

01	☐ A	☐ B	☐ C	☐ D	☐ E
02	☐ A	☒ B	☐ C	☐ D	☐ E
03	☐ A	☐ B	☐ C	☒ D	☐ E
04	☒ A	☐ B	☐ C	☐ D	☐ E
05	☐ A	☐ B	☒ C	☐ D	☐ E
06	☒ A	☐ B	☐ C	☐ D	☐ E
07	☐ A	☐ B	☐ C	☒ D	☐ E
08	☐ A	☐ B	☒ C	☐ D	☐ E
09	☒ A	☐ B	☐ C	☐ D	☐ E
10	☒ A	☐ B	☐ C	☐ D	☐ E
11	☒ A	☐ B	☐ C	☐ D	☐ E
12	☐ A	☐ B	☐ C	☐ D	☒ E
13	☐ A	☒ B	☐ C	☐ D	☐ E

14	☐ A	☐ B	☐ C	☒ D	☐ E
15	☐ A	☐ B	☒ C	☐ D	☐ E
16	☐ A	☒ B	☐ C	☐ D	☐ E
17	☐ A	☐ B	☐ C	☐ D	☒ E
18	☒ A	☐ B	☐ C	☐ D	☐ E
19	☒ A	☐ B	☐ C	☐ D	☐ E
20	☒ A	☐ B	☐ C	☐ D	☐ E
21	☐ A	☐ B	☐ C	☐ D	☒ E
22	☒ A	☐ B	☐ C	☐ D	☐ E
23	☐ A	☐ B	☐ C	☒ D	☐ E
24	☐ A	☒ B	☐ C	☐ D	☐ E
25	☒ A	☐ B	☐ C	☐ D	☐ E
26	☐ A	☐ B	☒ C	☐ D	☐ E

27	☐ A	☐ B	☐ C	☐ D	☒ E
28	☐ A	☒ B	☐ C	☐ D	☐ E
29	☐ A	☐ B	☐ C	☒ D	☐ E
30	☐ A	☒ B	☐ C	☐ D	☐ E
31	☐ A	☐ B	☐ C	☐ D	☒ E
32	☐ A	☐ B	☐ C	☐ D	☒ E
33	☐ A	☒ B	☐ C	☐ D	☐ E
34	☒ A	☐ B	☐ C	☐ D	☐ E
35	☐ A	☐ B	☐ C	☒ D	☐ E
36	☒ A	☐ B	☐ C	☐ D	☐ E
37	☐ A	☐ B	☐ C	☒ D	☐ E
38	☐ A	☐ B	☐ C	☒ D	☐ E
39	☐ A	☒ B	☐ C	☐ D	☐ E

PRACTICE QUESTIONS

College Board AP - United Kingdom

APPH2

AP Physics 2

EDITION

Demo

QUESTIONS

9

FORMAT

Limited Edition PDF

Before you begin

What this is

9 practice questions for College Board AP - United Kingdom **APPH2**, each with its answer key and an explanation. Answer a question before you read its key — the explanation is worth more once you have committed.

If something looks wrong

Send us three things and we will check it:

- the exam code, **APPH2**
- the question number
- the email address on your order

Write to **support@mometrix.net**. We reply within one business day.

QUESTION 1

SINGLE CHOICE

A 0.50 kg block of copper (specific heat capacity $390 \text{ J/(kg}\cdot\text{°C)}$) is heated from 25 °C to 125 °C . How much heat is transferred to the copper?

- ☐ A $9.8 \times 10^3 \text{ J}$
- ☒ B $1.95 \times 10^4 \text{ J}$
- ☐ C $3.9 \times 10^4 \text{ J}$
- ☐ D $7.8 \times 10^4 \text{ J}$

ANSWER B

WHY $Q = mc\Delta T = (0.50 \text{ kg})(390 \text{ J/(kg}\cdot\text{°C)})(100 \text{ °C}) = 19,500 \text{ J} = 1.95 \times 10^4 \text{ J}.$

QUESTION 2

SINGLE CHOICE

Three identical resistors, each of resistance R , are connected in parallel. What is the equivalent resistance of the combination?

- ☐ A $3R$
- ☒ B $R/3$
- ☐ C $R/\sqrt{3}$
- ☐ D $\sqrt{3} R$

ANSWER B

WHY For resistors in parallel, $1/R_{eq} = 1/R + 1/R + 1/R = 3/R$, so $R_{eq} = R/3.$

QUESTION 3 SINGLE CHOICE

Two coherent in-phase point sources separated by a distance d emit waves of wavelength λ . At a far-field point where the path-length difference is $\lambda/2$, what is observed?

- ☐ A Maximum constructive interference
- ☒ B Complete destructive interference
- ☐ C Partial constructive interference
- ☐ D A standing-wave node

ANSWER B

WHY A path-length difference of $\lambda/2$ produces a phase difference of π , giving destructive interference for two in-phase sources.

QUESTION 4 SINGLE CHOICE

An object is placed 30 cm in front of a converging lens with focal length 10 cm. Where is the image formed, and what is its character?

- ☐ A 15 cm on the same side as the object, virtual and upright
- ☐ B 20 cm on the opposite side of the lens, real and inverted
- ☒ C 15 cm on the opposite side of the lens, real and inverted
- ☐ D 7.5 cm on the opposite side of the lens, virtual and upright

ANSWER C

WHY Using $1/f = 1/d_o + 1/d_i$: $1/10 = 1/30 + 1/d_i$, giving $d_i = +15$ cm. Positive d_i means the image is real and on the opposite side; the image is inverted.

QUESTION 5

SINGLE CHOICE

The electric potential at a distance r from a positive point charge is V . At a distance of $2r$ from the same charge, the potential is:

- ☐ A $V/4$
- ☒ B $V/2$
- ☐ C $2V$
- ☐ D $4V$

ANSWER B

WHY The electric potential due to a point charge is $V = kQ/r$. Doubling the distance halves the potential, so $V' = V/2$.

QUESTION 6

SINGLE CHOICE

A straight wire carrying a steady current I lies in a uniform magnetic field B that is perpendicular to the wire. The magnetic force on a length L of the wire is:

- ☐ A Zero, because the field and current are perpendicular
- ☒ B BIL , directed perpendicular to both the current and the field
- ☐ C BIL^2 , directed along the wire
- ☐ D $B/(IL)$, directed along the wire

ANSWER B

WHY The magnitude of the magnetic force on a current-carrying wire is $F = BIL \sin\theta$. With $\theta = 90^\circ$, $F = BIL$, and the direction is given by the right-hand rule, perpendicular to both the current and the field.

QUESTION 7

SINGLE CHOICE

In the photoelectric effect, increasing the intensity of monochromatic light incident on a metal surface (while keeping the frequency constant) results in:

- ☐ A An increase in the maximum kinetic energy of the ejected electrons
- ☒ B An increase in the number of ejected electrons per unit time
- ☐ C A decrease in the work function of the metal
- ☐ D Electrons being ejected from deeper layers of the metal

ANSWER B

WHY For monochromatic light above the threshold frequency, the maximum kinetic energy depends only on frequency ($K_{\max} = hf - \phi$). Higher intensity at the same frequency means more photons per unit time, hence more ejected electrons.

QUESTION 8

SINGLE CHOICE

A sealed rigid container holds an ideal gas. If the absolute temperature of the gas is doubled, what happens to the average kinetic energy of the gas molecules?

- ☐ A It is halved
- ☐ B It is unchanged
- ☒ C It is doubled
- ☐ D It is quadrupled

ANSWER C

WHY The average translational kinetic energy of an ideal gas is directly proportional to absolute temperature: $KE_{\text{avg}} = (3/2)kT$. Doubling T doubles the average kinetic energy.

QUESTION 9

MULTIPLE CHOICE

Which of the following phenomena are most readily explained using a wave model of light rather than a purely particle model? (Choose two.)

- ☒ **A** Diffraction of light through a narrow slit
- ☐ **B** The photoelectric effect
- ☒ **C** Two-slit interference producing bright and dark fringes
- ☐ **D** The Compton scattering of X-rays by electrons

ANSWER A • C

WHY Diffraction and interference are interference/superposition phenomena characteristic of waves. The photoelectric effect and Compton scattering require a particle (photon) model.