

Electromagnetic Effects

Question Paper 2

Level	IGCSE
Subject	Physics (0625/0972)
Exam Board	Cambridge International Examinations (CIE)
Topic	General Physics
Sub-Topic	Electromagnetic Effects
Booklet	Question Paper 2

Time allowed: 20 minutes

Score: /16

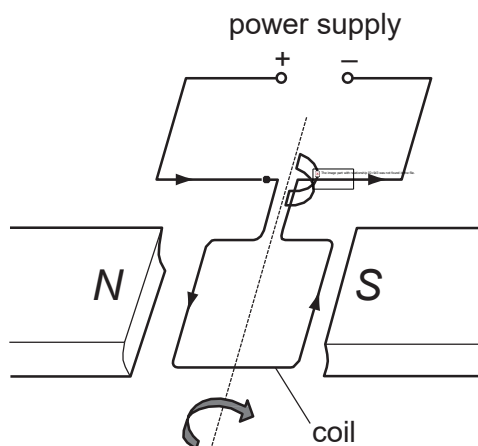
Percentage: /100

Grade Boundaries:

9	8	7	6	5	4	3	2	1
>85%	75%	68%	60%	55%	50%	43%	35%	<30%

Question 1

A current-carrying coil in a magnetic field experiences a turning effect.

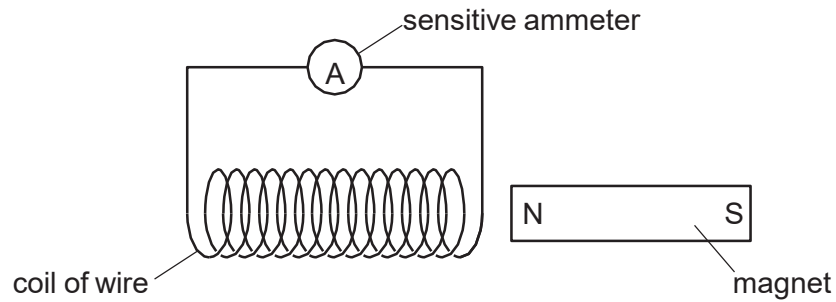


How can the turning effect be increased?

- A. Increase the number of turns on the coil.
- B. Reduce the size of the current.
- C. Reverse the direction of the magnetic field.
- D. Use thinner wire for the coil.

Question 2

A student investigates electromagnetic induction. She has a bar magnet and a coil of wire that is connected to a sensitive ammeter.



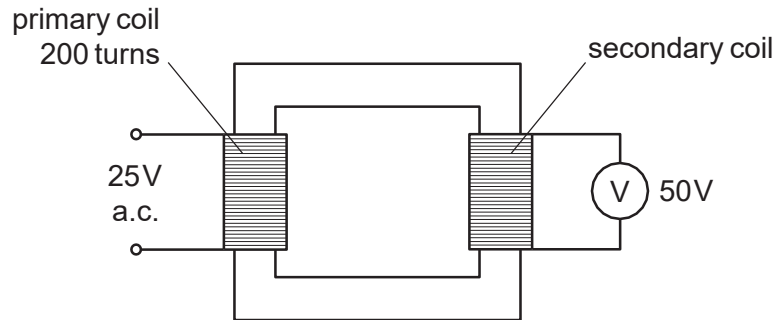
Which movement does **not** cause a reading on the ammeter?

- A. moving the coil to the right
- B. moving both the magnet and the coil to the left at the same speed
- C. moving both the magnet and the coil towards each other at the same speed
- D. moving the magnet to the left

Question 3

The primary coil of a transformer has 200 turns. This primary coil is connected to an a.c. power supply of 25V.

A voltmeter connected across the secondary coil reads 50V.



How many turns are on the secondary coil?

- A 25 B 100 C 200 D 400

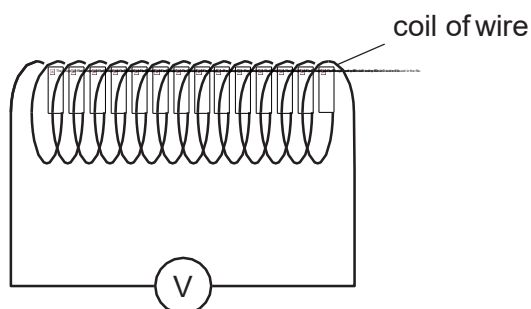
Question 4

Which device uses slip rings?

- A. a d.c. electric motor
- B. a relay
- C. a transformer
- D. an a.c. generator

Question 5

The diagram shows a coil of wire connected to a voltmeter.



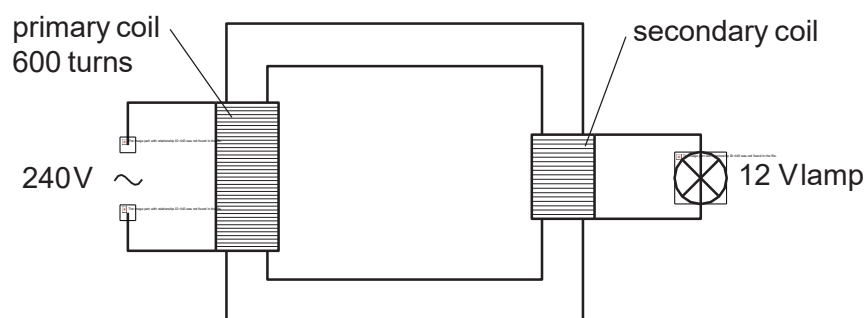
A student has a magnet and an unmagnetised iron rod.

How can an e.m.f. be induced across the coil?

- A holding the magnet inside the coil
- B holding the iron rod inside the coil
- C pushing the magnet into the coil
- D pushing the iron rod into the coil

Question 6

A step-down transformer is used to light a 12 V lamp from a 240 V mains supply. The lamp lights at normal brightness. The primary coil has 600 turns.

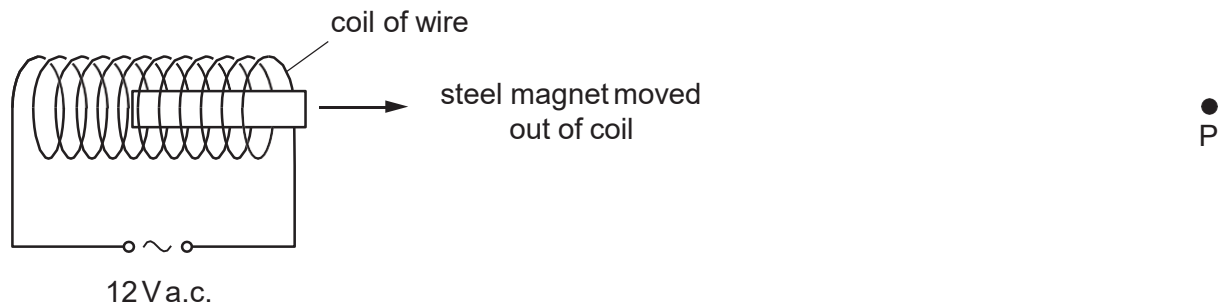


How many turns are in the secondary coil?

- A 12 B 20 C 30 D 50

Question 7

A steel magnet is placed inside a coil of wire. There is a large alternating current in the coil. The magnet is slowly moved out of the coil to position P.

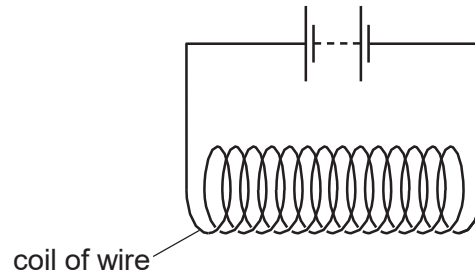


How has the steel changed, if at all, when it reaches position P?

- A. It has become a stronger magnet.
- B. It has become demagnetised.
- C. The poles have changed ends.
- D. There has been no change.

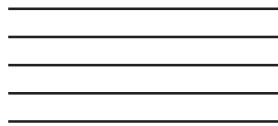
Question 8

An electric current is passed through a coil of wire.

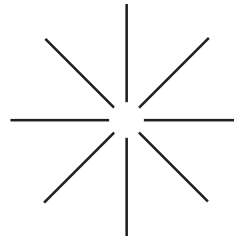


Which diagram shows the shape of the magnetic field produced in the middle of the coil?

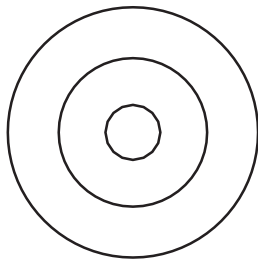
A



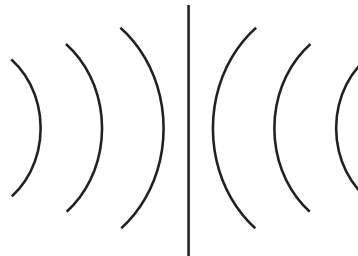
B



C

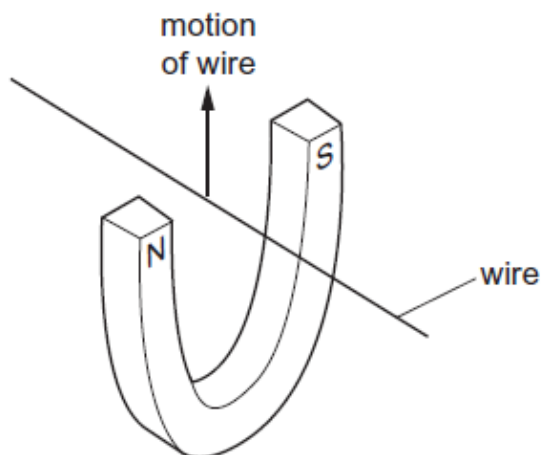


D



Question 9

When a wire is moved upwards between the poles of a magnet, an electromotive force (e.m.f.) is induced across the ends of the wire.



Which device uses a moving wire to induce an e.m.f.?

- A. a cathode-ray tube
- B. a generator
- C. a transformer
- D. an electromagnet

Question 10

An input voltage of 10 V is supplied to the primary coil of a transformer. An output voltage of 40 V is produced across the secondary coil.

The 10V supply at the primary coil is now replaced with a 40V supply.

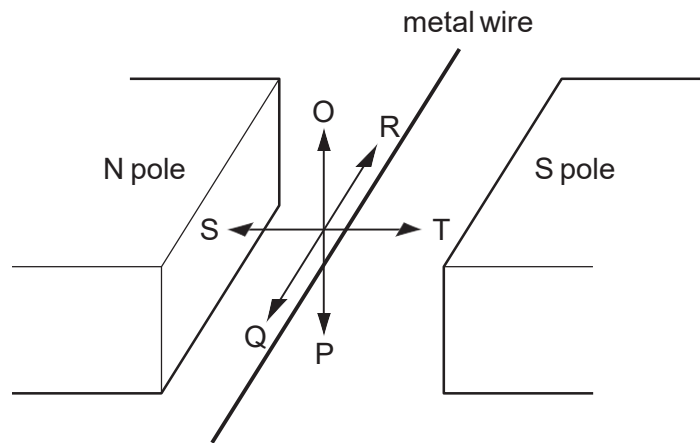
What is the new output voltage across the secondary coil?

- A 10V B 40V C 70V D 160V

Question 11

A metal wire is placed between the poles of a magnet.

The wire can be moved in each of three directions OP, QR and ST.

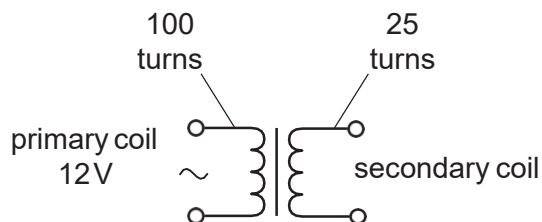


In which direction or directions must the wire be moved to induce an e.m.f. across the ends of the wire?

- A OP only B OP or ST C QR D ST only

Question 12

A transformer has 100 turns on its primary coil and 25 turns on its secondary coil. The primary coil is connected to a 12 V a.c. supply.

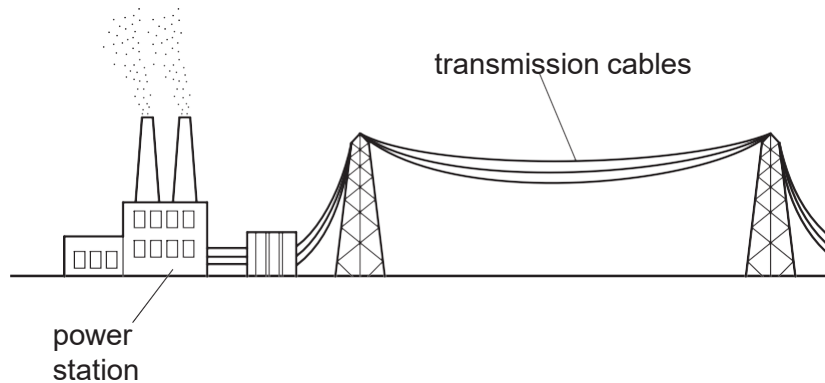


What is the voltage induced across the secondary coil?

- A 3.0V B 4.0V C 48V D 300V

Question 13

The diagram shows cables used in the transmission of electrical energy. High voltages are used for the transmission.

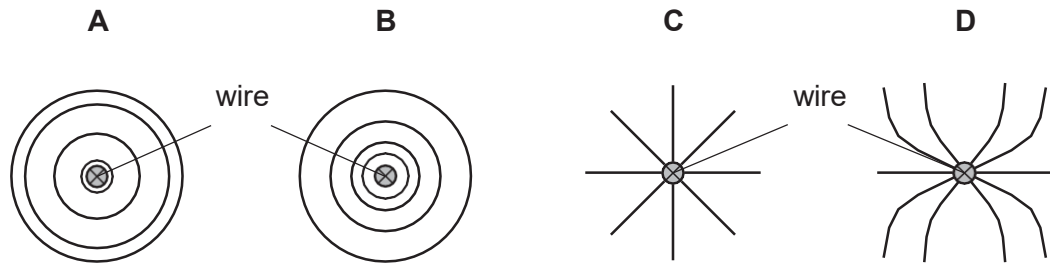


Why are high voltages used for the transmission of electrical energy?

- A Fear of high voltages stops people from interfering with the cables.
- B Heat loss in the cables is smaller than if low voltages are used.
- C High voltages increase the current in the cables.
- D High voltages produce large magnetic fields, so less insulation is needed.

Question 14

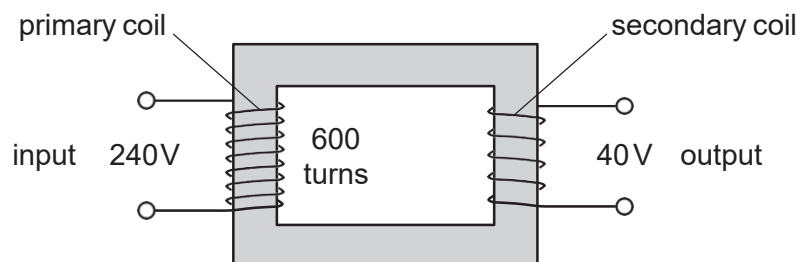
Which diagram shows the magnetic field pattern around a wire that is carrying a current perpendicular to the page?



Question 15

The diagram shows a simple transformer with an input of 240 V and an output of 40 V.

There are 600 turns on the primary coil.

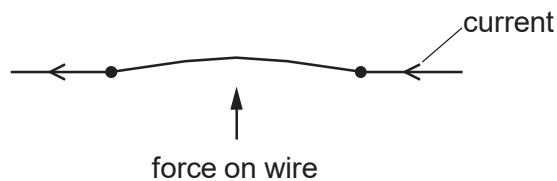


How many turns are there on the secondary coil?

- A 100 B 320 C 400 D 3600

Question 16

The diagram shows a thin copper wire in a magnetic field. The current in the wire is from right to left. This causes an upward force on the wire.



The direction of the current and the direction of the magnetic field are both reversed.

In which direction does the force act on the wire, after these changes are made?

- A. downwards
- B. into the page
- C. out of the page
- D. Upwards.