# Physics

Daily Practice Paper #1 · JEE Advanced 2026 · Class 12

SolveFlow · Demo Paper

| Field | Value |
|---|---|
| Subject | Physics |
| Total Questions | 10 |
| Total Marks | 40 |
| Negative Marking | −1 per wrong answer |
| Time Suggested | 30 minutes |
| Syllabus | Class 12 — Electrostatics, Current Electricity, |
| | EMI, Optics, Modern Physics, Semiconductors |

## CO & Bloom's Level Mapping

| Q No. | Topic | CO | Bloom's Level |
|---|---|---|---|
| 1 | Electrostatics — Point Charges | CO1 | L3 — Apply |
| 2 | Current Electricity — Wheatstone Bridge | CO1 | L3 — Apply |
| 3 | Magnetic Effects of Current | CO2 | L4 — Analyse |
| 4 | Electromagnetic Induction | CO2 | L3 — Apply |
| 5 | Alternating Current — Resonance | CO2 | L3 — Apply |
| 6 | Ray Optics — Lens Formula | CO3 | L3 — Apply |
| 7 | Wave Optics — YDSE | CO3 | L3 — Apply |
| 8 | Dual Nature — de Broglie | CO4 | L2 — Understand |
| 9 | Atoms & Nuclei — Hydrogen Spectrum | CO4 | L3 — Apply |
| 10 | Semiconductors — p-n Junction | CO5 | L2 — Understand |

## Instructions

- Each question carries **4 marks** for a correct answer.
- $-1$ **mark** is deducted for each incorrect answer.
- No marks are deducted for unattempted questions.
- Use of calculator is **not** permitted.
- Write answers clearly in the response sheet.

**Q1 | *Electrostatics* Marks: 4 | CO/BL: CO1 / L3**

Two conducting spheres of radii $r_1$ and $r_2$ are charged to the **same surface charge density** $\sigma$. The ratio of their electric potentials $\dfrac{V_1}{V_2}$ is:

(A) $\dfrac{r_2}{r_1}$

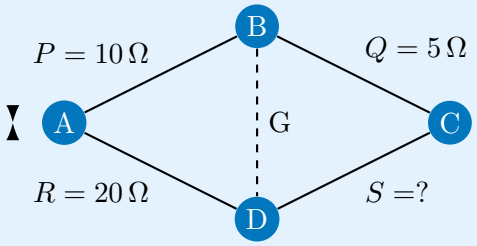
(B) $\dfrac{r_1}{r_2}$

(C) $\left(\dfrac{r_1}{r_2}\right)^2$

(D) 1

**Q2 | *Current Electricity — Wheatstone Bridge* Marks: 4 | CO/BL: CO1 / L3**

In a balanced Wheatstone bridge $P/Q = R/S$, with $P = 10\,\Omega$, $Q = 5\,\Omega$. The value of $S$ at balance when $R = 20\,\Omega$ is:




Battery between A and C

(A) $8\,\Omega$

(B) $10\,\Omega$

(C) $12\,\Omega$

(D) $6\,\Omega$

**Q3 | *Magnetic Effects of Current* Marks: 4 | CO/BL: CO2 / L4**

A proton moves with speed $v$ in a uniform magnetic field $B$. The angle between $\vec{v}$ and $\vec{B}$ is 30°. The radius of the **circular component** of its helical path is:

(A) $\dfrac{mv}{2qB}$

(B) $\dfrac{mv\sin 30^\circ}{qB}$

(C) $\dfrac{mv\cos 30^\circ}{qB}$

(D) $\dfrac{mv}{qB\sin 30^\circ}$

**Q4 | *Electromagnetic Induction* Marks: 4 | CO/BL: CO2 / L3**

A square loop of side 10 cm is placed in a uniform magnetic field $B = 0.5\,\text{T}$ perpendicular to its plane. The loop is pulled completely out of the field in 0.1 s. The induced EMF is:

(A) 0.05 V

(B) 0.5 V

(C) 0.005 V

(D) 5 V

**Q5 | *Alternating Current — Resonance* Marks: 4 | CO/BL: CO2 / L3**

A series RLC circuit has $R = 100\,\Omega$, $L = 1\,\text{H}$, $C = 100\,\mu\text{F}$. The resonant frequency $f_0$ is approximately:

(A) 15.9 Hz

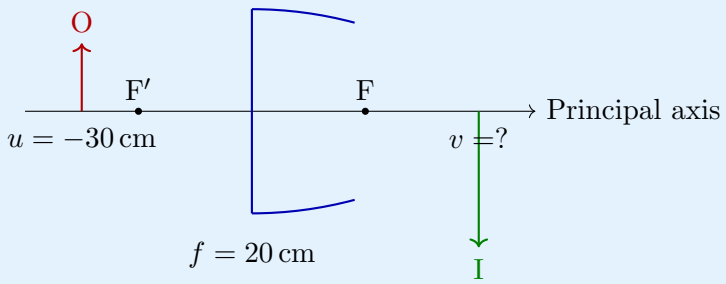
(B) 50 Hz

(C) 100 Hz

(D) 31.8 Hz

**Q6 | *Ray Optics — Convex Lens* Marks: 4 | CO/BL: CO3 / L3**

A convex lens of focal length $f = 20\,\text{cm}$ forms a real image of an object placed 30 cm from the lens. The image distance $v$ is:




(A) 60 cm

(B) 12 cm

(C) −60 cm

(D) $-12\,\text{cm}$

**Q7 | *Wave Optics — Young's Double Slit* Marks: 4 | CO/BL: CO3 / L3**

In YDSE, slit separation $d = 0.5\,\text{mm}$, screen distance $D = 1\,\text{m}$, wavelength $\lambda = 600\,\text{nm}$. The fringe width $\beta$ is:

(A) $1.2\,\text{mm}$

(B) $0.6\,\text{mm}$

(C) $1.0\,\text{mm}$

(D) $2.4\,\text{mm}$

**Q8 | *Dual Nature of Matter* Marks: 4 | CO/BL: CO4 / L2**

The de Broglie wavelength of an electron accelerated through $V = 100\,\text{V}$ is:

(A) $1.23\,\text{Å}$

(B) $0.123\,\text{nm}$

(C) $12.3\,\text{Å}$

(D) Both (A) and (B) are correct

**Q9 | *Atoms & Nuclei — Hydrogen Spectrum* Marks: 4 | CO/BL: CO4 / L3**

An electron in a hydrogen atom transitions from $n = 3$ to $n = 2$ (Balmer series). The wavelength of the emitted radiation is approximately:

(A) $656\,\text{nm}$

(B) $121\,\text{nm}$

(C) $486\,\text{nm}$

(D) $365\,\text{nm}$

**Q10 | *Semiconductors — p-n Junction* Marks: 4 | CO/BL: CO5 / L2**

In a p-n junction diode under **forward bias**, the width of the depletion layer:

(A) Increases

(B) Decreases

(C) Remains unchanged

(D) First increases then decreases