



VOLUME EDUCATION ACADEMY

Empowering Future Medical Professionals



NEET PHYSICS

MODEL PAPER 2026

SUBJECT
Physics

TOTAL MARKS
180

QUESTIONS
45

DURATION
60 Min

Marking Scheme: Correct +4 | Wrong -1 | Unattempted 0

GENERAL INSTRUCTIONS

1. This paper contains 45 questions from Class 11 & 12 Physics syllabus.
2. All questions are MCQ type with single correct answer.
3. Each correct answer carries +4 marks; incorrect answers carry -1 mark.
4. Use of calculator, mobile phone or electronic device is prohibited.
5. Read each question carefully before marking your answer.
6. Rough work can be done in the space provided at the end of the paper.

Student's Name: _____ Roll No.: _____

Batch: _____ Date: _____

SECTION A — MECHANICS & GRAVITATION

Q1 A body is thrown vertically upward with velocity u . The ratio of time to reach maximum height to total time of flight is:

- (A) 1 : 2 (B) 1 : 1
(C) 2 : 1 (D) 1 : 3

Q2 A projectile is fired at 60° to horizontal with speed 20 m/s. The horizontal range is ($g = 10 \text{ m/s}^2$):

- (A) $20\sqrt{3}$ m (B) 40 m
(C) 20 m (D) $10\sqrt{3}$ m

Q3 The dimensions of impulse are:

- (A) $[\text{MLT}^{-1}]$ (B) $[\text{MLT}^{-2}]$
(C) $[\text{ML}^2\text{T}^{-2}]$ (D) $[\text{ML}^0\text{T}^{-1}]$

Q4 A 5 kg block moves with acceleration 2 m/s^2 . The net force on the block is:

- (A) 10 N (B) 5 N
(C) 2.5 N (D) 25 N

Q5 In an Atwood machine, masses M and m are connected over a frictionless pulley. Acceleration is:

- (A) $(M-m)g / (M+m)$ (B) $(M+m)g / (M-m)$
(C) $(M-m)g / 2$ (D) $Mg / (M+m)$

Q6 A circular disc rotates at 4 rad/s. Linear velocity of a point 0.5 m from centre is:

- (A) 2 m/s (B) 4 m/s
(C) 8 m/s (D) 0.5 m/s

Q7 Work done moving a 2 kg body through 3 m against gravity ($g = 10 \text{ m/s}^2$) is:

- (A) 60 J (B) 30 J
(C) 6 J (D) 20 J

Q8 A satellite orbits Earth at radius r . If r doubles, the orbital period becomes:

- | | |
|-------------------|------------------|
| (A) $2\sqrt{2} T$ | (B) $2T$ |
| (C) $4T$ | (D) $\sqrt{2} T$ |

Q9 A spring ($k = 200 \text{ N/m}$) compressed by 0.1 m . Elastic PE stored is:

- | | |
|---------------------|--------------------|
| (A) 1 J | (B) 2 J |
| (C) 0.1 J | (D) 20 J |

Q10 The escape velocity from Earth's surface is approximately:

- | | |
|-------------------------|------------------------|
| (A) 11.2 km/s | (B) 7.9 km/s |
| (C) 3 km/s | (D) 16 km/s |

SECTION B — FLUIDS, THERMAL & WAVES

Q11 Pascal's law states that pressure applied to a confined fluid:

- | | |
|--|--------------------------------|
| (A) Is transmitted equally in all directions | (B) Acts only downward |
| (C) Is lost due to friction | (D) Depends on container shape |

Q12 The SI unit of coefficient of viscosity is:

- | | |
|------------------------------|-------------------|
| (A) $\text{Pa}\cdot\text{s}$ | (B) N/m |
| (C) kg/m | (D) Pa/s |

Q13 An ideal gas at 27°C heated to 127°C at constant pressure. The ratio V_2/V_1 is:

- | | |
|-----------|-----------|
| (A) $4/3$ | (B) $3/4$ |
| (C) 1 | (D) 2 |

Q14 The rms speed of gas molecules is proportional to:

- | | |
|----------------|-----------|
| (A) $\sqrt{T}$ | (B) T |
| (C) T^2 | (D) $1/T$ |

Q15 In an adiabatic process for an ideal gas:

(A) $Q = 0$

(B) $W = 0$

(C) $\Delta U = 0$

(D) $\Delta T = 0$

Q16 A simple pendulum of length 1 m has time period ($g = 10 \text{ m/s}^2$) approximately:

(A) $2\pi/\sqrt{10} \text{ s}$

(B) $\pi \text{ s}$

(C) 2 s

(D) $\sqrt{10} \text{ s}$

Q17 Velocity of sound in air at 0°C is 332 m/s. At 4°C it will be approximately:

(A) 333.2 m/s

(B) 332 m/s

(C) 330 m/s

(D) 340 m/s

Q18 Beats produced by superposition of 256 Hz and 260 Hz waves. Beat frequency is:

(A) 4 Hz

(B) 516 Hz

(C) 258 Hz

(D) 2 Hz

Q19 In a stationary wave, distance between two consecutive nodes is:

(A) $\lambda/2$

(B) λ

(C) $\lambda/4$

(D) 2λ

Q20 Resonance in a closed organ pipe occurs when pipe length equals:

(A) $(2n-1)\lambda/4$

(B) $n\lambda/2$

(C) $n\lambda$

(D) $2n\lambda$

SECTION C — ELECTROSTATICS & CURRENT ELECTRICITY

Q21 The electric field intensity inside a uniformly charged spherical shell is:

(A) Zero

(B) Maximum

(C) Equal to outer field

(D) kQ/R^2

Q22 Two charges $+2\mu\text{C}$ and $-2\mu\text{C}$ placed 0.2 m apart. Electric potential midway is:

- | | |
|-------------|------------|
| (A) 0 V | (B) 180 kV |
| (C) -180 kV | (D) 360 kV |

Q23 In a series RC circuit with DC, after long time the current through capacitor is:

- | | |
|-----------|-------------|
| (A) Zero | (B) Maximum |
| (C) V/R | (D) V/C |

Q24 The resistivity of a conductor depends on:

- | | |
|------------------------------|------------|
| (A) Material and temperature | (B) Length |
| (C) Cross-section area | (D) Shape |

Q25 Kirchhoff's current law is based on conservation of:

- | | |
|--------------|------------|
| (A) Charge | (B) Energy |
| (C) Momentum | (D) Mass |

Q26 Force on charge q moving with velocity v in field B at angle θ is:

- | | |
|----------------------|----------------------|
| (A) $qvB \sin\theta$ | (B) $qvB \cos\theta$ |
| (C) qvB | (D) $qvB \tan\theta$ |

Q27 A current-carrying conductor in magnetic field experiences maximum force when current is:

- | | |
|--------------------------|--------------------------|
| (A) Perpendicular to B | (B) Parallel to B |
| (C) Antiparallel to B | (D) At 45° to B |

Q28 The SI unit of magnetic flux is:

- | | |
|----------------|---------------|
| (A) Weber (Wb) | (B) Tesla (T) |
| (C) Henry (H) | (D) Farad (F) |

Q29 In a solenoid with n turns/m carrying current I , magnetic field inside is:

- | | |
|----------------|------------------|
| (A) $\mu_0 nI$ | (B) $\mu_0 nI/2$ |
| (C) nI/μ_0 | (D) $2\mu_0 nI$ |

Q30 Self-inductance of a coil opposes change in current due to:

- | | |
|---------------------|-------------------|
| (A) Lenz's law | (B) Ampere's law |
| (C) Biot-Savart law | (D) Coulomb's law |

SECTION D — MAGNETISM, EMI & OPTICS

Q31 Faraday's law of electromagnetic induction states EMF equals:

- | | |
|-----------------|----------------|
| (A) $-d\Phi/dt$ | (B) $d\Phi/dt$ |
| (C) ΦR | (D) Φ/t |

Q32 In an AC circuit with only a capacitor, current leads voltage by:

- | | |
|-----------------|----------------|
| (A) 90° | (B) 0° |
| (C) 180° | (D) 45° |

Q33 The power factor of a pure inductor is:

- | | |
|----------|--------------|
| (A) Zero | (B) One |
| (C) 0.5 | (D) Infinity |

Q34 At resonance in a series LCR circuit, impedance equals:

- | | |
|-----------|----------------------------------|
| (A) R | (B) $\sqrt{R^2 + (X_L - X_C)^2}$ |
| (C) X_L | (D) X_C |

Q35 A concave mirror has focal length 20 cm. Object at 60 cm gives image at:

- | | |
|-----------|-----------|
| (A) 30 cm | (B) 20 cm |
| (C) 60 cm | (D) 15 cm |

Q36 Total internal reflection occurs when angle of incidence is:

- | | |
|---------------------------------|------------------------------|
| (A) Greater than critical angle | (B) Less than critical angle |
| (C) Equal to Brewster's angle | (D) Exactly 45° |

Q37 In Young's double slit experiment, fringe width β is given by:

- | | |
|-------------------|-------------------|
| (A) $\lambda D/d$ | (B) $\lambda d/D$ |
| (C) dD/λ | (D) λ/dD |

Q38 The resolving power of a telescope depends on:

- | | |
|--------------------------------|------------------------------|
| (A) Diameter of objective lens | (B) Focal length of eyepiece |
| (C) Telescope length | (D) Magnification |

Q39 Power in diopters for a convex lens of focal length 25 cm is:

- | | |
|----------|------------|
| (A) +4 D | (B) +2.5 D |
| (C) -4 D | (D) +40 D |

Q40 The photoelectric effect was explained by Einstein using:

- | | |
|-----------------------------|--------------------|
| (A) Quantum theory of light | (B) Wave theory |
| (C) Classical mechanics | (D) Thermodynamics |

SECTION E — MODERN PHYSICS

Q41 de Broglie wavelength of particle of mass m and velocity v is:

- | | |
|------------------|------------|
| (A) h/mv | (B) mv/h |
| (C) $h \cdot mv$ | (D) m/hv |

Q42 In Bohr's hydrogen atom, radius of n th orbit is proportional to:

- | | |
|-----------|-------------|
| (A) n^2 | (B) n |
| (C) $1/n$ | (D) $1/n^2$ |

Q43 Half-life of a substance is 20 years. After 60 years, fraction remaining is:

- | | |
|-----------|------------|
| (A) $1/8$ | (B) $1/4$ |
| (C) $1/2$ | (D) $1/16$ |

Q44 In nuclear fission, binding energy per nucleon of products compared to reactants is:

(A) Higher

(B) Lower

(C) Equal

(D) Zero

Q45 Which of the following has zero rest mass?

(A) Photon

(B) Electron

(C) Proton

(D) Neutron

ANSWER KEY

Q.No	Answer	Q.No	Answer	Q.No	Answer
1	A	16	A	31	A
2	A	17	A	32	A
3	A	18	A	33	A
4	A	19	A	34	A
5	A	20	A	35	A
6	A	21	A	36	A
7	A	22	A	37	A
8	A	23	A	38	A
9	A	24	A	39	A
10	A	25	A	40	A
11	A	26	A	41	A
12	A	27	A	42	A
13	A	28	A	43	A
14	A	29	A	44	A
15	A	30	A	45	A

SCORE CALCULATION

Total Score = (Correct × 4) – (Wrong × 1) Maximum Marks: 180

DETAILED SOLUTIONS

Step-by-step explanations for all 45 questions

A = Correct answer badge

SECTION A — MECHANICS & GRAVITATION

- Q1** **Ans: (A)** Time to reach max height = u/g . Total time of flight = $2u/g$. Ratio = $(u/g) : (2u/g) = 1 : 2$.
- Q2** **Ans: (A)** $R = u^2 \sin 2\theta / g = (400 \times \sin 120^\circ) / 10 = 40 \times (\sqrt{3}/2) = 20\sqrt{3} \text{ m}$.
- Q3** **Ans: (A)** Impulse = Force $\times$ time = $[MLT^{-2}][T] = [MLT^{-1}]$, same dimensions as momentum.
- Q4** **Ans: (A)** By Newton's 2nd law: $F = ma = 5 \times 2 = 10 \text{ N}$.
- Q5** **Ans: (A)** Standard Atwood machine result: $a = (M-m)g / (M+m)$. Net force on system = $(M-m)g$; total mass = $M+m$.
- Q6** **Ans: (A)** Linear velocity $v = r\omega = 0.5 \times 4 = 2 \text{ m/s}$.
- Q7** **Ans: (A)** $W = mgh = 2 \times 10 \times 3 = 60 \text{ J}$.
- Q8** **Ans: (A)** By Kepler's 3rd law $T \propto r^{3/2}$. So $T_2/T_1 = (2r/r)^{3/2} = 2^{3/2} = 2\sqrt{2}$.
- Q9** **Ans: (A)** $PE = \frac{1}{2}kx^2 = \frac{1}{2} \times 200 \times (0.1)^2 = \frac{1}{2} \times 200 \times 0.01 = 1 \text{ J}$.
- Q10** **Ans: (A)** $v_e = \sqrt{2gR_E} = \sqrt{2 \times 9.8 \times 6.4 \times 10^6} \approx 11.2 \text{ km/s}$.

SECTION B — FLUIDS, THERMAL & WAVES

Q11 **Ans: (A)**

Pascal's law: pressure exerted anywhere on an enclosed incompressible fluid is transmitted undiminished to every part of the fluid and the walls of its container.

Q12 **Ans: (A)** Viscosity $\eta = (\text{Force} \times \text{distance}) / (\text{Area} \times \text{velocity}) \rightarrow \text{Pa}\cdot\text{s} (= \text{N}\cdot\text{s}/\text{m}^2)$ in SI.

Q13 **Ans: (A)** Charles's law (constant P): $V \propto T$. $V_2/V_1 = T_2/T_1 = 400 \text{ K} / 300 \text{ K} = 4/3$.

Q14 **Ans: (A)** $v_{\text{rms}} = \sqrt{(3RT/M)}$. Therefore $v_{\text{rms}} \propto \sqrt{T}$ at constant molar mass.

Q15 **Ans: (A)** Adiabatic process: no heat exchange with surroundings, so $Q = 0$. From 1st law, $\Delta U = -W$.

Q16 **Ans: (A)** $T = 2\pi\sqrt{(L/g)} = 2\pi\sqrt{(1/10)} = 2\pi/\sqrt{10} \approx 1.99 \text{ s} \approx 2 \text{ s}$.

Q17 **Ans: (A)** $v \propto \sqrt{T}$ (absolute). $v_2 = 332 \times \sqrt{(277/273)} \approx 332 \times 1.0073 \approx 333.2 \text{ m/s}$.

Q18 **Ans: (A)** Beat frequency = $|f_1 - f_2| = |256 - 260| = 4 \text{ Hz}$.

Q19 **Ans: (A)** In a stationary wave, nodes are points of zero amplitude. Distance between consecutive nodes = $\lambda/2$.

Q20 **Ans: (A)** Closed pipe resonates at odd harmonics only. Condition: $L = (2n-1)\lambda/4$, where $n = 1, 2, 3, \dots$

SECTION C — ELECTROSTATICS & CURRENT ELECTRICITY

Q21 **Ans: (A)**

By Gauss's law, the electric field inside a closed charged shell is **zero**; no net charge is enclosed within any Gaussian surface inside.

Q22 **Ans: (A)** Potential is scalar. $V = k(+2\mu\text{C})/0.1 + k(-2\mu\text{C})/0.1 = 0$. Equal and opposite charges equidistant $\rightarrow V = 0$.

Q23 **Ans: (A)** At steady state, capacitor is fully charged to supply voltage. No current flows through it. $I = 0$.

Q24 **Ans: (A)**

Resistivity ρ is an intrinsic property of the material. It varies with **temperature** but is independent of the conductor's shape or size.

Q25 **Ans: (A)** KCL: algebraic sum of currents at any node = 0. This is based on **conservation of electric charge**.

Q26 **Ans: (A)** Lorentz magnetic force: $F = qvB \sin\theta$. Maximum at $\theta = 90^\circ$, zero at $\theta = 0^\circ$ or 180° .

Q27 **Ans: (A)** $F = BIL \sin\theta$. Maximum force when $\sin\theta = 1$, i.e., $\theta = 90^\circ \rightarrow$ current **perpendicular to B**.

Q28 **Ans: (A)** Magnetic flux $\Phi = B \cdot A$. SI unit is **Weber (Wb)** = $T \cdot m^2$. Tesla is the unit of B, not flux.

Q29 **Ans: (A)** For an ideal solenoid: $B = \mu_0 nI$ (uniform field inside, parallel to axis).

Q30 **Ans: (A)**

By **Lenz's law**, induced EMF always opposes the change in flux that causes it, hence opposing the change in current.

SECTION D — MAGNETISM, EMI & OPTICS

Q31 **Ans: (A)** Faraday's law: $\varepsilon = -d\Phi/dt$. The negative sign comes from Lenz's law indicating opposition.

Q32 **Ans: (A)** For pure capacitor: I leads V by **90°** . Phasor: $V_C = Q/C$, $I = dQ/dt$ leads Q by 90° .

Q33 **Ans: (A)** For pure inductor, phase angle $\phi = 90^\circ$. Power factor = $\cos \phi = \cos 90^\circ = 0$.

Q34 **Ans: (A)** At resonance: $X_L = X_C$, so $Z = \sqrt{R^2 + 0} = R$ (minimum impedance, maximum current).

Q35 **Ans: (A)** Mirror formula: $1/v + 1/u = 1/f$. With $u = -60$ cm, $f = -20$ cm: $1/v = -1/20 + 1/60 = -2/60$. So $v = -30$ cm.

Q36 **Ans: (A)**

TIR occurs when light travels from denser to rarer medium and i **exceeds the critical angle** $\theta_c = \sin^{-1}(n_2/n_1)$.

Q37 **Ans: (A)** Fringe width $\beta = \lambda D/d$, where λ = wavelength, D = slit-screen distance, d = slit separation.

Q38 **Ans: (A)** Resolving power $RP = D / (1.22\lambda)$. Larger **objective diameter D** gives finer angular resolution.

Q39 **Ans: (A)** $P = 1/f(m) = 1/0.25$ m = **+4 diopters**. Positive sign confirms it is a converging (convex) lens.

Q40

Ans: (A)

Einstein explained photoelectric effect using **quantum (photon) theory**: $E = h\nu$. Wave theory failed to explain threshold frequency.

SECTION E — MODERN PHYSICS

Q41

Ans: (A)

de Broglie relation: $\lambda = h/p = h/mv$, where h = Planck's constant.

Q42

Ans: (A)

Bohr model: $r_n = a_0 n^2$. Radius is proportional to n^2 . ($a_0 = 0.529 \text{ \AA}$ for hydrogen.)

Q43

Ans: (A)

Number of half-lives $n = 60/20 = 3$. Remaining fraction = $(1/2)^3 = 1/8$.

Q44

Ans: (A)

Fission releases energy because product nuclei have **higher BE/nucleon** (more stable) than the parent nucleus.

Q45

Ans: (A)

Photons are massless particles (rest mass = 0) that travel at speed c . All other listed particles have non-zero rest mass.

SPACE FOR ROUGH WORK