CUET 2026 June 1 Shift 1 Physics

Question Paper (Memory-Based) with Solutions

Conducted by National Testing Agency (NTA)

General Instructions

(i) The examination will be conducted in Computer-Based Test (CBT) mode.

(ii) Each question carries +5 marks for correct answer and -1 mark for wrong answer.

(iii) The total number of questions are 50.

(iv) Duration of the exam is 1 hour (60 minutes).

1. A wire of resistance $5\,\Omega$ is connected across a $10\,V$ battery. The current flowing through the wire is

(A) $0.5\,A$

(B) $1\,A$

(C) $2\,A$

(D) $5\,A$

Correct Answer: (C) $2\,A$

Solution:

Concept:

According to Ohm's Law,

$$V = IR$$

where

$$V = \text{Potential Difference}, \quad I = \text{Current}, \quad R = \text{Resistance}$$

Step 1: Write the given values.

$$V = 10\,V$$

$$R = 5\,\Omega$$

Step 2: Use Ohm's law to calculate current.

$$I = \frac{V}{R}$$

$$I = \frac{10}{5}$$

$$I = 2A$$

Therefore,

$$\boxed{I = 2A}$$

$$\boxed{\text{Answer} = \text{(C)}}$$

Quick Tip: For numerical questions from Current Electricity, first check whether Ohm's law can be directly applied.

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2. The de Broglie wavelength associated with an electron is inversely proportional to its

(A) Charge

(B) Momentum

(C) Potential Energy

(D) Frequency

Correct Answer: (B) Momentum

Solution:

Concept:

According to de Broglie's hypothesis,

$$\lambda = \frac{h}{p}$$

where

$$\lambda = \text{de Broglie wavelength}$$

$$h = \text{Planck's constant}$$

$$p = \text{momentum}$$

Step 1: Observe the relation.

$$\lambda = \frac{h}{p}$$

Since h is constant,

$$\lambda \propto \frac{1}{p}$$

Step 2: Identify the correct option.

The wavelength is inversely proportional to momentum.

Therefore,

$$\boxed{\lambda \propto \frac{1}{p}}$$

$$\boxed{\text{Answer} = \text{(B)}}$$

Quick Tip: Higher momentum means shorter wavelength.

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3. A circular coil carries a current of $4A$. If the current is doubled, the magnetic field at its centre becomes

(A) Half

(B) Double

(C) Four times

(D) Unchanged

Correct Answer: (B) Double

Solution:

Concept:

The magnetic field at the centre of a circular coil is

$$B = \frac{\mu_0 I}{2R}$$

Step 1: Observe the proportionality.

$$B \propto I$$

Step 2: Double the current.

If

$$I \rightarrow 2I$$

then

$$B \rightarrow 2B$$

Hence the magnetic field also doubles.

Therefore,

$$\boxed{\text{Magnetic Field} = \text{Double}}$$

$$\boxed{\text{Answer} = \text{(B)}}$$

Quick Tip: Magnetic field at the centre of a coil is directly proportional to current.

4. A body of mass $4\,kg$ is moving with a speed of $10\,m/s$. Its kinetic energy is

(A) $100\,J$

(B) $150\,J$

(C) $200\,J$

(D) $400\,J$

Correct Answer: (C) $200\,J$

Solution:

Concept:

Kinetic Energy is given by

$$KE = \frac{1}{2}mv^2$$

Step 1: Substitute the given values.

$$KE = \frac{1}{2} \times 4 \times 10^2$$

$$KE = 2 \times 100$$

$$KE = 200\,J$$

Therefore,

$$\boxed{KE = 200\,J}$$

$$\boxed{\text{Answer} = \text{(C)}}$$

Quick Tip: Kinetic energy depends on the square of velocity. Doubling velocity makes kinetic energy four times.

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5. An object is placed at a distance of $30\,cm$ from a convex lens of focal length $15\,cm$. The

image is formed at

(A) $15\,cm$

(B) $20\,cm$

(C) $30\,cm$

(D) Infinity

Correct Answer: (C) $30\,cm$

Solution:

Concept:

Lens Formula:

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

Step 1: Write the given values.

$$f = +15\,cm$$

$$u = -30\,cm$$

Step 2: Apply lens formula.

$$\frac{1}{15} = \frac{1}{v} + \frac{1}{30}$$

$$\frac{1}{v} = \frac{1}{15} - \frac{1}{30}$$

$$= \frac{2}{30} - \frac{1}{30}$$

$$= \frac{1}{30}$$

$$v = 30\,cm$$

Therefore,

$$\boxed{v = 30\,cm}$$

$$\boxed{\text{Answer} = \text{(C)}}$$

Quick Tip: An object placed at $2F$ of a convex lens forms its image at $2F$ on the other side.

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6. The rms speed of molecules of an ideal gas at temperature $300\,K$ is $500\,m/s$. If the temperature is increased to $1200\,K$, the new rms speed will be

(A) $250\,m/s$

(B) $500\,m/s$

(C) $1000\,m/s$

(D) $2000\,m/s$

Correct Answer: (C) $1000\,m/s$

Solution:

Concept:

The rms speed of gas molecules is given by

$$v_{rms} = \sqrt{\frac{3RT}{M}}$$

Therefore,

$$v_{rms} \propto \sqrt{T}$$

Step 1: Write the relation between initial and final rms speeds.

$$\frac{v_2}{v_1} = \sqrt{\frac{T_2}{T_1}}$$

Step 2: Substitute the given values.

$$\frac{v_2}{500} = \sqrt{\frac{1200}{300}}$$

$$\frac{v_2}{500} = \sqrt{4}$$

$$\frac{v_2}{500} = 2$$

$$v_2 = 1000\, m/s$$

Therefore,

$$\boxed{v_2 = 1000\, m/s}$$

$$\boxed{\text{Answer} = \text{(C)}}$$

Quick Tip: The rms speed is directly proportional to the square root of absolute temperature.

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7. The work function of a metal is $2\,eV$. If light of energy $5\,eV$ falls on the metal surface, the maximum kinetic energy of the emitted photoelectrons is

(A) $2\,eV$

(B) $3\,eV$

(C) $5\,eV$

(D) $7\,eV$

Correct Answer: (B) $3\,eV$

Solution:

Concept:

According to Einstein's photoelectric equation,

$$K_{max} = h\nu - \phi$$

where

$$K_{max} = \text{Maximum Kinetic Energy}$$

$$h\nu = \text{Energy of incident photon}$$

$$\phi = \text{Work Function}$$

Step 1: Write the given values.

$$h\nu = 5\,eV$$

$$\phi = 2\,eV$$

Step 2: Apply Einstein's equation.

$$K_{max} = 5 - 2$$

$$K_{max} = 3\,eV$$

Therefore,

$$\boxed{K_{max} = 3\,eV}$$

$$\boxed{\text{Answer} = \text{(B)}}$$

Quick Tip: Photoelectric emission occurs only when photon energy exceeds the work function.

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8. Two capacitors of capacitances $4\,\mu F$ and $6\,\mu F$ are connected in parallel. The equivalent capacitance is

(A) $2.4\,\mu F$

(B) $5\,\mu F$

(C) $10\,\mu F$

(D) $24\,\mu F$

Correct Answer: (C) $10\,\mu F$

Solution:

Concept:

For capacitors connected in parallel,

$$C_{eq} = C_1 + C_2$$

Step 1: Write the given values.

$$C_1 = 4\,\mu F$$

$$C_2 = 6\,\mu F$$

Step 2: Calculate equivalent capacitance.

$$C_{eq} = 4 + 6$$

$$C_{eq} = 10\,\mu F$$

Therefore,

$$\boxed{C_{eq} = 10\,\mu F}$$

$$\boxed{\text{Answer} = \text{(C)}}$$

Quick Tip: Capacitances add directly in parallel and decrease in series combination.

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9. The half-life of a radioactive substance is 4 days. What fraction of the original sample remains after 12 days?

(A) $\frac{1}{2}$

(B) $\frac{1}{4}$
(C) $\frac{1}{8}$
(D) $\frac{1}{16}$

Correct Answer: (C) $\frac{1}{8}$

Solution:

Concept:

Radioactive decay law:

$$N = N_0\left(\frac{1}{2}\right)^n$$

where

$$n = \frac{t}{T_{1/2}}$$

Step 1: Calculate the number of half-lives elapsed.

$$n = \frac{12}{4}$$

$$n = 3$$

Step 2: Find the remaining fraction.

$$\frac{N}{N_0} = \left(\frac{1}{2}\right)^3$$

$$= \frac{1}{8}$$

Therefore,

$$\boxed{\frac{N}{N_0} = \frac{1}{8}}$$

$$\boxed{\text{Answer} = \text{(C)}}$$

Quick Tip: After every half-life, the amount of radioactive substance becomes half of its previous value.

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10. A coil experiences a change in magnetic flux from $0.2\,Wb$ to $0.8\,Wb$ in $0.1\,s$. The average induced emf in the coil is

(A) $2\,V$

(B) $4\,V$

(C) $6\,V$

(D) $8\,V$

Correct Answer: (C) $6\,V$

Solution:

Concept:

According to Faraday's Law,

$$e = \left| \frac{\Delta\phi}{\Delta t} \right|$$

where

$$\Delta\phi = \text{Change in Magnetic Flux}$$

$$\Delta t = \text{Time Interval}$$

Step 1: Calculate the change in magnetic flux.

$$\Delta\phi = 0.8 - 0.2$$

$$\Delta\phi = 0.6\,Wb$$

Step 2: Apply Faraday's law.

$$e = \frac{0.6}{0.1}$$

$$e = 6\,V$$

Therefore,

$$\boxed{e = 6\,V}$$

$$\boxed{\text{Answer} = \text{(C)}}$$

Quick Tip: Induced emf depends on the rate of change of magnetic flux, not on the flux alone.
