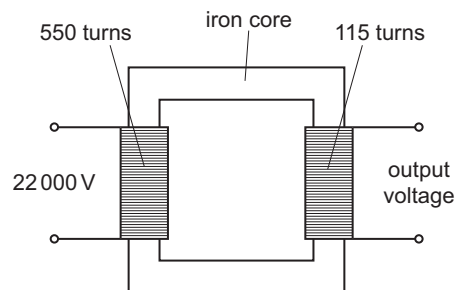


**32** A 24 V power supply and a 100% efficient transformer are used to light a 6.0 V, 12 W lamp.

What is the current in the power supply?

- A** 0.50 A      **B** 2.0 A      **C** 3.0 A      **D** 8.0 A

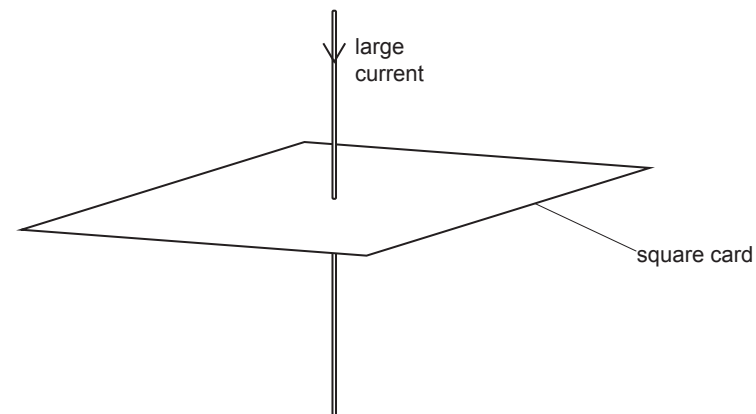
**25** The diagram shows a transformer.



What is the output voltage?

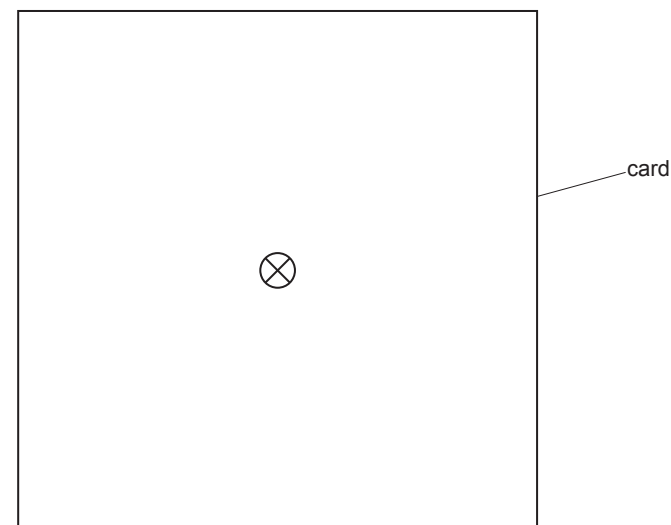
- A** 0.35 V      **B** 2.9 V      **C** 4600 V      **D** 105 000 V

**8 (a)** Fig. 8.1 shows a wire carrying a large current.



**Fig. 8.1**

**(i)** Fig. 8.2 shows the square card viewed from above.



**Fig. 8.2**

On Fig. 8.2, draw **three** magnetic field lines that indicate the direction of the magnetic field and how its strength varies with distance from the wire. [3]

**(ii)** The current in the wire increases and the direction of the current is reversed.

State how these changes affect the magnetic field.

(b) Electricity is transmitted at high voltage.

Explain why a high voltage increases the efficiency of transmission even with thinner wires.

.....

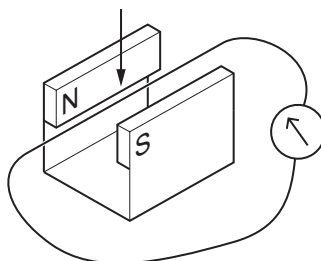
.....

.....

..... [3]

[Total: 8]

30 A wire is moved down in a direction perpendicular to the magnetic field.



Three changes are suggested.

- 1 The speed of the movement of the wire is increased.
- 2 The magnetic field strength is decreased.
- 3 The direction of the magnetic field is reversed.

Which changes increase the electromotive force (e.m.f.) induced in the wire?

- A** 1 and 3      **B** 1 only      **C** 2 and 3      **D** 3 only

8 Fig. 8.1 shows a horizontal, flat coil in a magnetic field

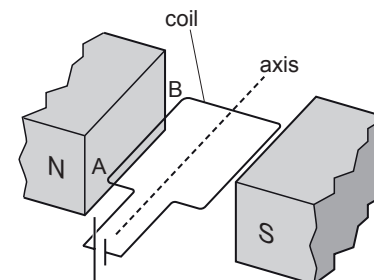


Fig. 8.1

The coil is connected to a cell. The coil rotates.

(a) Determine the direction of movement of the side AB relative to the plane of the coil.

direction of movement = ..... [1]

(b) Explain how you determined the direction in (a).

.....

.....

..... [2]

(c) State and explain what happens to the coil as it reaches the vertical position.

.....

.....

..... [2]

(d) To operate as a motor, a split-ring commutator and brushes are added to the parts shown in Fig. 8.1.

Explain the effects of the split-ring commutator and the brushes on the action of the motor.

.....

.....

..... [3]

[Total: 8]