

**GCSE Physics A (Gateway)**

**J249/02 Physics A P5-P8 and P9 (Foundation Tier)**

**Question Set 30**

Multiple Choice Questions

P8: Global Challenges

**1** Which frequency is used for electricity supplied to homes in the UK?

- A** 50 Hz a.c.
- B** 50 Hz d.c.
- C** 230 Hz a.c.
- D** 230 Hz d.c.

Your answer

**[1]**

**2** The Sun was formed from a cloud of dust and gas.

Which force brought together the particles of the cloud?

- A** Electrostatic
- B** Frictional
- C** Gravitational
- D** Magnetic

Your answer

**[1]**

**3** Which statement is evidence for an expanding universe?

- A** Light from galaxies is red shifted.
- B** Nuclear fusion occurs in stars.
- C** Many stars have orbiting planets.
- D** Stars were formed from dust and gas.

Your answer

**[1]**

4 A student picks up a very hot plate.

What is the **shortest** time the student can react and drop the plate?

- A 2 milliseconds
- B 0.2 seconds
- C 2 seconds
- D 0.2 minutes

Your answer

[1]

5 Why are high voltages used to transfer electrical power from power stations in the National Grid?

- A They allow low resistance wires to be used.
- B They produce a higher current.
- C They reduce energy losses.
- D Voltage can be changed using transformers.

Your answer

[1]

6 Estimate the typical cruising speed of a jet airliner.

- A 25 m/s
- B 250 m/s
- C 2 500 m/s
- D 25 000 m/s

Your answer

[1]

7 A student experiments with a model parachute and collects some results.

She drops the parachute from a height of 4 m three times and takes **three** results of the time taken.

The three results are:

3.25 s

3.00 s

3.08 s

What is the mean of the three results?

A 3.00 s

B 3.08 s

C 3.11 s

D 3.25 s

Your answer

[1]

8 Which statement is **correct** about geostationary satellites?

A They are above the equator and they orbit the Earth in about 90 minutes at a high orbit.

B They are above the equator and they orbit the Earth in 24 hours at a high orbit.

C They are above the equator and they orbit the Earth in 24 hours at a low orbit.

D They are above the poles and they orbit the Earth in 24 hours at a low orbit.

Your answer

[1]

9 Which statement describes the domestic electricity supply in the UK?

A 50 V a.c. at 230 Hz

B 50 V d.c. at 230 Hz

C 230 V a.c. at 50 Hz

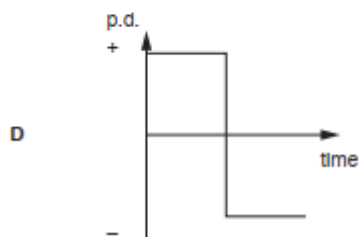
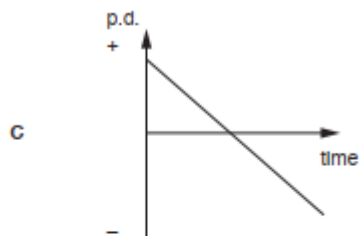
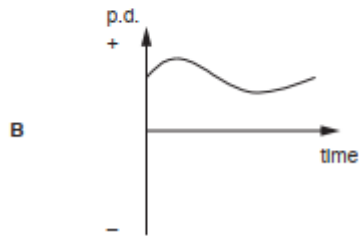
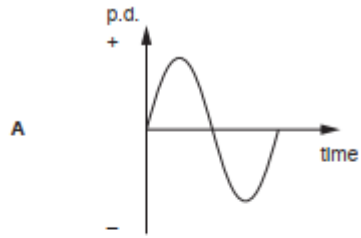
D 230 V d.c. at 50 Hz

Your answer

[1]

10 Here are some graphs for the potential difference (p.d.) of four electrical supplies.

Which graph shows a direct voltage?



Your answer

[1]

- 11 Which row in the table correctly describes how the national grid transfers electrical energy efficiently?

	Voltage	Current	Reason
A	High	High	To increase heating in wires
B	High	Low	To reduce heating in wires
C	Low	High	To reduce heating in wires
D	Low	Low	To reduce heating in wires

Your answer

[1]

- 12 The acceleration of a car is  $2 \text{ m/s}^2$ . The mass of the car is 1000 kg.

Calculate the resultant force on the car.

- A 20 N  
B 200 N  
C 2000 N  
D 20000 N

Your answer

[1]

- 13 The table shows the current and potential difference (p.d.) for four different transformers.

Which row shows the correct data for a **step-up** transformer?

	Primary coil		Secondary coil	
	p.d. (V)	Current (A)	p.d. (V)	Current (A)
A	6	4	12	2
B	12	2	3	8
C	12	2	12	2
D	12	2	24	1.5

Your answer

[1]

**Total Marks for Question Set 30: 13**

---

# OCR

Oxford Cambridge and RSA

## **Copyright Information**

OCR is committed to seeking permission to reproduce all third-party content that it uses in its assessment materials. OCR has attempted to identify and contact all copyright holders whose work is used in this paper. To avoid the issue of disclosure of answer-related information to candidates, all copyright acknowledgements are reproduced in the OCR Copyright Acknowledgements Booklet. This is produced for each series of examinations and is freely available to download from our public website ([www.ocr.org.uk](http://www.ocr.org.uk)) after the live examination series.

If OCR has unwittingly failed to correctly acknowledge or clear any third-party content in this assessment material, OCR will be happy to correct its mistake at the earliest possible opportunity.

For queries or further information please contact The OCR Copyright Team, The Triangle Building, Shaftesbury Road, Cambridge CB2 8EA.

OCR is part of the Cambridge Assessment Group; Cambridge Assessment is the brand name of University of Cambridge Local Examinations Syndicate (UCLES), which is itself a department of the University of Cambridge