} = \frac{400}{20} = 20 \text{ m}$

Answer: B

37. A 10Ω resistor carries 2 A. Power is:

A. 20 W

B. 40 W

C. 10 W

D. 4 W

$$P = I^2 R = 2^2 \times 10 = 4 \times 10 = 40 \text{ W}$$

Answer: B

38. A coil of 100 turns has flux change of 0.02 Wb in 0.1 s. Induced emf:

A. 20 V

B. 2 V

C. 200 V

D. 0.2 V

$$\text{Faraday's law: } \mathcal{E} = -N \frac{\Delta \Phi}{\Delta t}$$

$$\text{Magnitude: } |\mathcal{E}| = 100 \times \frac{0.02}{0.1} = 100 \times 0.2 = 20 \text{ V}$$

Answer: A

39. A 1 kg body at height 10 m has potential energy:

- A. 10 J
- B. 100 J
- C. 1 J
- D. 1000 J

$$U = mgh, \text{ taking } g = 10 \text{ m/s}^2: U = 1\text{kg} \times 10\text{m/s}^2 \times 10\text{m} = 100 \text{ J}$$

Answer: B

40. A ray incident at 30° on a plane mirror reflects at:

- A. 30°
- B. 60°
- C. 0°
- D. 90°

Law of reflection: Angle of incidence = Angle of reflection = 30° .

Answer: A

41. A $2 \mu\text{F}$ capacitor charged to 50 V has charge:

- A. $100 \mu\text{C}$
- B. $50 \mu\text{C}$
- C. $25 \mu\text{C}$
- D. $1 \mu\text{C}$

$$Q = CV, \text{ thus } C = 2 \times 10^{-6} \text{ F, it is given that } V = 50 \text{ V}$$

$$\text{Hence, } Q = 2 \times 10^{-6} \times 50 = 100 \times 10^{-6} = 100 \mu\text{C}$$

Answer: A

42. A 1 m long pendulum has time period approx:

- A. 1 s
- B. 2 s
- C. 3 s
- D. 4 s

$$T = 2\pi \sqrt{\frac{L}{g}} = 2\pi \sqrt{\frac{1}{9.8}} = (2\pi) (0.319) \approx 2.0 \text{ s}$$

Answer: B

43. A 5 kg mass has a momentum = 20 kg·m/s. Its Velocity:

- A. 4 m/s
- B. 5 m/s
- C. 10 m/s
- D. 2 m/s

$$p = mv \Rightarrow v = \frac{p}{m} = \frac{20}{5} = 4 \text{ m/s} \quad (\text{Note: Momentum is not weight x velocity})$$

Answer: A

44. A wave has its amplitude doubled. Energy becomes:

- A. Same
- B. Double
- C. Four times
- D. Half

$$\text{Energy of wave} \propto A^2. \text{ If amplitude becomes } 2A. \quad E' \propto (2A)^2 = 4A^2$$

So energy becomes **four times**.

Answer: C

45. A 100 W bulb used for 1 hour consumes:

- A. 0.1 kWh
- B. 1 kWh
- C. 10 kWh
- D. 0.01 kWh

Power = 100 W = 0.1 kW, Time = 1 h, thus Energy: $E = P \times t = 0.1 \times 1 = 0.1 \text{ kWh}$

Answer: A

46. A block of mass 4 kg is moving with velocity 3 m/s. A constant retarding force of 6 N acts opposite to its motion. Time taken to come to rest is:

- A. 1 s
- B. 2 s
- C. 3 s
- D. 4 s

Retarding force $F = 6 \text{ N}$, mass $m = 4 \text{ kg}$. Acceleration (negative):

$a = \frac{F}{m} = \frac{6}{4} = 1.5 \text{ m/s}^2$. Initial velocity $u = 3 \text{ m/s}$, final $v = 0$.

Using $v = u + at \Rightarrow 0 = 3 - 1.5t \Rightarrow t = \frac{3}{1.5} = 2 \text{ s}$

Answer: B

47. A uniform rod of length 2 m and mass 6 kg is pivoted at one end and held horizontally. Its moment of inertia about the pivot is:

- A. $4 \text{ kg} - \text{m}^2$
- B. $6 \text{ kg} - \text{m}^2$
- C. $8 \text{ kg} - \text{m}^2$

D. $12 \text{ kg} - \text{m}^2$

For a uniform rod of length L , mass M , about one end: $I = \frac{1}{3}ML^2$

Here $M = 6 \text{ kg}$, $L = 2 \text{ m}$:

$$I = \frac{1}{3} \times 6 \times 2^2 = \frac{1}{3} \times 6 \times 4 = \frac{24}{3} = 8 \text{ kg} - \text{m}^2$$

Answer: C

48. The refractive index of glass is 1.5 and that of water is 1.33. A light ray passes from glass into water. Which statement is correct?

- A. It bends towards the normal.
- B. It bends away from the normal.
- C. It does not bend.
- D. It is totally internally reflected for all angles.

Solution: Ray goes from **denser (glass, $n = 1.5$)** to **rarer (water, $n = 1.33$)**. In such a case, when refraction occurs, the ray **bends away from the normal** (unless angle exceeds critical angle, causing Total Internal Reflection).

Answer: B

49. A resistor of resistance 20Ω is connected across a battery of 10 V . The current and power are respectively:

- A. 0.5 A , 5 W
- B. 2 A , 40 W
- C. 0.5 A , 2.5 W
- D. 1 A , 10 W

Ohm's law: $I = \frac{V}{R} = \frac{10}{20} = 0.5 \text{ A}$

Power: $P = VI = 10 \times 0.5 = 5 \text{ W}$

Answer: A

50. A sound wave has frequency 440 Hz and speed 330 m/s. Its wavelength is:

A. 0.75 m

B. 1 m

C. 0.5 m

D. 1.5 m

Wave relation: $v = f\lambda \Rightarrow \lambda = \frac{v}{f}$

$$\lambda = \frac{330}{440} = \frac{33}{44} = \frac{3}{4} = 0.75 \text{ m}$$

Answer: A

