11.1 Current & Potential Difference

Question Paper

Course	CIE A Level Physics (9702) 2019-2021
Section	11. Current of Electricity
Topic	11.1 Current & Potential Difference
Difficulty	Easy

Time allowed: **10**

Score: **/10**

Percentage: **/100**

Question 1

A copper wire of cross-sectional area 2.0 mm^2 carries a current of 10 A.

How many electrons pass through a given cross-section of the wire in one second?

A 1.0×10^1 **B** 5.0×10^6 **C** 6.3×10^{19} **D** 3.1×10^{25}

[1 mark]

Question 2

Which equation that links some of the following terms is correct?

potential difference (p.d.)	*V*
current	*I*
resistance	*R*
charge	*Q*
energy	*E*
power	*P*
time	*t*

A $P = \frac{Q^2R}{t}$

B $ER^2 = V^2t$

C $\frac{VI}{P} = t$

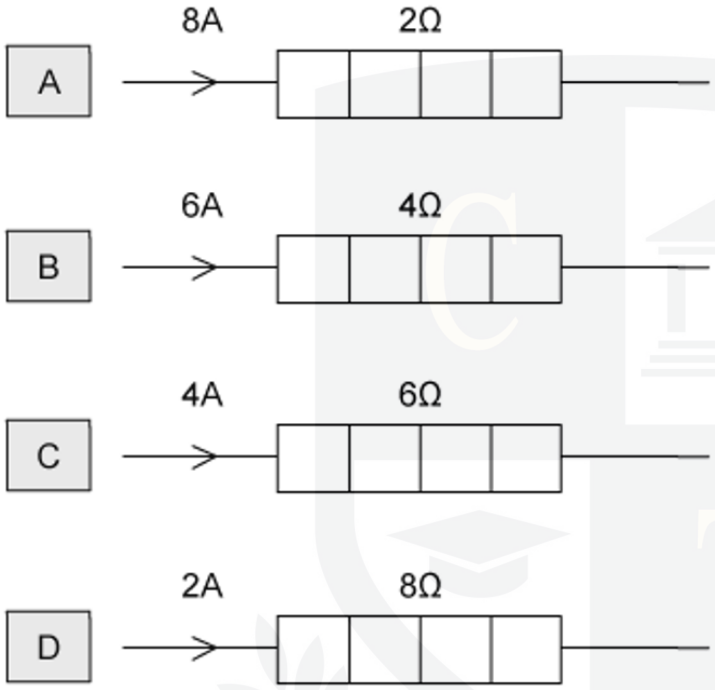
D $PQ = EI$

[1 mark]

Question 3

The diagram shows four heaters and the current in each.

Which heater has the greatest power dissipation?



[1 mark]

Question 4

A 12 V battery is charged for 20 minutes by connecting it to a source of electromotive force (e.m.f.). The battery is supplied with 7.2×10^4 J of energy in this time.

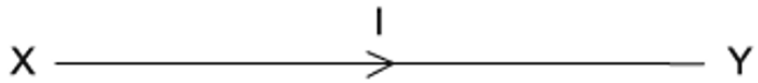
How much charge flows into the battery?

A 5.0 C **B** 60 C **C** 100 C **D** 6000 C

[1 mark]

Question 5

The diagram shows the symbol for a wire carrying a current *I*



What does this current represent?

A the amount of charge flowing past a point in XY per second

B the number of electrons flowing past a point in XY per second

C the number of positive ions flowing past a point in XY per second

D the number of protons flowing past a point in XY per second

[1 mark]

Question 6

There is a current of 10 mA in a conductor for half an hour.

How much charge passes a point in the conductor in this time?

A 0.3 C **B** 5 C **C** 18 C **D** 300 C

[1 mark]

Question 7

When will 1 C of charge pass a point in an electrical circuit?

A when 1 A moves through a potential difference of 1 V

B when a power of 1 W is used for 1 s

C when the current is 5 mA for 200 s

D when the current is 10 A for 10 s

[1 mark]

Question 8

A filament lamp has a resistance of 180 Ω when the current in it is 500 mA.

What is the power transformed in the lamp?

A 45 W **B** 50 W **C** 90 W **D** 1400 W

[1 mark]

Question 9

When there is **no** current in a wire, which statement about the conduction electrons in that wire is correct?

A electrons in the wire are moving totally randomly within the wire

B equal numbers of electrons move at the same speed, but in opposite directions, along the wire

C no current is flowing therefore the electrons in the wire are stationary

D no current is flowing therefore the electrons in the wire are vibrating around a fixed point

[1 mark]

Question 10

What describes the electric potential difference between two points in a wire that carries a current?

A the force required to move a unit positive charge between the points

B the ratio of the energy dissipated between the points to the current

C the ratio of the power dissipated between the points to the current

D the ratio of the power dissipated between the points to the charge moved

[1 mark]