

P3 Magnetic Fields Answers

1. An electric motor produces a turning force. Give two ways in which to increase the turning force.

Increase the current/increase the number of turns on the coil/increase the area of the coil/increase the strength of the magnetic field

2. Which appliances have an electric motor: electric drill, electric kettle, electric fan, electric iron, electric food mixer and electric screwdriver?

Electric drill, electric fan, electric food mixer and electric screwdriver

3. Give two ways of reversing the direction of the forces on a coil in an electric motor.

Reverse the direction of the current or the direction of the magnetic field.

4. In what circumstance will no force act on a conductor carrying an electric current in a magnetic field?

When the conductor is parallel to the magnetic field or the lines of magnetic force and path of electricity do not cross.

5. Why is the core of a transformer made of iron?

It is easily magnetised.

6. Give two advantages of having a National Grid system.

Fewer power stations are needed; electricity can be generated remote from customers; power is available in remote areas; better control of demand and supply

7. What does a step down transformer do?

It decreases the p.d.

8. Give one advantage of using a switch mode transformer, rather than a traditional transformer inside mobile phone chargers.

Lighter, smaller, uses little power, more efficient

9. Why must a mains adapter contain a transformer?

To reduce the mains p.d.

10. Describe what happens when an alternating potential difference is applied across the primary coil of a transformer.

The alternating p.d. in the primary coil causes an alternating field in the iron core which induces alternating p.d. across the secondary coil.

11. Why are the primary and secondary coils of a transformer made of insulated wire?

So that there is no short circuit and the current does not enter the core.