

GCSE Physics A (Gateway)

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

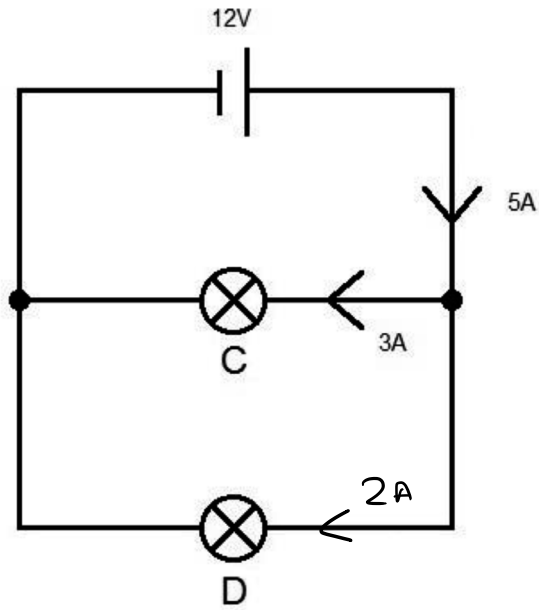
Question Set 27

Multiple Choice Questions

P3: Electricity

1

Look at the circuit diagram.



resistance = potential difference \div current

Calculate the resistance of bulb D.

$$R = \frac{V}{I} = \frac{12}{2} = 6$$

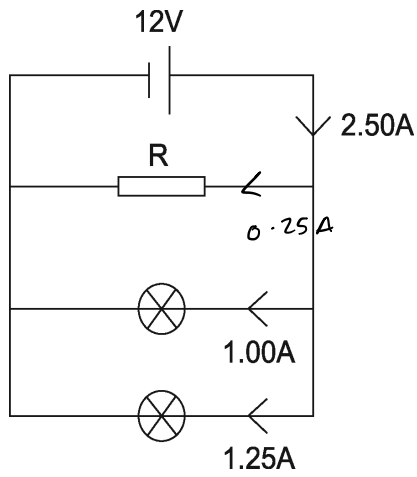
- A 2 Ω
- B 4 Ω
- C 6 Ω
- D 8 Ω

Your answer

C

[1]

2



Calculate the power dissipated by resistor R.

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

Your answer

A

[1]

3

The current in a 12Ω 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

B

[1]

$$\frac{12}{0.25} = R = 48$$

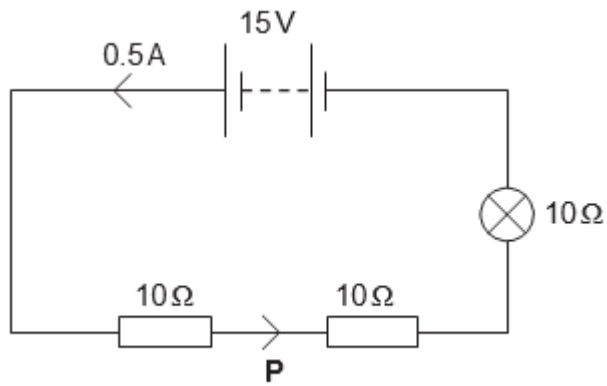
$$P = I^2 R$$

$$P = 0.25^2 \cdot 48 = 3$$

$$\begin{aligned} P &= I^2 R \\ &= 9^2 \cdot 12 \\ &= 972 \end{aligned}$$

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

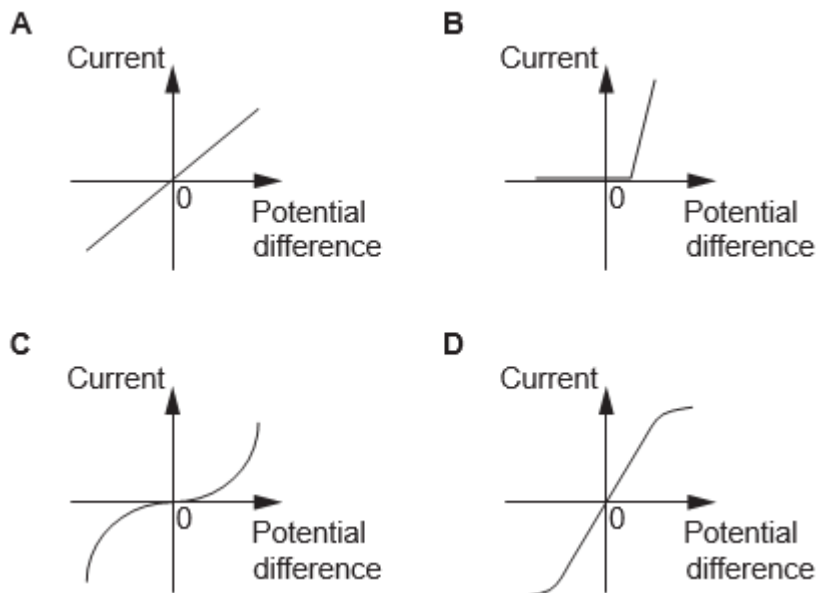
A

[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?

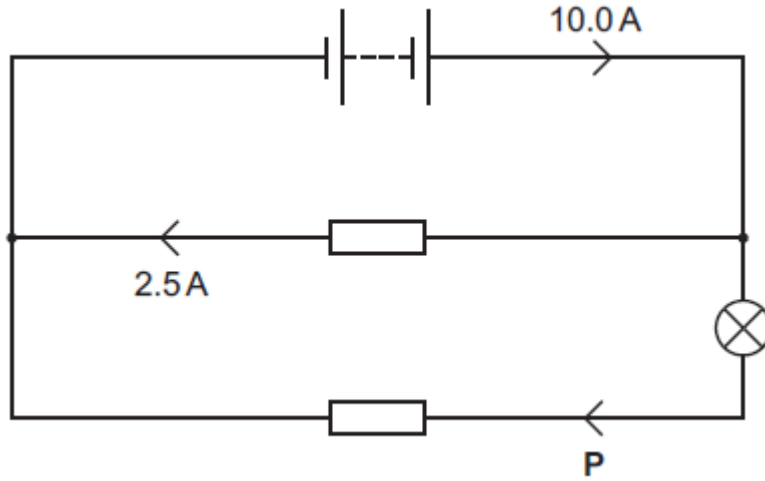
Your answer

B

[1]

6

Look at the circuit diagram.



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

$$10 - 2.5 = 7.5$$

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

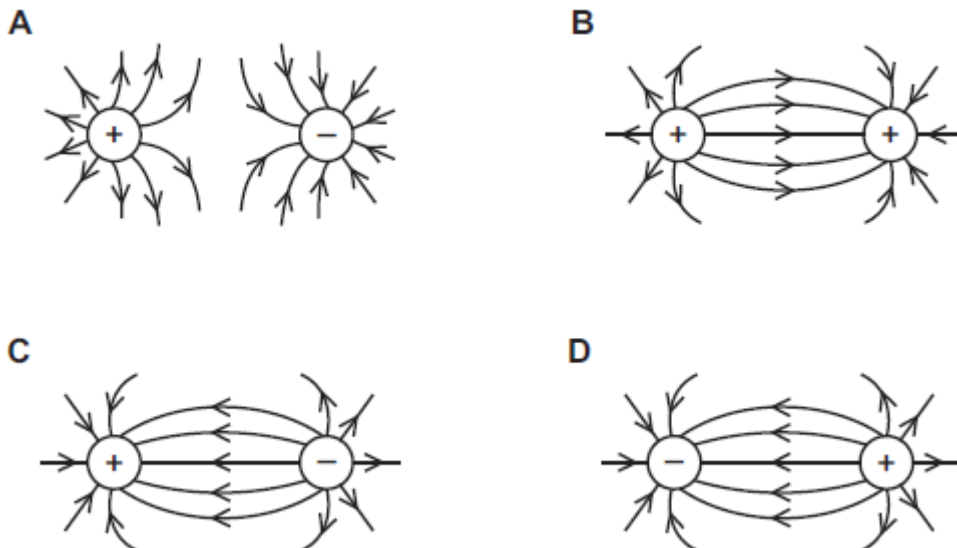
Your answer

C

[1]

7

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



Which field line diagram is correct?

Your answer

D

[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 –

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

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