live

A Level Physics

10th May 2021 – Mixed Physics Topics

Suitable for ALL exam boards

MCQs

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Question taken from:

Edexcel IAL Physics – Jan 2019 – Unit 4: Physics on the Move – Questions 1 to 10

SECTION A

Answer ALL questions.

For questions 1–10, in Section A, select one answer from A to D and put a cross in the box ☒. If you change your mind, put a line through the box ☒ and then mark your new answer with a cross ☒.

1 Which of the following units is equivalent to the farad?

☐ **A** $C\,J^{-1}$

☐ **B** $C\,V^{-1}$

☐ **C** $J\,C^{-1}$

☐ **D** $V\,C^{-1}$

(Total for Question 1 = 1 mark)

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2 A potential difference V is applied across two identical capacitors of capacitance C connected in series.

Which of the following expressions is the total energy stored on the capacitors?

☐ **A** $\frac{1}{4}CV^2$

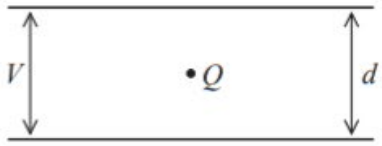
☐ **B** $\frac{1}{2}CV^2$

☐ **C** CV^2

☐ **D** $2CV^2$

(Total for Question 2 = 1 mark)

3 Two parallel conducting plates are separated by a distance d. A potential difference V is applied between the plates and a charge Q is placed halfway between them, as shown.



Which of the following gives the magnitude of the force acting on the charge?

☒ **A** VQd

☒ **B** $\frac{VQ}{2d}$

☒ **C** $\frac{Vd}{Q}$

☒ **D** $\frac{VQ}{d}$

(Total for Question 3 = 1 mark)

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4 A current-carrying wire is placed perpendicular to a magnetic field of magnetic flux density 0.05 T. The length of the wire in the field is 10 cm and the force on the wire is 2×10^{-3} N.

Which of the following is the current in the wire?

☒ **A** 1×10^{-5} A

☒ **B** 1×10^{-3} A

☒ **C** 4×10^{-3} A

☒ **D** 4×10^{-1} A

(Total for Question 4 = 1 mark)

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5 Which row of the table shows the quark structures of a meson and its anti-meson?

	meson	anti-meson
☒ **A**	$\bar{u}\,d$	$u\,\bar{d}$
☒ **B**	$u\,\bar{d}$	$\bar{d}\,u$
☒ **C**	$u\,\bar{u}\,d$	$\bar{u}\,u\,\bar{d}$
☒ **D**	$u\,u\,d$	$\bar{u}\,\bar{u}\,\bar{d}$

(Total for Question 5 = 1 mark)

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6 A particle has mass 3.4 GeV/c^2.

Which of the following gives the mass of the particle in kg?

☒ **A** $3.4 \times 10^9 \times 1.6 \times 10^{-19} / 3 \times 10^8$

☒ **B** $3.4 \times 10^9 / 1.6 \times 10^{-19} \times (3 \times 10^8)^2$

☒ **C** $3.4 \times 10^9 \times 1.6 \times 10^{-19} \times (3 \times 10^8)^2$

☒ **D** $3.4 \times 10^9 \times 1.6 \times 10^{-19} / (3 \times 10^8)^2$

(Total for Question 6 = 1 mark)

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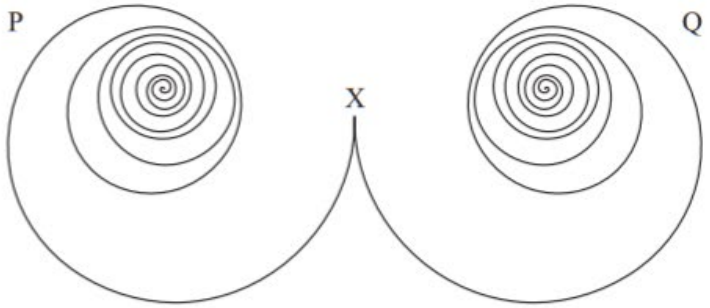
7 The diagram shows the tracks of two particles, P and Q, created from an original particle at point X.



Which of the following can be concluded from this diagram?

☒ **A** P and Q have equal and opposite momentum.

☒ **B** The original particle had no charge.

☒ **C** The original particle was stationary.

☒ **D** There is a magnetic field acting into the page.

(Total for Question 7 = 1 mark)

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8 The drum of a washing machine rotates at a rate of 1200 rotations per minute.

What is its angular velocity in radians per second?

☒ **A** 20

☒ **B** 63

☒ **C** 126

☒ **D** 191

(Total for Question 8 = 1 mark)

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9 A body of mass m has momentum p and kinetic energy E_K.

Which of the following is the kinetic energy of a body of mass $2m$ and momentum $2p$?

- ☒ **A** E_K
- ☒ **B** $2\,E_K$
- ☒ **C** $4\,E_K$
- ☒ **D** $8\,E_K$

(Total for Question 9 = 1 mark)

10 Electrons can be used to investigate atomic nuclei.

Which of the following is **not** a reason why electrons can be used for such an investigation?

- ☒ **A** Electrons can be accelerated to very high speeds.
- ☒ **B** Electrons can have wavelengths similar to the size of atomic nuclei.
- ☒ **C** Electrons have negative charge.
- ☒ **D** Electrons undergo diffraction.

(Total for Question 10 = 1 mark)

TOTAL FOR SECTION A = 10 MARKS