

Mark schemes

Q1.

C

$$8.7 \times 10^{20}$$

[1]

Q2.

A

$$48 \, \Omega$$

[1]

Q3.

B

$$4.0 \, V$$

[1]

Q4.

D

$$4$$

[1]

Q5.

C

$$3.6 \, V$$

[1]

Q6.

B

$$63\%$$

[1]

Q7.

A

$$1.1 \times 10^{-6} \, \Omega$$

[1]

Q8.

D

the intercept on the y-axis

[1]

Q9.

D

$$1.50 \text{ V}$$

[1]

Q10.

C

$$I_2 = 4I_3$$

[1]

Q11.

D

no change no change

[1]

Q12.

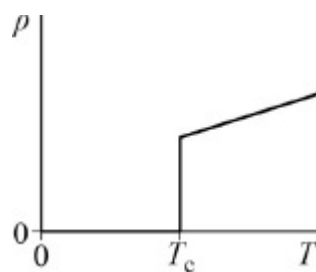
B

$$0.73 \, \Omega$$

[1]

Q13.

D



[1]

Q14.

A

X, Y, Z

[1]

Q15.

B

zero infinite

[1]

Q16.

B

$$1.7 \times 10^{19}$$

[1]

Q17.

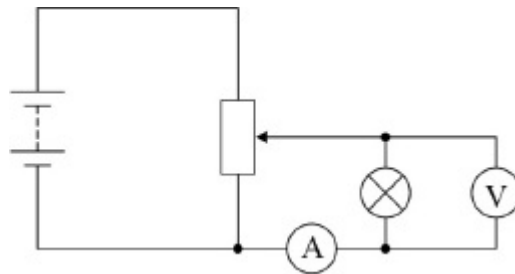
C

4.5 V to 6.0 V

[1]

Q18.

A



[1]

Q19.

B

$$\frac{1}{2}$$

[1]

Q20.

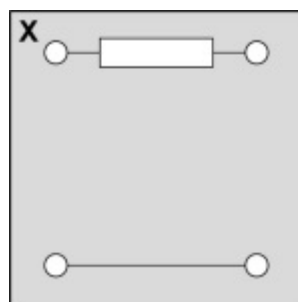
B

A current in it causes no heating effect.

[1]

Q21.

D



[1]

Q22.

B

36

[1]

Q23.

B

[1]

Q24.

D

[1]

Q25.

D

[1]

Q26.

A

[1]

Q27.

C

[1]

Q28.

A

[1]

Q29.

D

[1]