

GCSE Physics A (Gateway)

J249/03 Physics A P1-P4 and P9 (Higher Tier)

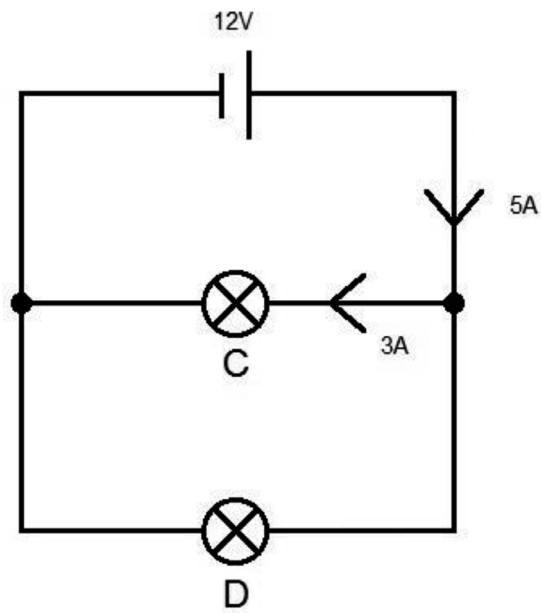
Question Set 27

Multiple Choice Questions

P3: Electricity

1

Look at the circuit diagram.



resistance = potential difference \div current

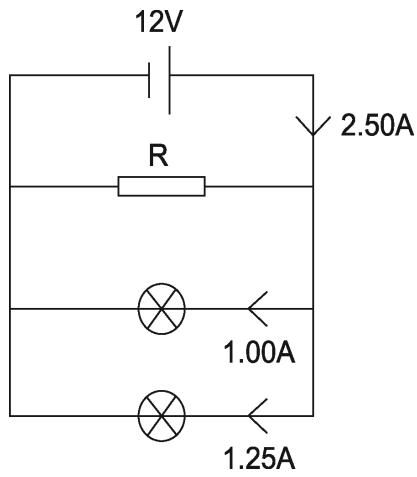
Calculate the resistance of bulb D.

- A 2 Ω
- B 4 Ω
- C 6 Ω
- D 8 Ω

Your answer

[1]

2



Calculate the power dissipated by resistor **R**.

- A 3 W
- B 12 W
- C 15 W
- D 30 W

Your answer

[1]

3

The current in a $12\ \Omega$ resistor is 9.0 A.

How much power is dissipated?

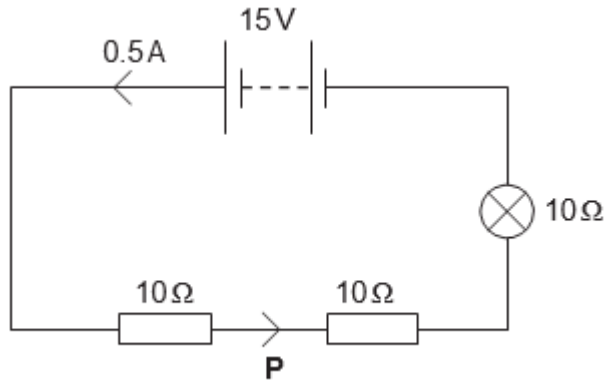
- A 108 W
- B 972 W
- C 1 296 W
- D 11 664 W

Your answer

[1]

4

What is the current at point P in the circuit?



- A 0.5 A
- B 7.5 A
- C 15.0 A
- D 20.5 A

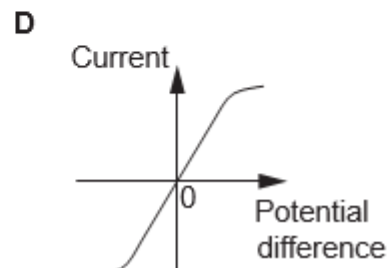
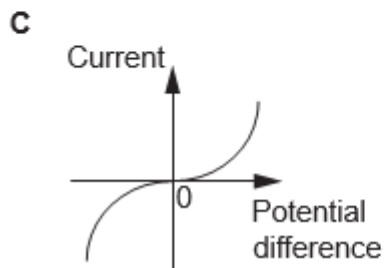
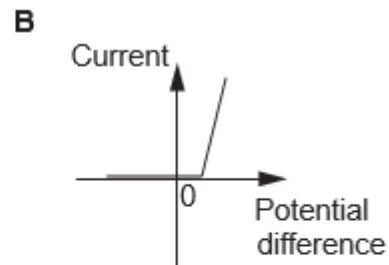
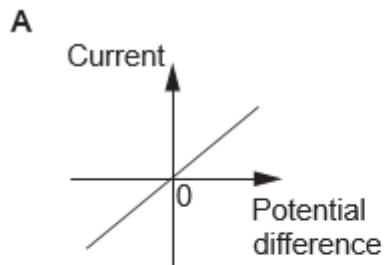
Your answer

[1]

5

A student investigates four different electrical components.

She plots current-potential difference graphs for the components.



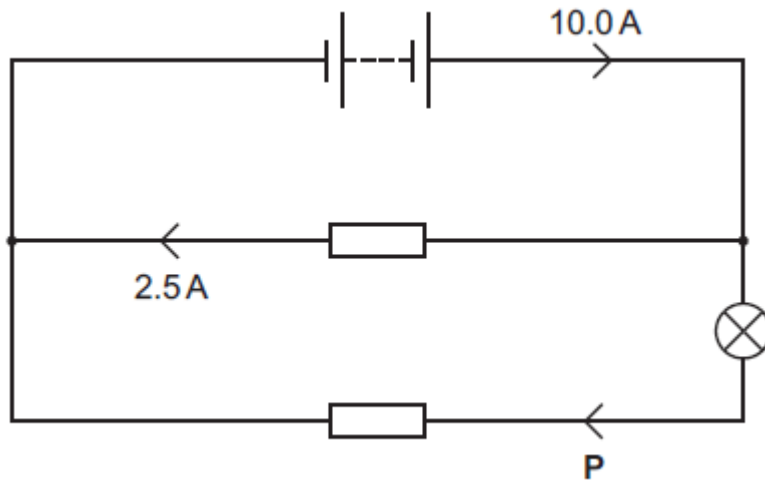
Which of the above shows the characteristic graph for a diode?

Your answer

[1]

6

Look at the circuit diagram.



What is the current at point **P** in the circuit?

- A 2.5 A
- B 5.0 A
- C 7.5 A
- D 10.0 A

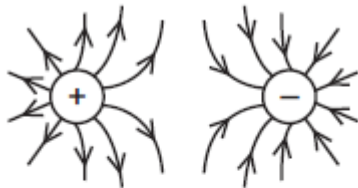
Your answer

[1]

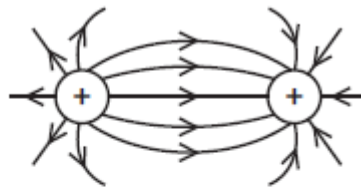
7

Look at the field line diagrams for positive and negative charges.

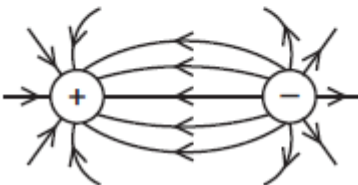
A



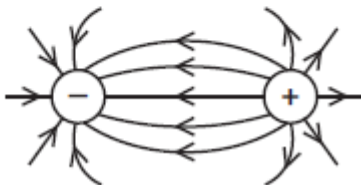
B



C



D



Which field line diagram is correct?

Your answer

[1]

Total Marks for Question Set 27: 7

Equations in physics

$$(\text{final velocity})^2 - (\text{initial velocity})^2 = 2 \times \text{acceleration} \times \text{distance}$$

$$\text{change in thermal energy} = \text{mass} \times \text{specific heat capacity} \times \text{change in temperature}$$

$$\text{thermal energy for a change in state} = \text{mass} \times \text{specific latent heat}$$

$$\text{energy transferred in stretching} = 0.5 \times \text{spring constant} \times (\text{extension})^2$$

$$\text{potential difference across primary coil} \times \text{current in primary coil} = \text{potential difference across secondary coil} \times \text{current in secondary coil}$$

Higher tier only –

$$\text{force on a conductor (at right angles to a magnetic field) carrying a current} = \text{magnetic flux density} \times \text{current} \times \text{length}$$

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) 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