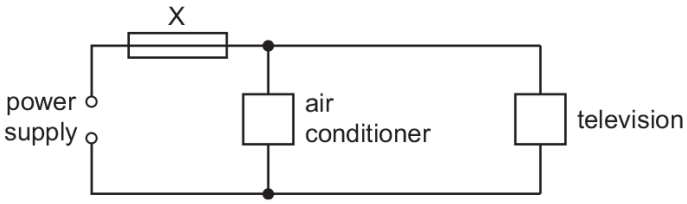
01. 0625_s12_qp_12 Q: 34

An air conditioner and a television are both connected to the same electrical circuit.



The current in the air conditioner is 4.0 A and the current in the television is 6.0 A.

Several different fuses are available.

Which fuse should be connected at X?

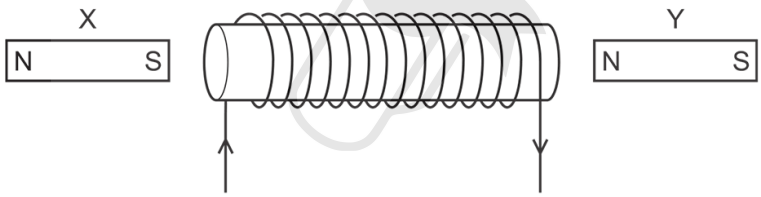
A 3 A **B** 5 A **C** 10 A **D** 13 A

4.6 Electromagnetic effects

02. 0625_m22_qp_22 Q: 35

Two magnets are placed near a current-carrying coil.

The diagram shows this experimental arrangement and the current direction in the coil.



Which statement is correct?

A Both X and Y are attracted to the coil.

B Both X and Y are repelled by the coil.

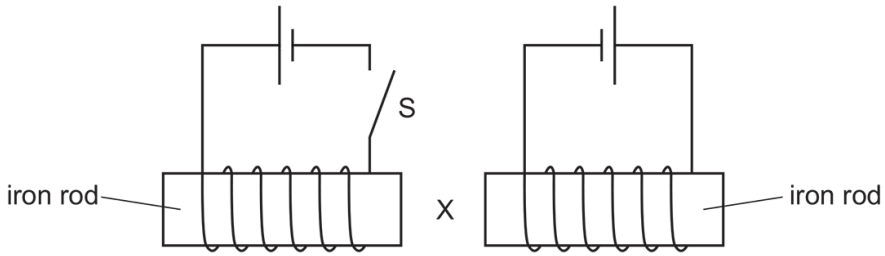
C X is attracted to the coil and Y is repelled.

D X is repelled by the coil and Y is attracted.

---

03. 0625_m22_qp_22 Q: 36

Two circuits are set up as shown. The iron rods are placed close together and are able to move.



What happens to the size of the gap at X when switch S is closed?

A It decreases.

B It decreases then increases.

C It increases.

D It does not change.

---

04. 0625_m22_qp_22 Q: 37

When a current-carrying conductor is placed in a magnetic field, it experiences a force.

Which statement about this force is correct?

A It is parallel to both the magnetic field and the direction of the current.

B It is parallel to the magnetic field and perpendicular to the direction of the current.

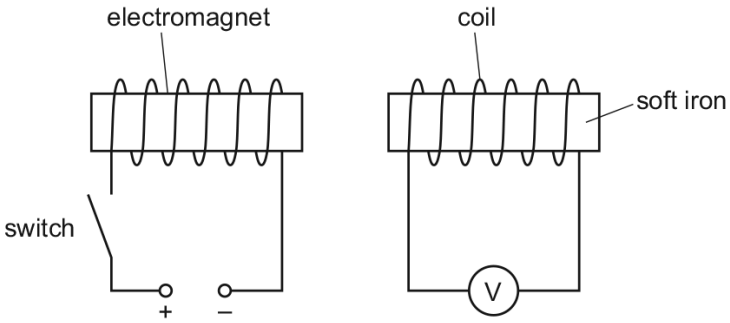
C It is perpendicular to the magnetic field and parallel to the direction of the current.

D It is perpendicular to both the magnetic field and the direction of the current.

---

05. 0625_m21_qp_22 Q: 36

The diagram shows an electromagnet near a coil of wire connected to a voltmeter. The reading on the voltmeter is zero.



The switch is closed. The electromagnet magnetises quickly.

What happens to the reading on the voltmeter?

A It keeps increasing.

B It quickly increases and stays at maximum.

C It quickly increases and then decreases.

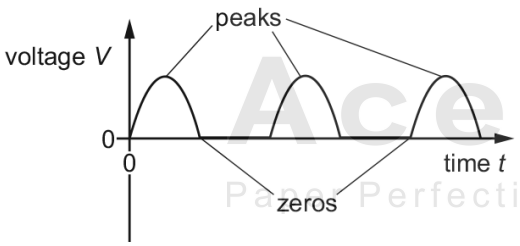
D It stays on zero.

---

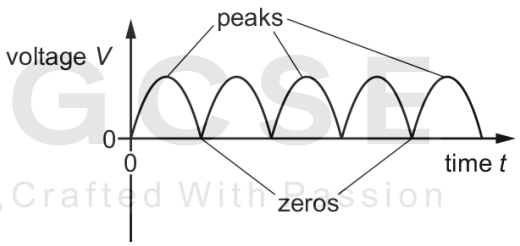
06. 0625_m21_qp_22 Q: 37

Which graph shows the voltage output of an a.c. generator with the peaks and zeros correctly labelled?

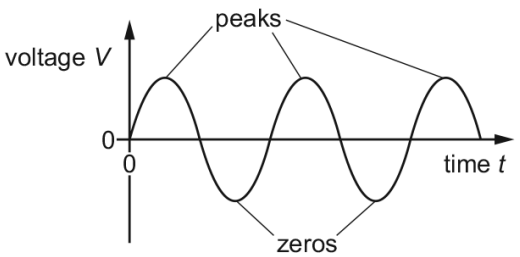
A



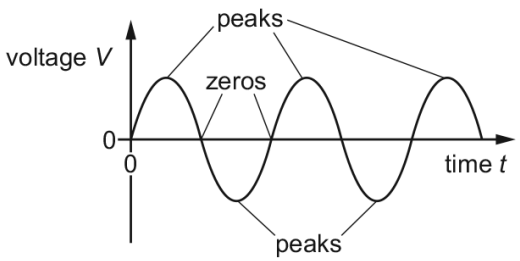
B



C



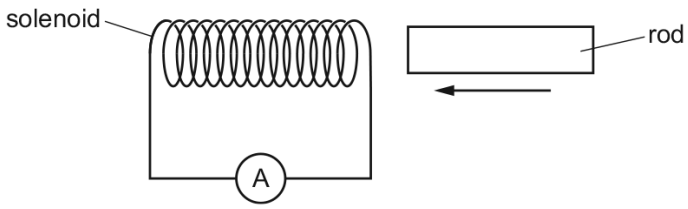
D



---

07. 0625_s21_qp_21 Q: 34

A solenoid is connected to a very sensitive ammeter. A rod is inserted into one end of the solenoid. The ammeter shows that there is a small electric current in the solenoid while the rod is moving.



Which rod is being inserted?

A a heated copper rod

B a magnetised steel rod

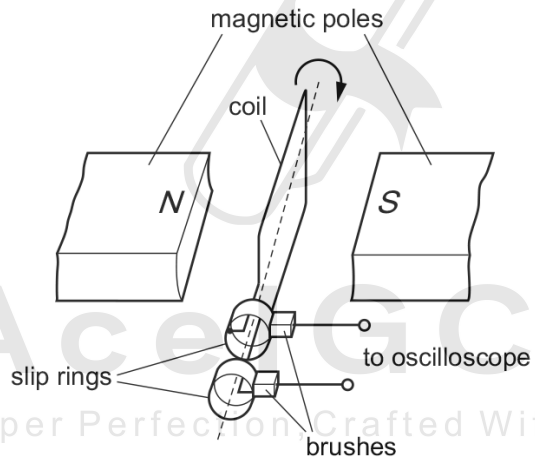
C an uncharged nylon rod

D a radioactive uranium rod

---

08. 0625_s21_qp_21 Q: 35

The diagram shows an electric generator with the coil in a vertical position.



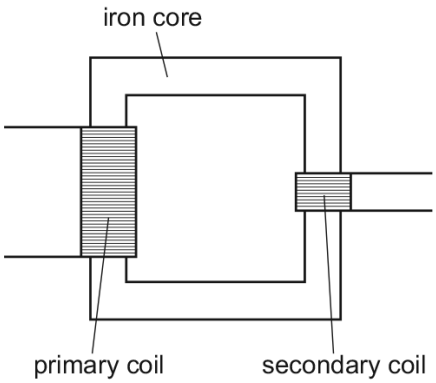
Which row describes the generator?

	the generator produces	the voltage output will be zero when
A	a.c.	the coil is horizontal
B	a.c.	the coil is vertical
C	d.c.	the coil is horizontal
D	d.c.	the coil is vertical

---

09. 0625_s21_qp_21 Q: 36

The diagram shows a transformer. There are 460 turns on the primary coil and 24 turns on the secondary coil. The primary voltage is 230 V.



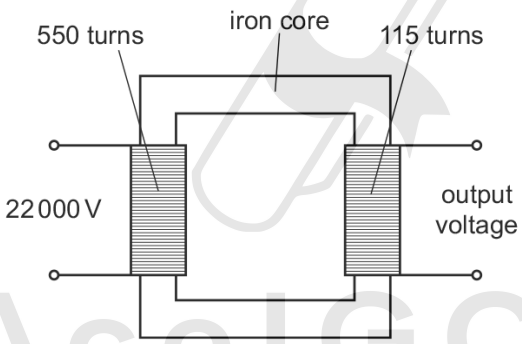
What is the secondary voltage?

A 2.0 V **B** 12 V **C** 48 V **D** 4400 V

---

10. 0625_s21_qp_22 Q: 36

The diagram shows a transformer.



What is the output voltage?

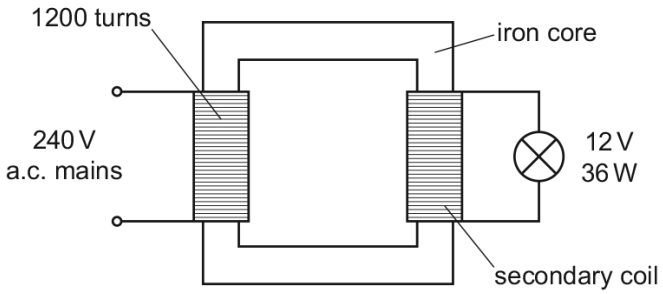
A 0.35 V **B** 2.9 V **C** 4600 V **D** 105 000 V

---

11. 0625_s21_qp_23 Q: 35

A 12 V, 36 W lamp shines at normal brightness when connected to a mains transformer.

Assume the transformer is 100% efficient.



Which row shows the number of turns in the secondary coil and the current in the mains wires?

	number of turns in secondary coil	current in the mains wire / A
A	60	0.15
B	60	3.0
C	180	0.15
D	180	3.0

12. 0625_s21_qp_23 Q: 36

Diagram 1 shows a wire carrying an electric current into the page.

The wire is between the poles of a magnet.

A force is produced on the wire acting down towards the bottom of the page.

Diagram 2 shows the situation after the current is reversed and the magnet is turned through 90°.

diagram 1

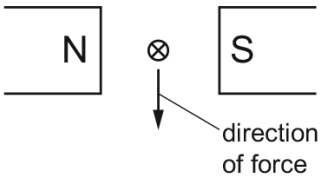


diagram 2

In which direction does the force act after these changes?

A towards the top of the page

B towards the bottom of the page

C towards the left-hand side of the page

D towards the right-hand side of the page

---

13. 0625_w21_qp_21 Q: 34

What is the function of the split-ring commutator in an electric motor with a single rotating coil?

A to enable the motor to function with an a.c. source

B to reverse the current in the coil once every revolution

C to reverse the current in the coil whenever its plane becomes perpendicular to the magnetic field

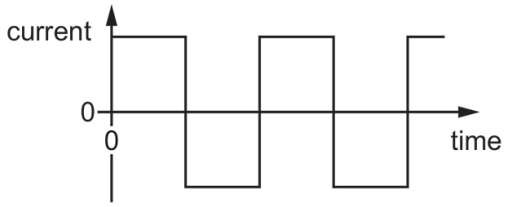
D to reverse the current in the coil whenever its plane is parallel with the magnetic field

---

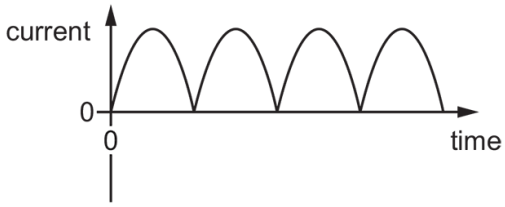
14. 0625_w21_qp_21 Q: 35

Which graph represents an alternating current (a.c.)?

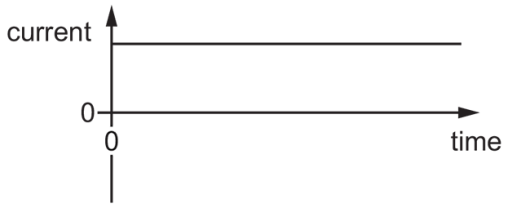
A



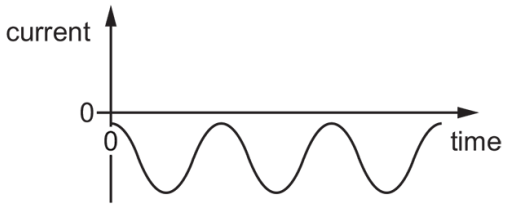
B



C



D



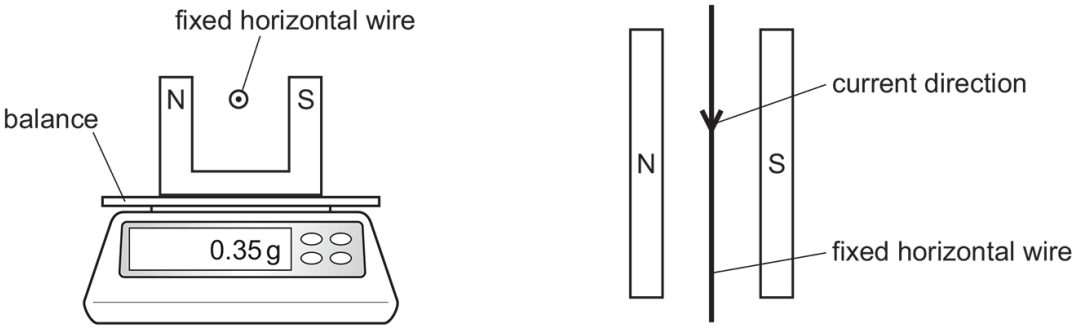
15. 0625_w21_qp_21 Q: 36

The diagrams show a horizontal wire in a magnetic field.

The horizontal wire is firmly held at each end (not shown) and cannot move.

The magnets and holder are on a balance.

When there is no current in the wire, the reading on the balance is 0.35 g.



There is a d.c. current in the wire, as shown.

What happens to the reading on the balance?

A smaller than 0.35 g

B no change

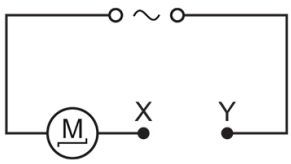
C changing from smaller to larger than 0.35 g repeatedly

D larger than 0.35 g

---

16. 0625_w21_qp_22 Q: 33

The diagram shows a motor connected to an a.c. supply. The circuit is incomplete.



Which device needs to be connected between point X and point Y to prevent the wires from overheating if a fault in the motor causes the current to get too high?

A an ammeter

B a fuse

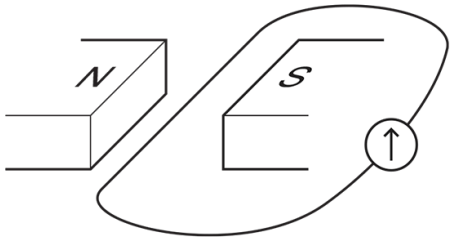
C a transformer

D a length of thick copper wire

---

17. 0625_w21_qp_22 Q: 34

The diagram shows a wire between two magnets. An electromotive force (e.m.f.) is induced in the wire when it is moved up between the two magnets.



Four tests are done.

1 The direction of movement of the wire is reversed.

2 The direction of the magnetic field is reversed.

3 The wire is moved more quickly.

4 The magnetic field strength is decreased.

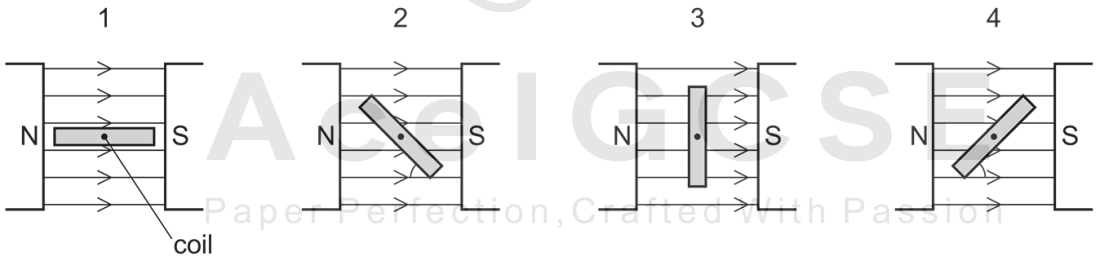
Which tests will induce a smaller e.m.f. in the wire?

A 1 and 2 **B** 1 and 3 **C** 3 and 4 **D** 4 only

---

18. 0625_w21_qp_22 Q: 35

Four positions of a current-carrying coil in a magnetic field, as in a d.c. motor, are shown. In diagrams 2 and 4, the coil is at an angle of 45° to the field lines.



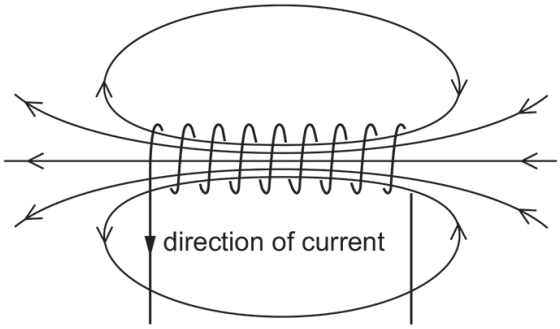
Which row is correct?

	turning effect of the forces in positions 1 and 3	turning effect of the forces in positions 2 and 4
A	different	different
B	different	same
C	same	different
D	same	same

---

19. 0625_w21_qp_22 Q: 36

The diagram shows the magnetic field due to a current in a solenoid.



The direction of the current is reversed.

Which row describes the effect that this has on the magnitude and on the direction of the magnetic field?

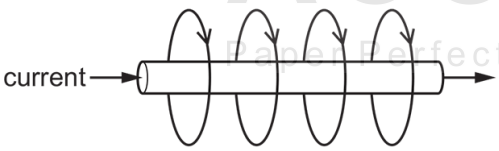
	magnitude of magnetic field	direction of magnetic field
A	increases	changes
B	increases	unchanged
C	unchanged	changes
D	unchanged	unchanged

---

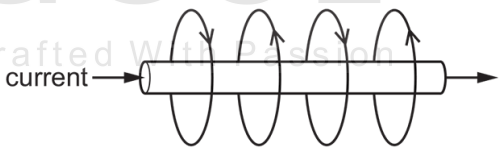
20. 0625_w21_qp_23 Q: 35

Which diagram shows the magnetic field around a straight, current-carrying wire?

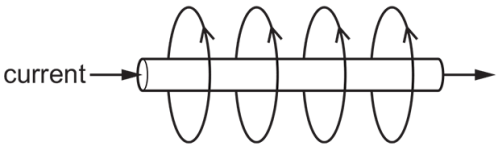
A



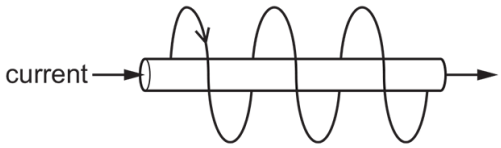
B



C



D



---

21. 0625_w21_qp_23 Q: 36

The coil in a d.c. motor is connected to a split-ring commutator.

What is the purpose of the split-ring commutator?

A to ensure that the coil continues to rotate in the same direction

B to ensure that the size of the current in the coil remains constant

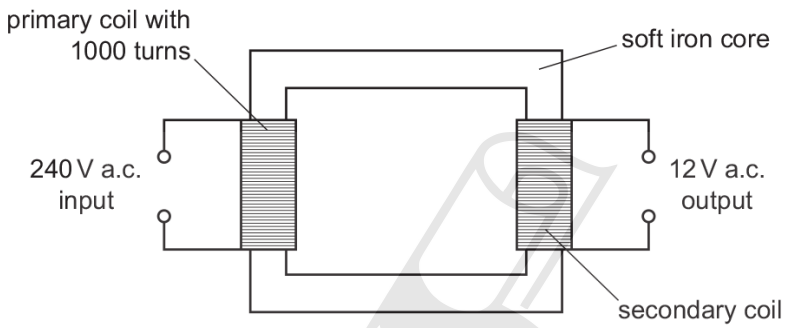
C to ensure that the size of the turning effect on the coil remains constant

D to ensure that the turning effect on the coil changes direction

---

22. 0625_m20_qp_22 Q: 36

The diagram shows a transformer that has an output voltage of 12 V.



How many turns of wire are in the secondary coil?

A 12 **B** 20 **C** 50 **D** 20 000

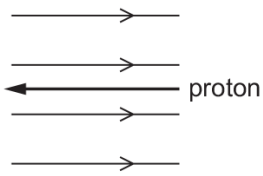
---

23. 0625_m20_qp_22 Q: 37

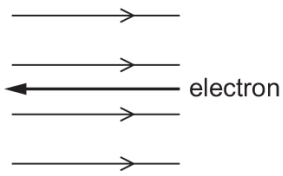
The diagrams show different particles moving through a magnetic field.

Which particle experiences a magnetic force acting up out of the plane of the paper?

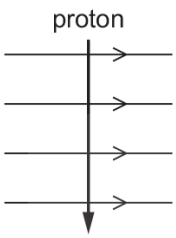
A



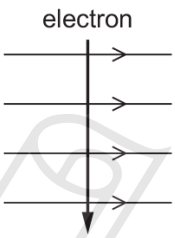
B



C

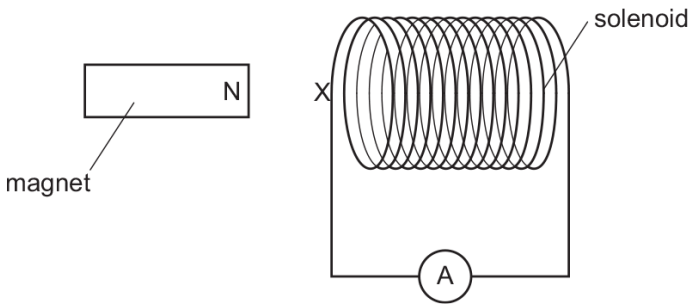


D



24. 0625_p20_qp_20 Q: 35

A solenoid is connected in series with a sensitive ammeter. The N pole of a magnet is placed next to one end of the solenoid, marked X.



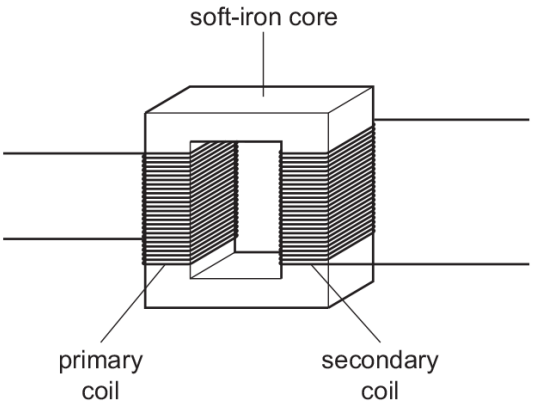
First, the N pole of the magnet is pushed towards X, then the magnet is pulled away from X. During both stages the ammeter deflects.

Which type of magnetic pole is induced at X during these two stages?

	as N pole moves towards X	as N pole moves away from X
A	N pole	N pole
B	N pole	S pole
C	S pole	N pole
D	S pole	S pole

25. 0625_p20_qp_20 Q: 36

The diagram shows a transformer.

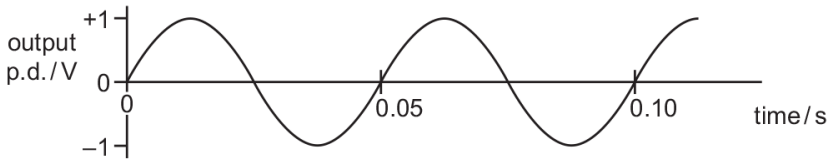


Which row describes the magnetic field in the soft-iron core and the magnetic field in the secondary coil when the transformer is operating?

	magnetic field	
	in soft-iron core	in secondary coil
A	changing	changing
B	changing	constant
C	constant	changing
D	constant	constant

26. 0625_p20_qp_20 Q: 37

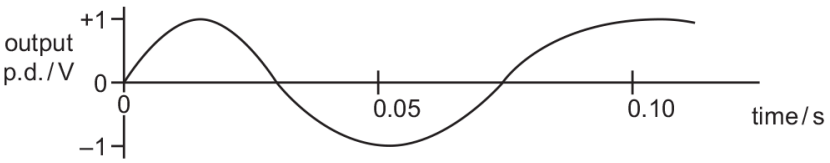
The graph shows the output of an a.c. generator. The coil in the generator rotates 20 times in one second.



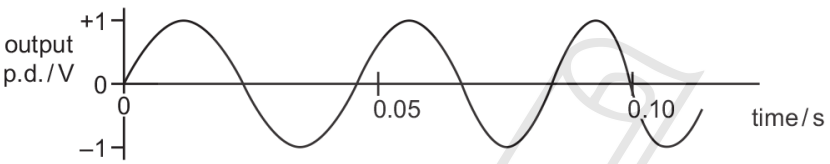
The speed of rotation of the coil steadily increases.

Which graph best shows how the output changes?

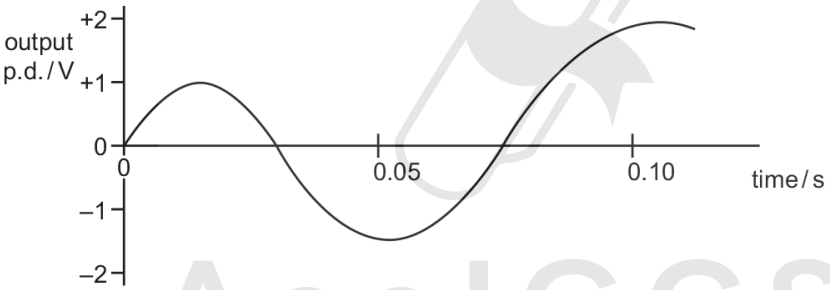
A



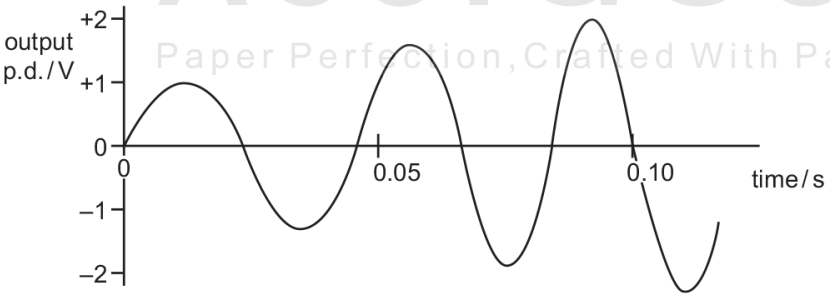
B



C



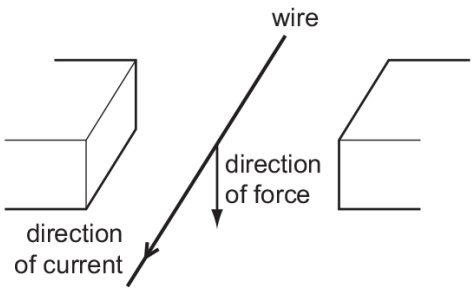
D



27. 0625_p20_qp_20 Q: 38

The diagram shows a wire placed between two magnetic poles of equal strength.

A current passes through the wire in the direction shown. The current causes a downward force on the wire.



What is the arrangement of the magnetic poles?

A 

B 

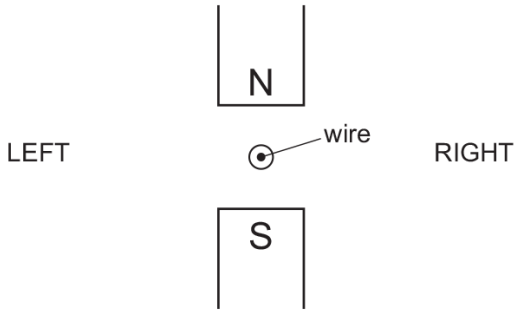
C 

D 

28. 0625_s20_qp_21 Q: 34

The diagram shows a wire between the poles of a magnet.

The wire is perpendicular to the page.



The wire is moved and a current is induced upwards, out of the paper.

In which direction is the wire moved?

A left to right

B right to left

C up the page

D down the page

---

29. 0625_s20_qp_21 Q: 35

A 100% efficient transformer converts a 240 V input voltage to a 12 V output voltage. The output power of the transformer can be a maximum of 20 W.

The output is connected to two 0.30 A bulbs in parallel. One of the bulbs fails.

How does the current in the primary coil change?

A It decreases by 0.30 A.

B It decreases by 0.015 A.

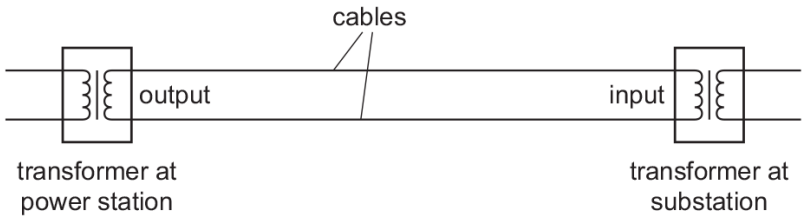
C It increases by 0.15 A.

D It remains unchanged.

---

30. 0625_s20_qp_21 Q: 36

Cables transmit electrical power from the output of the transformer at a power station to the input of the transformer at a substation.



The power at the output of the transformer at the power station is 400 MW.

Which situation delivers the most power to the input of the transformer at the substation?

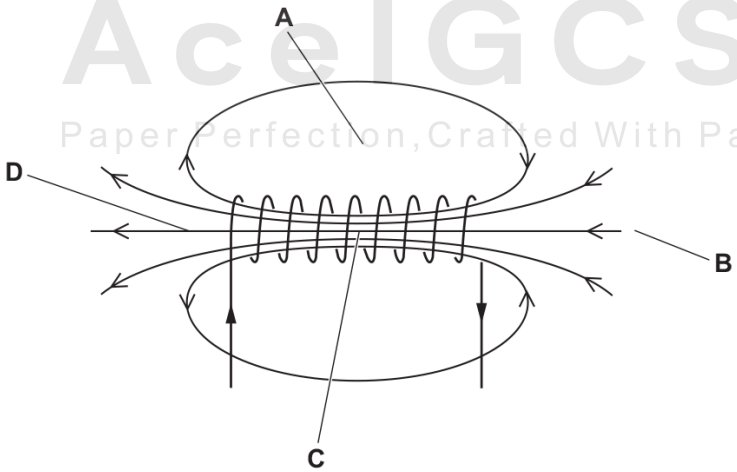
	potential difference at power station transformer output / kV	diameter of cables
A	200	large
B	200	small
C	400	large
D	400	small

---

31. 0625_s20_qp_22 Q: 35

The diagram shows the magnetic field due to a current in a solenoid.

Where is the magnetic field the strongest?

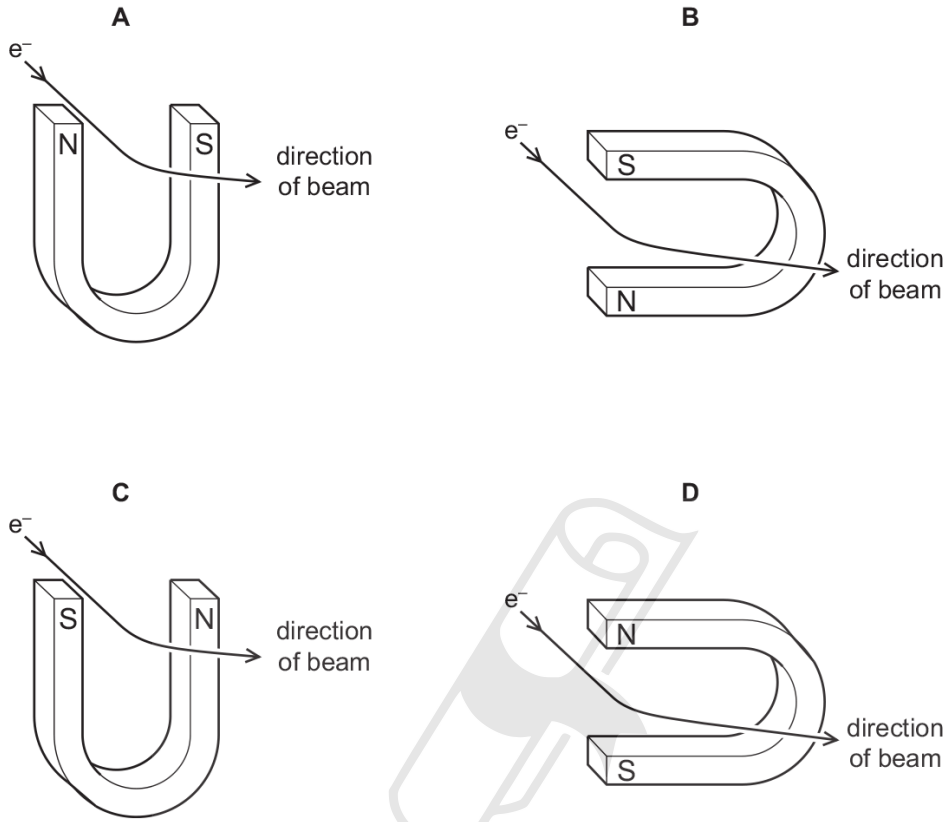


---

32. 0625_s20_qp_22 Q: 36

A beam of electrons is passed through the magnetic field of a magnet.

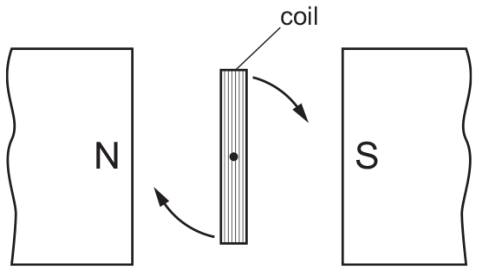
How must the magnet be positioned to deflect the beam in the direction shown?



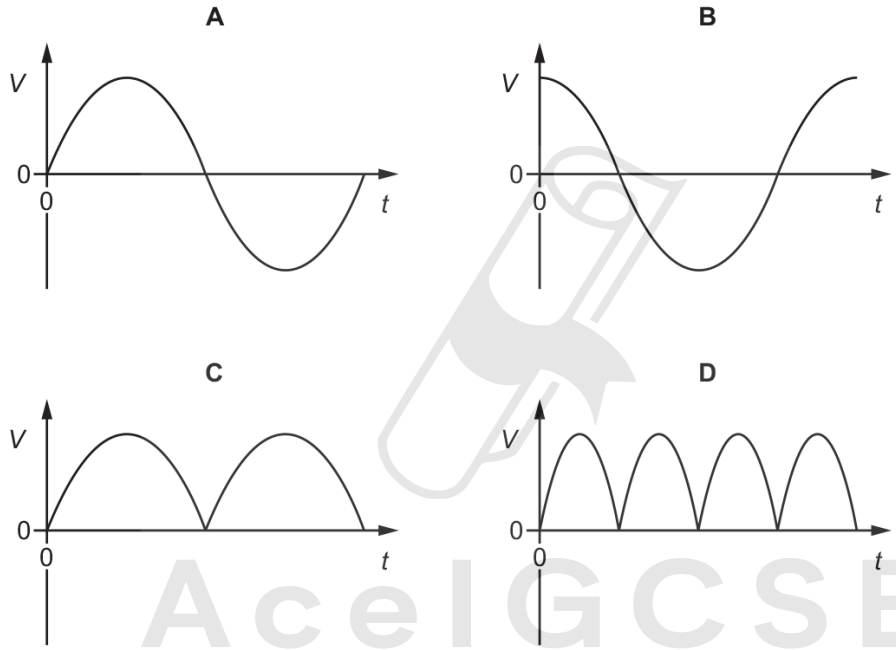
33. 0625_s20_qp_23 Q: 36

The coil of a simple a.c. generator rotates steadily in a uniform magnetic field.

The diagram shows the position of the coil at time $t = 0$.

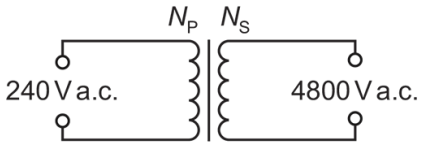


Which graph shows the output voltage for one revolution of the coil?



34. 0625_w20_qp_21 Q: 35

A transformer is needed to convert a supply of 240 V a.c. into 4800 V a.c..



Which pair of coils would be suitable for this transformer?

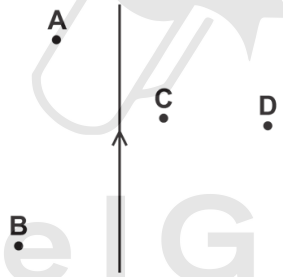
	number of turns on primary coil N_P	number of turns on secondary coil N_S
A	50	1 000
B	240	48 000
C	480	24
D	2000	100

---

35. 0625_w20_qp_21 Q: 36

The diagram shows part of a long current-carrying conductor.

At which point is the magnetic field strongest?



---

36. 0625_w20_qp_21 Q: 37

A beam of particles moves through a magnetic field.

In which situation do the particles experience a magnetic force?

A a beam of α-particles moving parallel to the magnetic field lines

B a beam of electrons moving parallel to the magnetic field lines

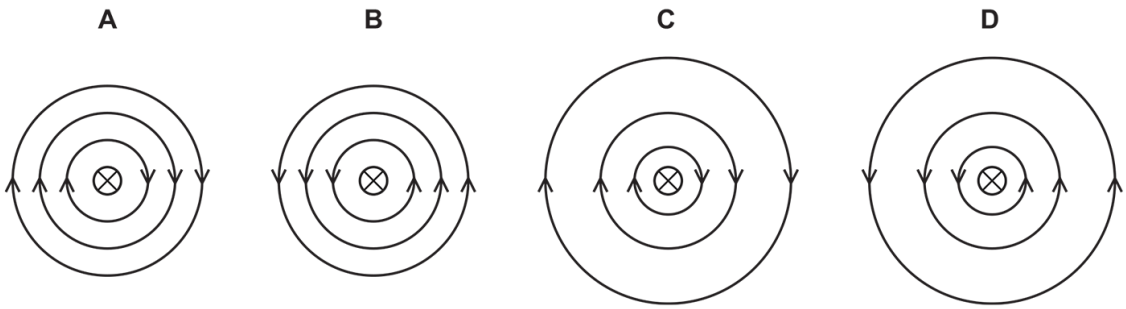
C a beam of β-particles moving perpendicularly across the magnetic field lines

D a beam of neutrons moving perpendicularly across the magnetic field lines

---

37. 0625_w20_qp_22 Q: 29

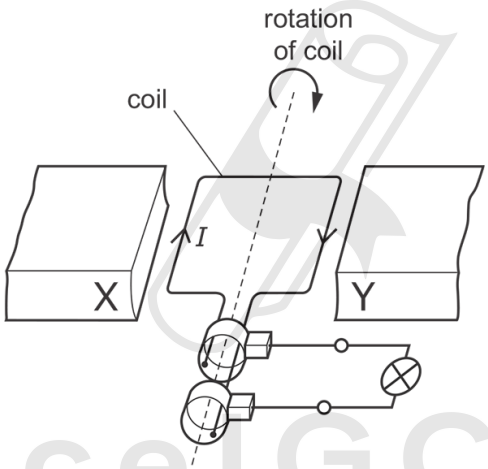
Which diagram represents the strength and direction of the magnetic field around a current-carrying conductor? (The direction of the current is into the page.)



---

38. 0625_w20_qp_22 Q: 34

The diagram shows an a.c. generator used to power a lamp. The coil rotates in a clockwise direction.



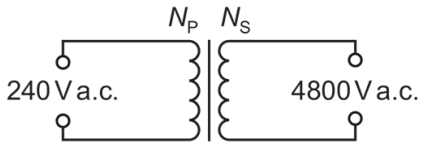
Which magnetic poles are X and Y?

	X	Y
A	N pole	N pole
B	N pole	S pole
C	S pole	N pole
D	S pole	S pole

---

39. 0625_w20_qp_22 Q: 35

A transformer is needed to convert a supply of 240 V a.c. into 4800 V a.c..



Which pair of coils would be suitable for this transformer?

	number of turns on primary coil N_P	number of turns on secondary coil N_S
A	50	1 000
B	240	48 000
C	480	24
D	2000	100

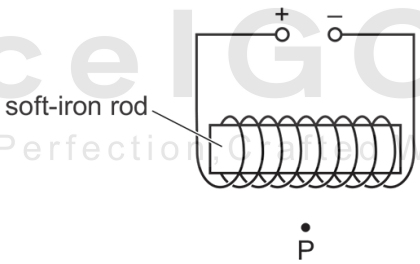
---

40. 0625_w20_qp_22 Q: 36

The diagram shows a coil of wire wrapped around a soft-iron rod.

The wire is connected to a d.c. power supply as indicated.

The apparatus is in a region which is totally shielded from the Earth's magnetic field.



A small compass needle is placed at point P.

In which direction does the N pole of the compass needle point?

A towards the bottom of the page

B towards the left of the page

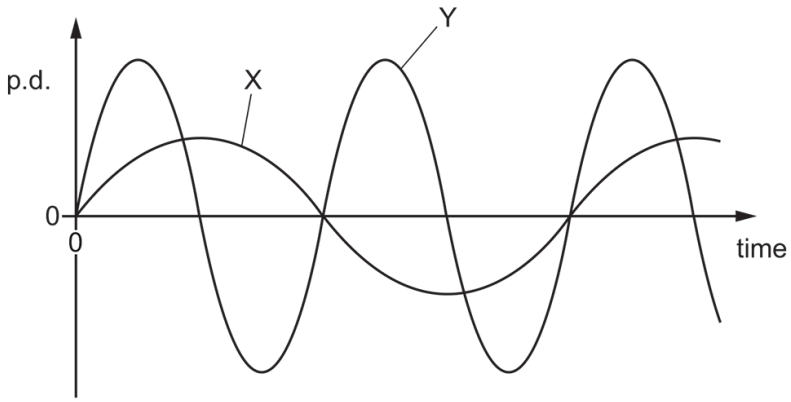
C towards the right of the page

D towards the top of the page

---

41. 0625_w20_qp_23 Q: 34

Graph X shows the output from an a.c. generator.



Which changes can be made so that the generator produces graph Y?

A Decrease the magnetic field strength and decrease the speed of rotation only.

B Increase the magnetic field strength and decrease the number of coils only.

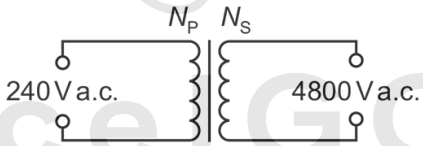
C Increase the number of coils only.

D Increase the speed of rotation only.

---

42. 0625_w20_qp_23 Q: 35

A transformer is needed to convert a supply of 240 V a.c. into 4800 V a.c..



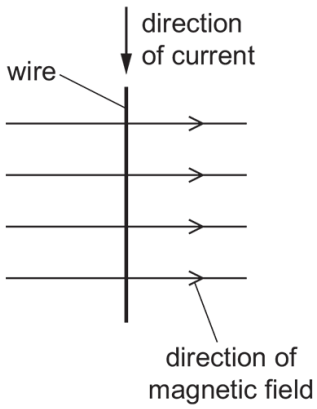
Which pair of coils would be suitable for this transformer?

	number of turns on primary coil N_P	number of turns on secondary coil N_S
A	50	1 000
B	240	48 000
C	480	24
D	2000	100

---

43. 0625_w20_qp_23 Q: 36

The diagram shows a wire carrying a current in the direction shown. There is a magnetic field acting from left to right. The wire experiences a force acting out of the page.



The current is now reversed.

In which direction does the force on the wire now act?

A into the page

B out of the page

C to the left

D to the right

---

44. 0625_m19_qp_22 Q: 36

Which statement about the direction of a magnetic field at a point is correct?

A It is the direction of the force on a north pole placed at that point.

B It is the direction of the force on a south pole placed at that point.

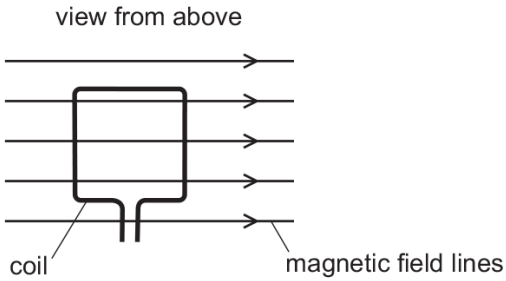
C It is the direction of the force on a positive charge placed at that point.

D It is the direction of the force on a negative charge placed at that point.

---

45. 0625_m19_qp_22 Q: 37

A current-carrying coil is placed in a magnetic field.



Which effect does the coil experience?

A a change in shape

B a change in weight

C a resultant force

D a turning effect

---

46. 0625_s19_qp_21 Q: 36

What is the purpose of the commutator in a d.c. electric motor?

A to control the speed at which the motor rotates

B to reverse the direction of the voltage across the power supply every half-turn

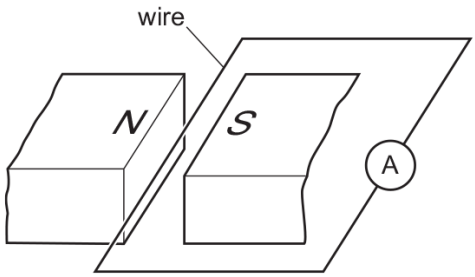
C to reverse the direction of the current in the motor coil every half-turn

D to reverse the direction of spin of the motor coil every half-turn

---

47. 0625_s19_qp_21 Q: 37

The diagram shows a wire between two magnetic poles. The wire is connected in a circuit with an ammeter.



The wire is moved downwards, towards the bottom of the page. A current is induced in the wire.

In which direction is the force on the wire caused by this current?

A towards the bottom of the page

B towards the left of the page

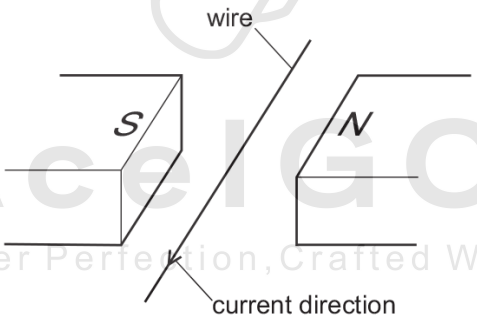
C towards the right of the page

D towards the top of the page

---

48. 0625_s19_qp_22 Q: 36

The diagram shows a current-carrying wire placed between two magnetic poles. The current is in the direction shown.



What is the direction of the force on the wire?

A towards the bottom of the page

B towards the top of the page

C towards the left-hand side of the page

D towards the right-hand side of the page

---

49. 0625_s19_qp_22 Q: 37

Diagram 1 shows an a.c. generator. The coil is turning as shown.

diagram 1

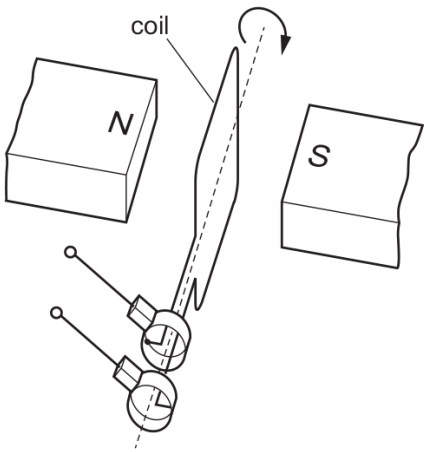
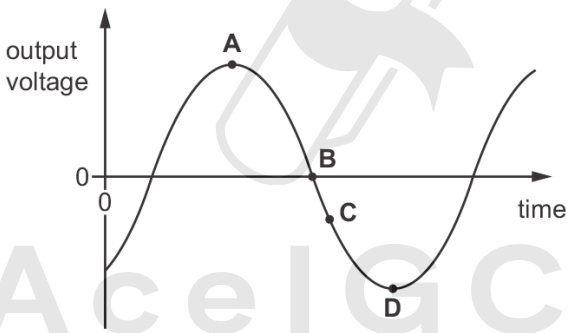


Diagram 2 shows the output voltage produced by the generator as the coil turns.

Which point on diagram 2 shows the voltage induced when the coil is moving through the position shown in diagram 1?

diagram 2



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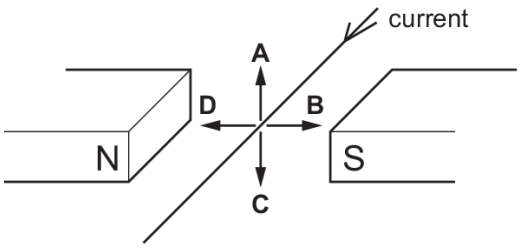
50. 0625_s19_qp_23 Q: 37

A conductor carrying a current is placed in a magnetic field.

In which direction does the force on the conductor act?



---

51. 0625_w19_qp_21 Q: 34

A student investigates the output voltage induced across a coil of wire by a bar magnet.

When will the induced voltage have the greatest value?

A The student slowly moves the bar magnet into the coil of wire.

B The student leaves the bar magnet stationary in the coil of wire.

C The student quickly removes the bar magnet from the coil of wire.

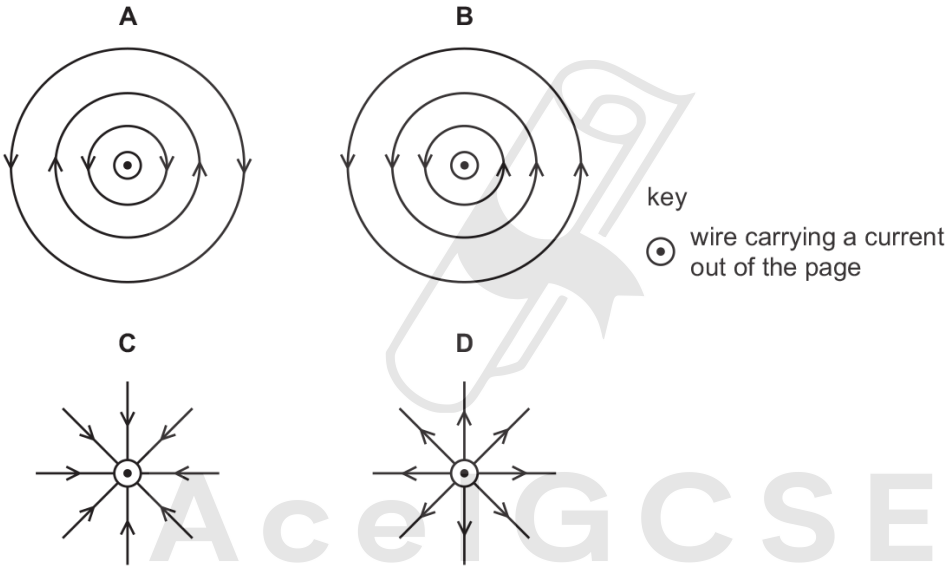
D The student places the bar magnet at rest outside the coil of wire.

---

52. 0625_w19_qp_21 Q: 35

There is a current in a wire. The direction of the current is out of the page.

Which diagram shows the magnetic field pattern produced?



---

53. 0625_w19_qp_21 Q: 36

Diagram 1 shows a coil of wire P between the poles of a magnet. The ends of coil P are connected to a battery by slip rings.

Diagram 2 shows a coil of wire Q between the poles of a different magnet. The ends of coil Q are connected to a battery by a split-ring commutator.

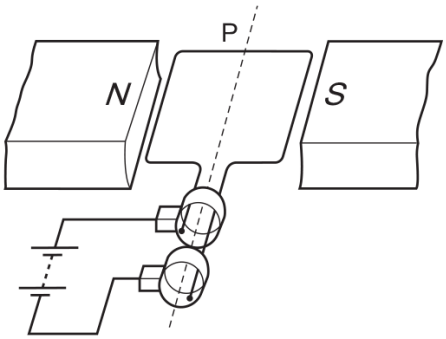


diagram 1

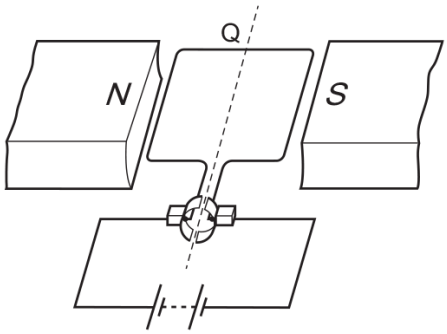


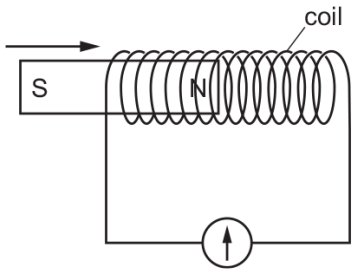
diagram 2

What happens to coils P and Q?

	coil P	coil Q
A	continuously turns anticlockwise	makes one quarter turn anticlockwise then stops
B	continuously turns clockwise	makes one quarter turn clockwise then stops
C	makes one quarter turn anticlockwise then stops	continuously turns anticlockwise
D	makes one quarter turn clockwise then stops	continuously turns clockwise

54. 0625_w19_qp_22 Q: 35

The N-pole of a magnet is moved into a coil of wire connected to a galvanometer.



The needle of the galvanometer moves.

Which situation **must** give a smaller galvanometer reading?

A Use a coil with fewer turns and a stronger magnet.

B Use a coil with fewer turns and a weaker magnet.

C Use a coil with more turns and a stronger magnet.

D Use a coil with more turns and a weaker magnet.

---

55. 0625_w19_qp_22 Q: 36

A step-down transformer is 100% efficient. It has an input voltage of 240 V a.c. and an output voltage of 60 V a.c.

The current in the primary coil is 0.50 A.

What is the current in the secondary coil?

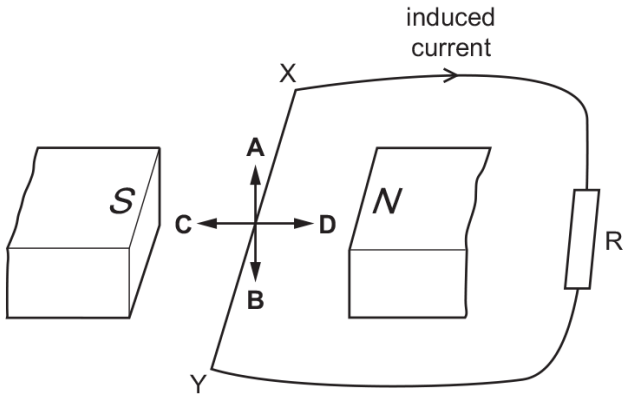
A 0.13 A **B** 0.50 A **C** 2.0 A **D** 8.0 A

---

56. 0625_w19_qp_23 Q: 34

A wire XY is connected to a resistor R. The wire is moved in the magnetic field between two magnetic poles.

In which direction must the wire be moved so that the induced current is in the direction shown?



---

57. 0625_w19_qp_23 Q: 35

A step-up transformer produces a 60 V a.c. output from a 12 V a.c. input.

There are 50 turns on the secondary coil.

How many turns are there on the primary coil?

A 5 **B** 10 **C** 50 **D** 250

---

58. 0625_w19_qp_23 Q: 36

An a.c. generator contains a coil that rotates at a rate of 4500 revolutions per minute.

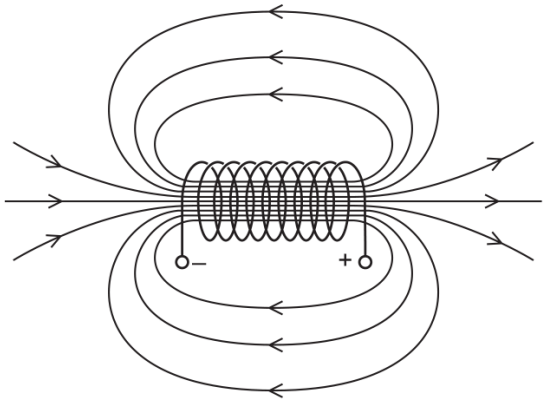
What is the frequency of the alternating current?

A 1.25 Hz **B** 75 Hz **C** 150 Hz **D** 4500 Hz

---

59. 0625_m18_qp_22 Q: 36

The current in a coil produces a magnetic field around it, as shown.



The magnitude of the potential difference across the coil is increased and its direction is reversed.

What happens to the magnetic field?

A The lines become closer together and the right-hand end becomes a south pole.

B The lines become closer together and the right-hand end remains a north pole.

C The lines become further apart and the right-hand end becomes a south pole.

D The lines become further apart and the right-hand end remains a north pole.

---

60. 0625_s18_qp_21 Q: 34

Which statement about electromagnetic induction is correct?

A A strong magnet that is held stationary near a stationary conductor causes a greater effect than a weak magnet.

B The effect occurs when a magnet and a conductor are both moved with the same speed and in the same direction.

C The effect occurs when a magnet is moved away from a nearby conductor.

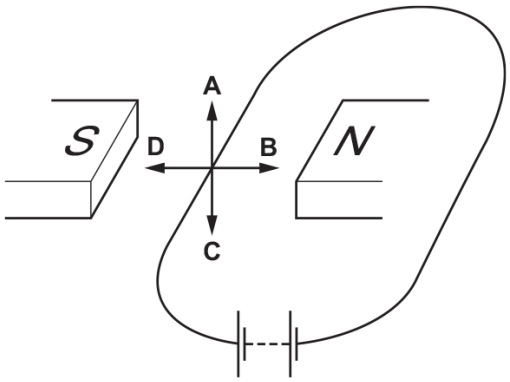
D The effect only occurs when a magnet is moved towards a conductor.

---

61. 0625_s18_qp_21 Q: 35

The diagram shows a current-carrying conductor in a magnetic field.

Which arrow shows the direction of the force acting on the conductor?



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62. 0625_s18_qp_21 Q: 36

Power losses in transmission cables are reduced by increasing the transmission voltage.

What is the explanation for this reduction?

A The current decreases, reducing thermal energy losses.

B The current increases, increasing the flow of charge.

C The resistance of the cable increases, reducing the current.

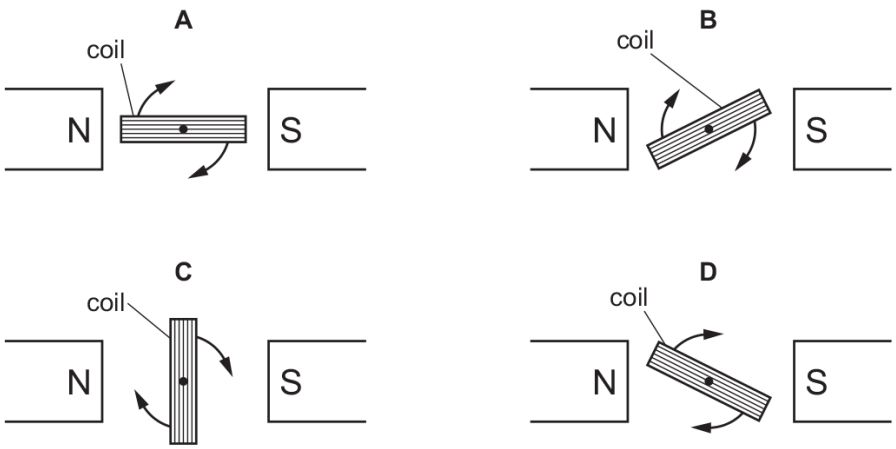
D The resistance of the cable decreases.

---

63. 0625_s18_qp_22 Q: 34

In an a.c. generator, a coil is rotated in a magnetic field and an electromotive force (e.m.f.) is induced in the coil.

In which position of the coil does the e.m.f. have the largest value?



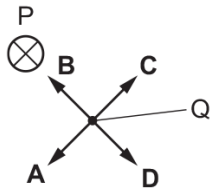
---

64. 0625_s18_qp_22 Q: 35

Wire P carries a current directed perpendicularly into the page. A compass is placed at point Q which is close to wire P.

The magnetic field at Q due to the current is very much larger than the magnetic field of the Earth.

In which direction does the North pole of the compass point?



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65. 0625_s18_qp_22 Q: 36

A transformer has N_p turns in the primary coil and N_s turns in the secondary coil.

Which row gives the values of N_p and N_s for a transformer that steps up a voltage of 1200 V to 36 000 V?

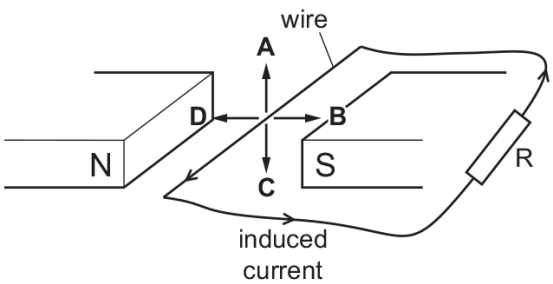
	N_p	N_s
A	2 000	60 000
B	2 000	600 000
C	60 000	2 000
D	600 000	2 000

---

66. 0625_s18_qp_23 Q: 34

A wire connected to a resistor is moved in a magnetic field. A current is induced in the direction shown.

In which direction is the wire moved?



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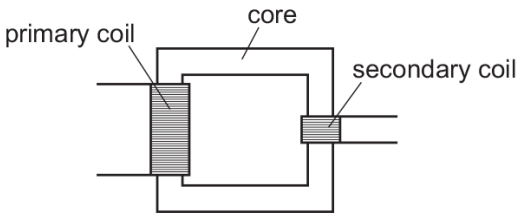
67. 0625_s18_qp_23 Q: 35

The diagram shows a transformer.



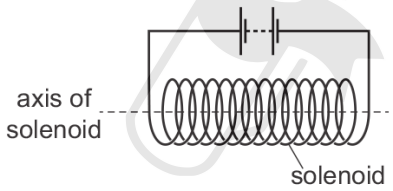
Which materials are the most suitable for the core and for the coils?

	core material	coil material
A	copper	copper
B	copper	iron
C	iron	copper
D	iron	iron

---

68. 0625_s18_qp_23 Q: 36

A solenoid is connected to a battery.



Which statement about the magnetic field at the centre of the solenoid is correct?

A The magnetic field along the axis is zero.

B The direction of the magnetic field is at an angle of 45° to the axis.

C The direction of the magnetic field is parallel to the axis.

D The direction of the magnetic field is perpendicular to the axis.

---

69. 0625_w18_qp_21 Q: 35

There is a current of 3.0 A in a conductor.

The current is changed to 6.0 A in the opposite direction.

Which effect does this have on the magnetic field around the conductor?

A It decreases and it acts in the opposite direction.

B It decreases and it acts in the same direction.

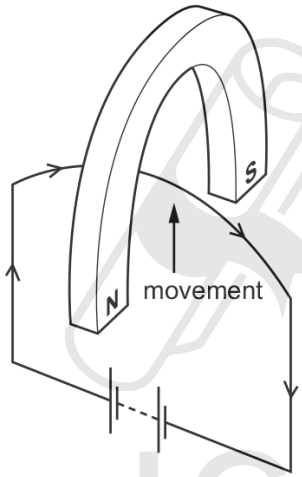
C It increases and it acts in the opposite direction.

D It increases and it acts in the same direction.

---

70. 0625_w18_qp_21 Q: 36

A wire is placed in a strong magnetic field. When a current is passed through the wire it moves upwards, as shown.



The current is reversed.

In which direction does the wire move?

A downwards

B towards the north pole

C towards the south pole

D upwards

---

71. 0625_w18_qp_22 Q: 35

Electrical power is transmitted at 400 kV and transformed down to 240 V before being delivered to consumers.

Which statement is correct?

A A 400 kV cable requires less insulation than a 240 V cable.

B Birds are subject to a high-voltage shock when resting on a high-voltage cable.

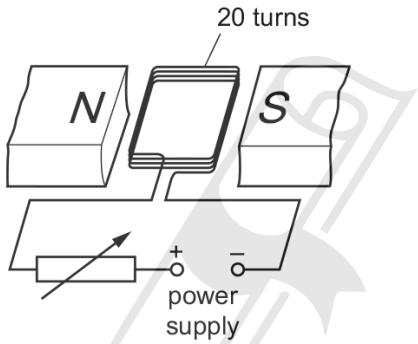
C The current in the transmission wires is equal to the current delivered to the consumers.

D With a 400 kV transmission system, a smaller proportion of the energy is used to heat the atmosphere than with a 240 V system.

---

72. 0625_w18_qp_22 Q: 36

The diagram shows a coil of wire between the poles of a magnet.



The coil consists of 20 turns of insulated wire.

The coil is connected to a variable resistor and a power supply.

How can the turning effect on the coil be increased?

A by moving the poles of the magnet closer to the coil

B by reducing the number of turns on the coil while keeping the current constant

C by increasing the resistance of the variable resistor

D by reversing the terminals of the power supply

---

73. 0625_w18_qp_23 Q: 35

A 100% efficient step-down transformer has primary voltage V_p and primary current I_p.

Which row compares the secondary voltage with V_p and the secondary current with I_p?

	secondary voltage	secondary current
A	greater than V_p	greater than I_p
B	greater than V_p	less than I_p
C	less than V_p	greater than I_p
D	less than V_p	less than I_p

---

74. 0625_w18_qp_23 Q: 36

There is an electric current in a wire. The wire is placed in a magnetic field. A force acts on the wire due to the current.

Which statement is correct?

A The magnetic field must be produced by a permanent magnet and not by an electromagnet.

B The wire must be made from a magnetic material.

C When both the current and the magnetic field are reversed, the direction of the force is unchanged.

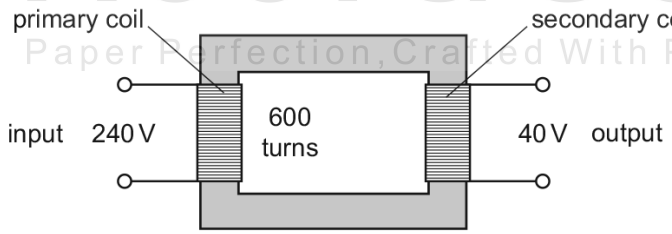
D When the current is reversed, but not the magnetic field, there will be no force on the wire.

---

75. 0625_m17_qp_22 Q: 35

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

---

76. 0625_m17_qp_22 Q: 36

The diagram shows a current-carrying wire. The wire is at 90° to a magnetic field. The direction of the magnetic field is into the page.

A force acts on the wire due to the current and the magnetic field.

In which direction does the force act?

A into the page

B out of the page

C towards the bottom of the diagram

D towards the top of the diagram

---

77. 0625_s17_qp_21 Q: 26

A magnet near a coil of wire is attracted to the coil only when there is a current in the coil.

Which statement explains this force of attraction?

A The coil of wire has its own gravitational field.

B The coil of wire is made from soft iron.

C The current in the coil of wire creates a magnetic field.

D The current in the coil of wire induces a charge on the magnet.

---

78. 0625_s17_qp_21 Q: 35

A simple d.c. electric motor is fitted with a coil that rotates in a magnetic field. A commutator connects the power supply to the coil.

What is the purpose of the commutator?

A It converts a.c. into d.c. in the coil.

B It prevents the current from becoming too great, because the coil has a low resistance.

C It reverses the direction of the current in the coil after every 180° rotation of the coil.

D It switches the current off momentarily after every 90° rotation of the coil.

---

79. 0625_s17_qp_22 Q: 36

Which device uses a split-ring commutator?

A a d.c. motor

B a relay

C a transformer

D an a.c. generator

---

80. 0625_s17_qp_23 Q: 25

A magnet near a coil of wire is attracted to the coil only when there is a current in the coil.

Which statement explains this force of attraction?

A The coil of wire has its own gravitational field.

B The coil of wire is made from soft iron.

C The current in the coil of wire creates a magnetic field.

D The current in the coil of wire induces a charge on the magnet.

---

81. 0625_s17_qp_23 Q: 35

In which device is a split-ring commutator used, and what is its purpose?

	device	purpose
A	a.c. generator	to change the direction of the current in the coil as it turns
B	a.c. generator	to change the output current from d.c. into a.c.
C	d.c. motor	to change the direction of the current in the coil as it turns
D	d.c. motor	to change the input current from a.c. into d.c.

---

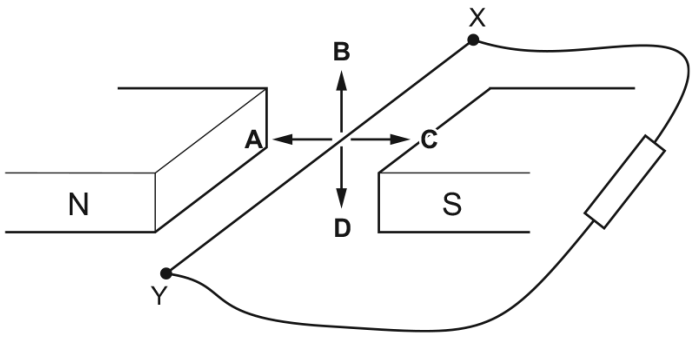
82. 0625_w17_qp_21 Q: 36

The diagram shows a copper wire XY connected to a resistor.

The wire is moved in the magnetic field between the poles of a magnet.

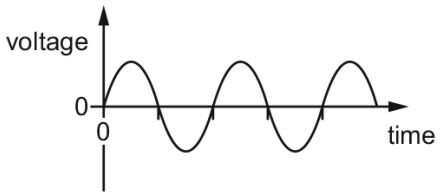
There is an induced current in the wire from X to Y.

In which labelled direction is the wire moving?



83. 0625_w17_qp_21 Q: 37

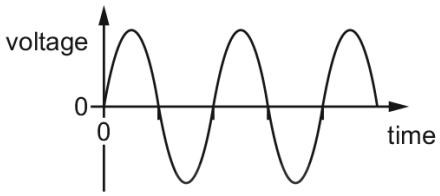
The graph shows how the voltage induced across a coil changes with time as the coil spins in a magnetic field.



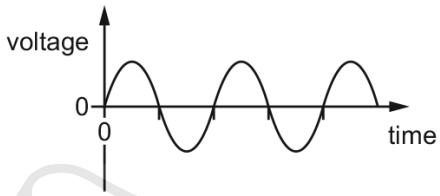
Which graph shows what happens when the coil spins more quickly?

(All graphs are drawn to the same scale.)

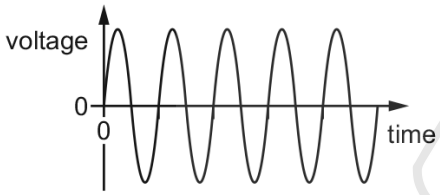
A



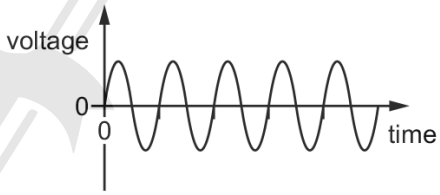
B



C

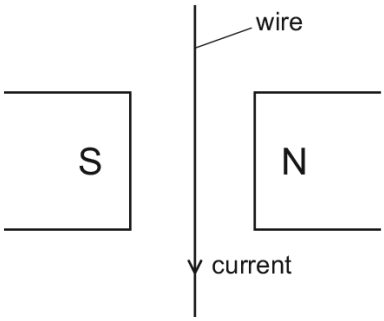


D



84. 0625_w17_qp_22 Q: 36

The diagram shows a wire hanging freely between the poles of a magnet. There is a current in the wire in the direction shown.



The magnet and current cause a force to act on the wire.

In which direction does this force act?

A into the page (away from you)

B out of the page (toward you)

C to the left

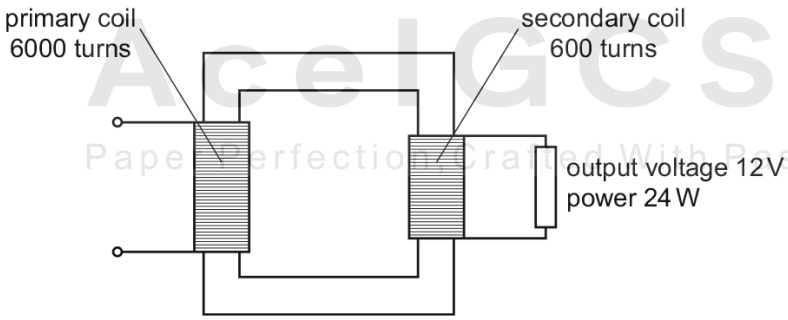
D to the right

---

85. 0625_w17_qp_22 Q: 37

A 100% efficient transformer has 6000 turns on its primary coil and 600 turns on its secondary coil. The output voltage of the transformer is 12 V.

A resistor is connected across the secondary coil and dissipates 24 W of power.



What is the current in the primary coil of the transformer?

A 0.050 A **B** 0.20 A **C** 5.0 A **D** 20 A

---

86. 0625_w17_qp_23 Q: 32

A battery is connected to a circuit. It is switched on for 1.0 minute. During that time, there is a current of 0.40 A in the circuit and the battery supplies a total of 48 J of energy.

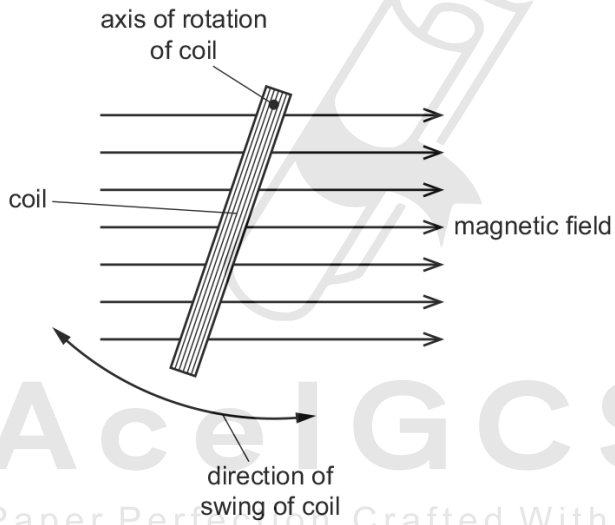
Which row gives the charge that passes and the electromotive force (e.m.f.) of the battery?

	charge that passes in 1.0 minute / C	e.m.f. of the battery / V
A	0.40	2.0
B	0.40	120
C	24	2.0
D	24	120

---

87. 0625_w17_qp_23 Q: 36

The diagram shows a short-circuited copper coil swinging about an axis at right-angles to a strong magnetic field. The motion induces a current in the coil.



What is the effect, if any, of this induced current in the coil?

A The induced current has no effect on the movement of the coil because copper is non-magnetic.

B The induced current produces a magnetic field of constant magnitude in the coil.

C The induced current produces forces that assist the change causing it.

D The induced current produces forces that oppose the changes causing it.

---

88. 0625_w17_qp_23 Q: 37

Diagram 1 shows a magnet being pushed into a coil that is connected to a centre-zero galvanometer.

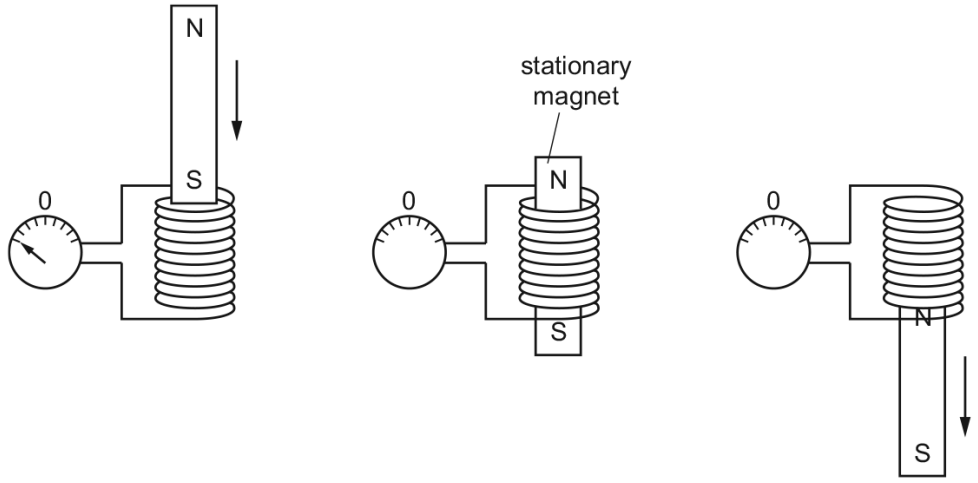


diagram 1 diagram 2 diagram 3

Which row shows the directions of the pointer when the magnet is as shown in diagrams 2 and 3?

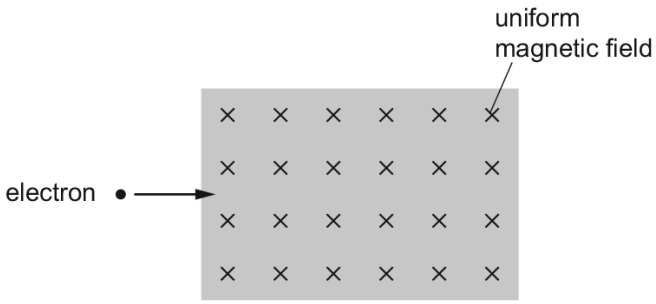
	diagram 2	diagram 3
A		
B		
C		
D		

89. 0625_m16_qp_22 Q: 35

An electron moves into a uniform magnetic field.

The arrow shows the initial direction of motion of the electron.

The direction of the magnetic field is into the plane of the page (away from you).



In which direction does a force act on the electron when it enters the magnetic field?

A into the page

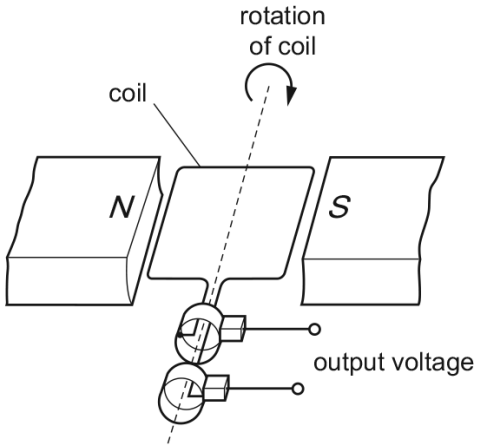
B out of the page

C towards the bottom of the page

D towards the top of the page

90. 0625_m16_qp_22 Q: 36

The diagram shows an a.c. generator.



As the coil passes through the position shown, the output voltage is +10 V.

When does the output voltage become –10 V?

A when the coil has turned through 90°

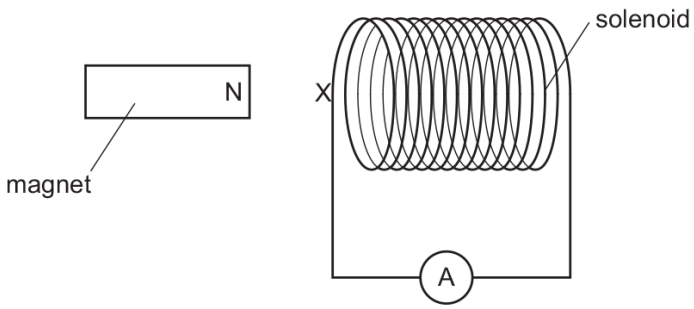
B when the coil has turned through 180°

C when the coil has turned through 270°

D when the coil has turned through 360°

91. 0625_p16_qp_20 Q: 35

A solenoid is connected in series with a sensitive ammeter. The N pole of a magnet is placed next to one end of the solenoid, marked X.



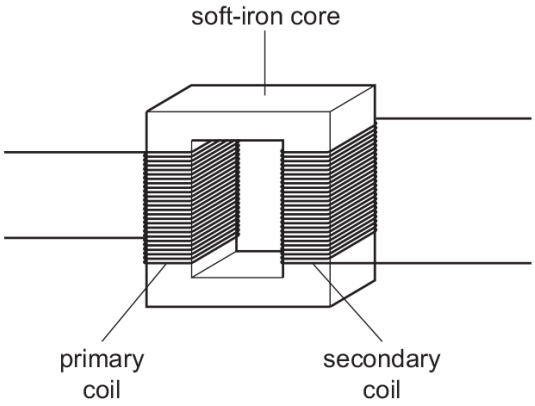
First, the N pole of the magnet is pushed towards X, then the magnet is pulled away from X. During both stages the ammeter deflects.

Which type of magnetic pole is induced at X during these two stages?

	as N pole moves towards X	as N pole moves away from X
A	N pole	N pole
B	N pole	S pole
C	S pole	N pole
D	S pole	S pole

92. 0625_p16_qp_20 Q: 36

The diagram shows a transformer.

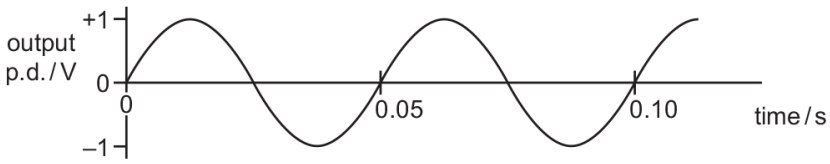


Which row describes the magnetic field in the soft-iron core and the magnetic field in the secondary coil when the transformer is operating?

	magnetic field	
	in soft-iron core	in secondary coil
A	changing	changing
B	changing	constant
C	constant	changing
D	constant	constant

93. 0625_p16_qp_20 Q: 37

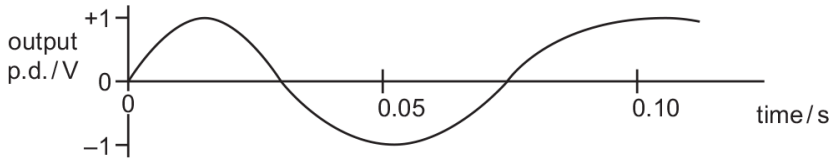
The graph shows the output of an a.c. generator. The coil in the generator rotates 20 times in one second.



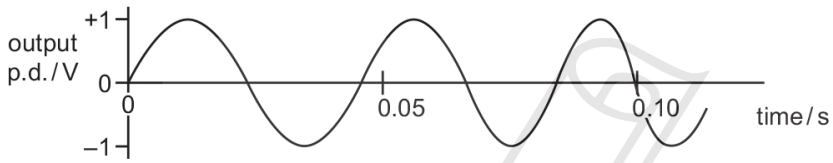
The speed of rotation of the coil steadily increases.

Which graph best shows how the output changes?

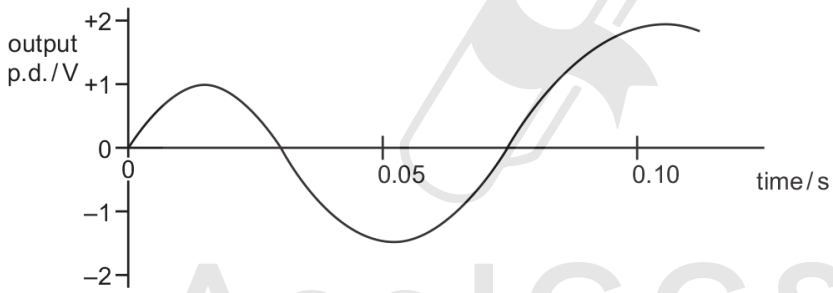
A



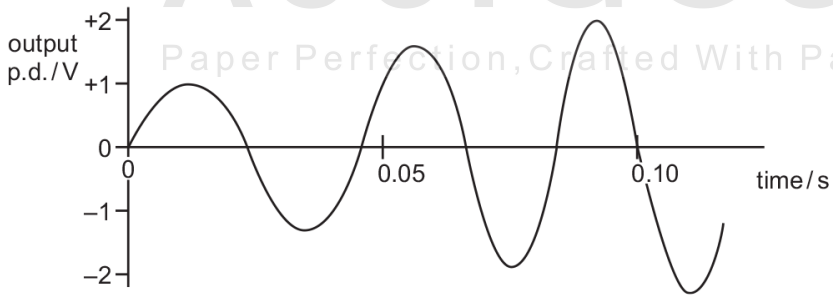
B



C



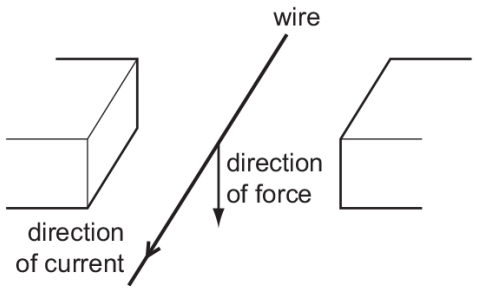
D



94. 0625_p16_qp_20 Q: 38

The diagram shows a wire placed between two magnetic poles of equal strength.

A current passes through the wire in the direction shown. The current causes a downward force on the wire.



What is the arrangement of the magnetic poles?

A 

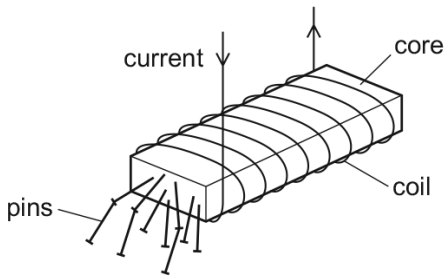
B 

C 

D 

95. 0625_s16_qp_21 Q: 34

A strong electromagnet is used to attract pins.



What happens when the current in the coil is halved?

A No pins are attracted.

B Some pins are attracted, but not as many.

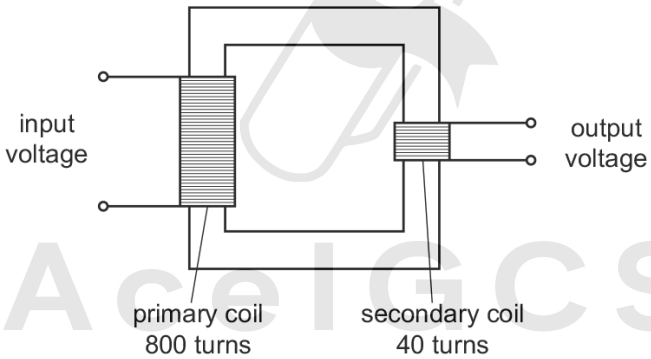
C The same number of pins is attracted.

D More pins are attracted.

---

96. 0625_s16_qp_21 Q: 35

The diagram shows a transformer.



The input voltage is 240 V.

What is the output voltage?

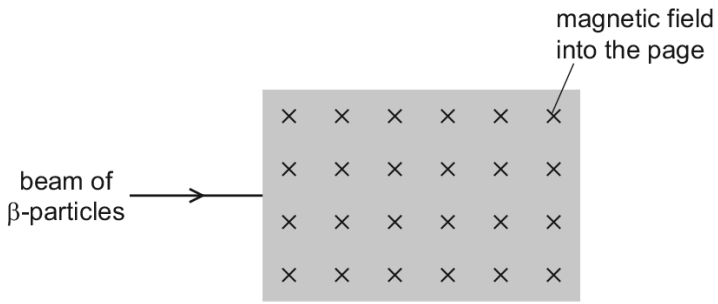
A 6.0 V **B** 12 V **C** 20 V **D** 40 V

---

97. 0625_s16_qp_21 Q: 36

The diagram shows a shaded area where the direction of a magnetic field is into the page.

A beam of β-particles enters the field as shown.



In which direction is the beam of β-particles deflected as they enter the magnetic field?

A into the page

B out of the page

C down the page

D up the page

---

98. 0625_w16_qp_21 Q: 36

An electric current can produce a heating effect and a magnetic effect.

Which row shows the effect that a relay uses and one application of a relay?

	effect used by a relay	one application of a relay
A	heating effect	allowing a small current to switch on a large current
B	heating effect	changing the voltage of an a.c. supply
C	magnetic effect	allowing a small current to switch on a large current
D	magnetic effect	changing the voltage of an a.c. supply

---

99. 0625_m15_qp_12 Q: 34

Which device uses slip rings?

A a d.c. electric motor

B a relay

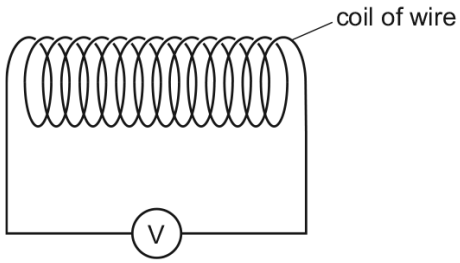
C a transformer

D an a.c. generator

---

100. 0625_m15_qp_12 Q: 35

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

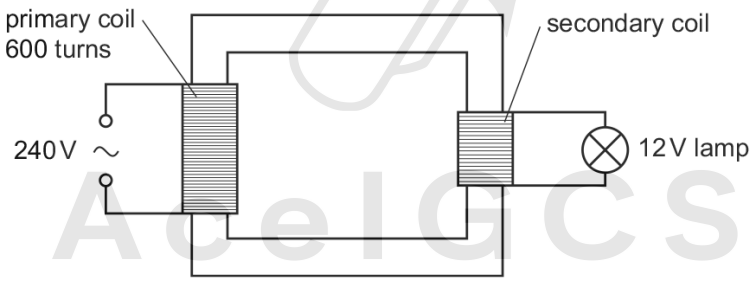
C pushing the magnet into the coil

D pushing the iron rod into the coil

---

101. 0625_m15_qp_12 Q: 36

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



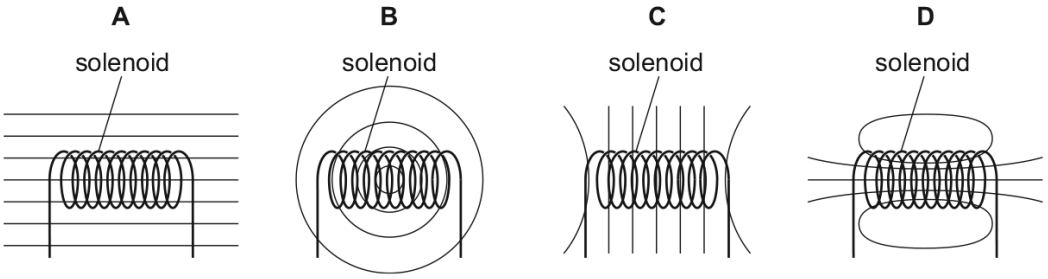
How many turns are in the secondary coil?

A 12 **B** 20 **C** 30 **D** 50

---

102. 0625_s15_qp_11 Q: 34

Which diagram shows the pattern of the magnetic field produced by a current-carrying solenoid?



---

103. 0625_s15_qp_11 Q: 35

What is an advantage of transmitting electricity at a high voltage?

A It is faster.

B It is safer.

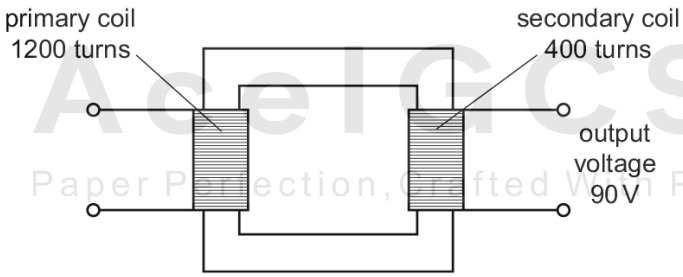
C Less energy is wasted.

D Less equipment is needed.

---

104. 0625_s15_qp_11 Q: 36

A transformer has 1200 turns on its primary coil and 400 turns on its secondary coil. An output voltage of 90 V is induced across the secondary coil.



What is the input voltage of the transformer?

A 30 V **B** 90 V **C** 270 V **D** 1200 V

---

105. 0625_s15_qp_12 Q: 34

An e.m.f. is induced across a wire when it moves through the magnetic field between the poles of a magnet.

Which electrical device operates because of this effect?

A a battery

B a cathode-ray tube

C a generator

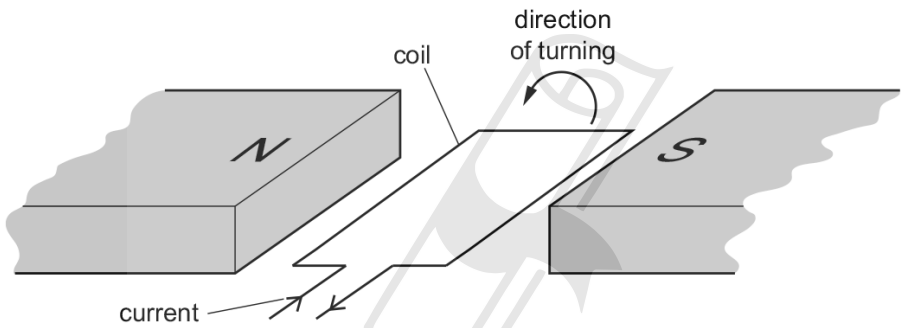
D a motor

---

106. 0625_s15_qp_12 Q: 35

The diagram shows a flat, rectangular coil placed between the poles of a magnet.

There is a current in the coil that makes it turn in the direction shown in the diagram.



Which change would make the coil turn in the opposite direction?

A decreasing the current in the coil

B increasing the number of turns on the coil

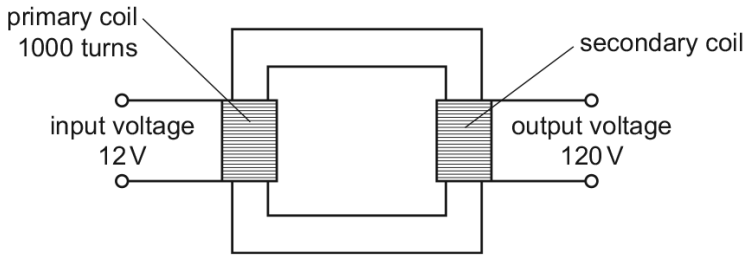
C reversing both the direction of the current in the coil and the poles of the magnet

D reversing only the direction of the current in the coil

---

107. 0625_s15_qp_12 Q: 36

A transformer has 1000 turns on its primary coil. An input voltage of 12 V is applied to the primary coil, and an output voltage of 120 V is induced across the secondary coil.



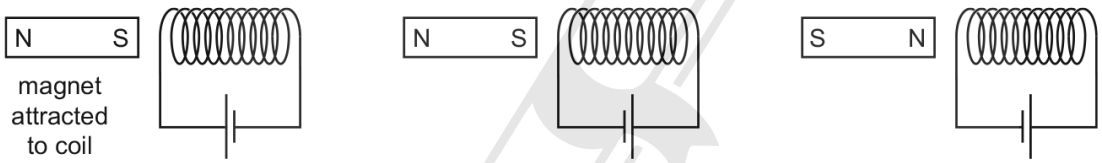
How many turns are on the secondary coil of the transformer?

A 100 **B** 120 **C** 1000 **D** 10 000

---

108. 0625_s15_qp_13 Q: 34

A student investigates the force on a bar magnet placed near a current-carrying coil. She carries out three different experiments.



experiment 1 experiment 2 experiment 3

In experiment 1, the magnet is attracted to the coil.

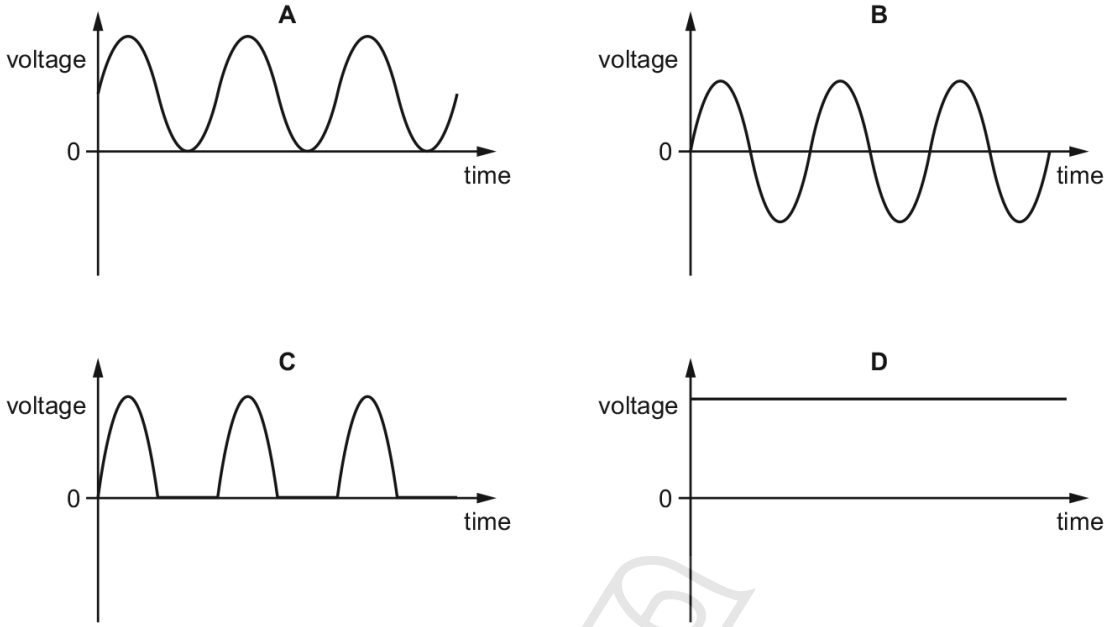
Which row shows what happens in the other two experiments?

	experiment 2	experiment 3
A	magnet attracted	magnet attracted
B	magnet attracted	magnet repelled
C	magnet repelled	magnet attracted
D	magnet repelled	magnet repelled

---

109. 0625_s15_qp_13 Q: 35

Which diagram represents the voltage output of a simple a.c. generator?



---

110. 0625_w15_qp_11 Q: 34

A step-up transformer is used before electricity is transmitted by overhead cables.

Which statement explains why the step-up transformer is used?

A It increases the current to increase the speed at which the electricity travels.

B It increases the current to reduce energy loss in the cables.

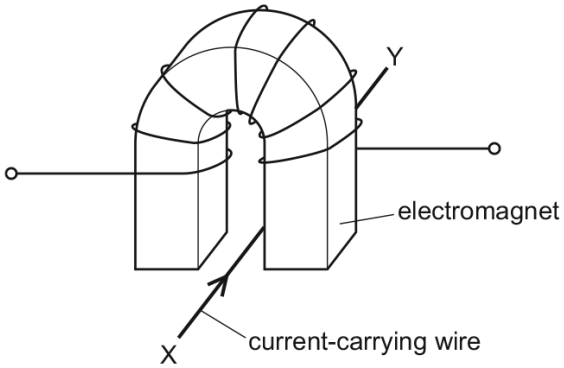
C It increases the voltage to increase the speed at which the electricity travels.

D It increases the voltage to reduce energy loss in the cables.

---

111. 0625_w15_qp_11 Q: 35

A current-carrying wire XY lies in the magnetic field between the two poles of a U-shaped electromagnet. A force acts on the wire XY because of the magnetic field.



Each of the following actions is carried out separately.

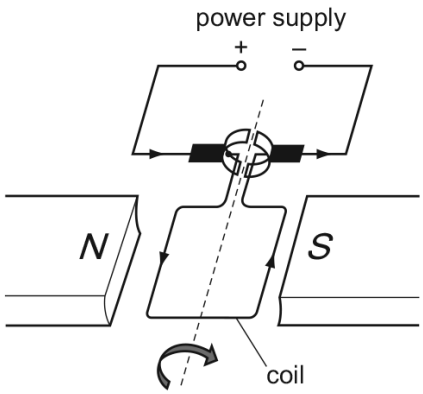
- The current in the wire XY is reversed.
- The magnetic field is reversed.
- Both the current in the wire XY and the magnetic field are reversed at the same time.

How many of these actions cause the direction of the force on the wire XY to be reversed?

A 0 **B** 1 **C** 2 **D** 3

112. 0625_w15_qp_11 Q: 36

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.

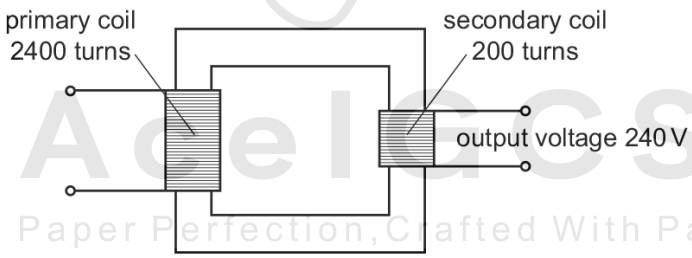
C Reverse the direction of the magnetic field.

D Use thinner wire for the coil.

---

113. 0625_w15_qp_12 Q: 35

A transformer has 2400 turns on its primary coil and 200 turns on its secondary coil.



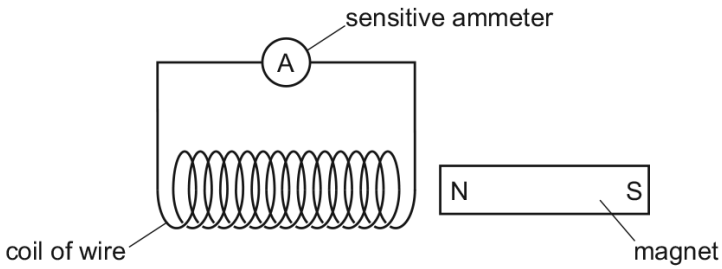
What input voltage is needed to give an output voltage of 240 V?

A 12 V **B** 20 V **C** 240 V **D** 2880 V

---

114. 0625_w15_qp_13 Q: 34

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

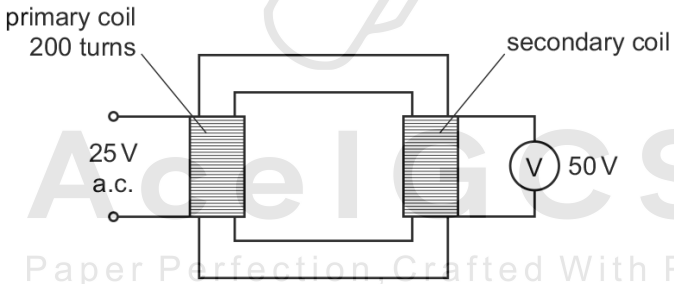
D moving the magnet to the left

---

115. 0625_w15_qp_13 Q: 35

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

A voltmeter connected across the secondary coil reads 50 V.



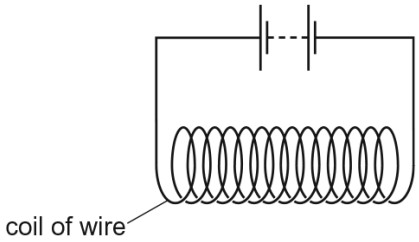
How many turns are on the secondary coil?

A 25 **B** 100 **C** 200 **D** 400

---

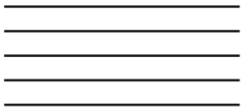
116. 0625_s14_qp_11 Q: 34

An electric current is passed through a coil of wire.

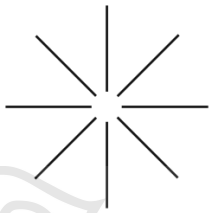


Which diagram shows the shape of the magnetic field produced in the middle of the coil?

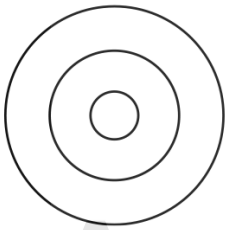
A



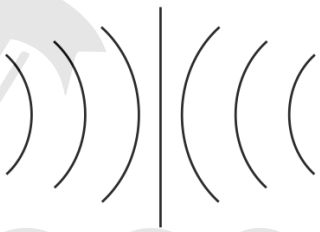
B



C

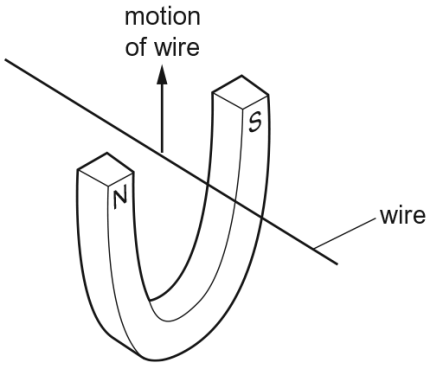


D



117. 0625_s14_qp_11 Q: 35

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

---

118. 0625_s14_qp_11 Q: 36

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

What is the new output voltage across the secondary coil?

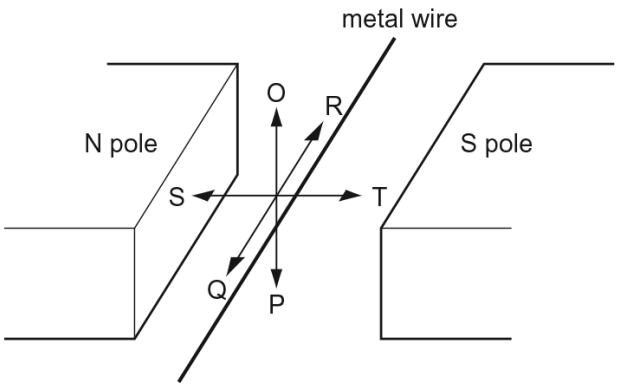
A 10 V **B** 40 V **C** 70 V **D** 160 V

---

119. 0625_s14_qp_12 Q: 35

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.



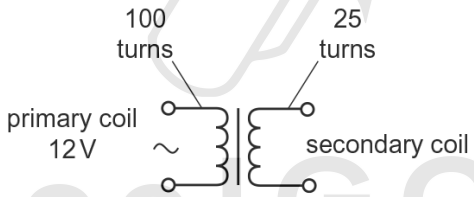
In which direction or directions must the wire be moved to induce an e.m.f. across the ends of the wire?

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

---

120. 0625_s14_qp_12 Q: 36

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.



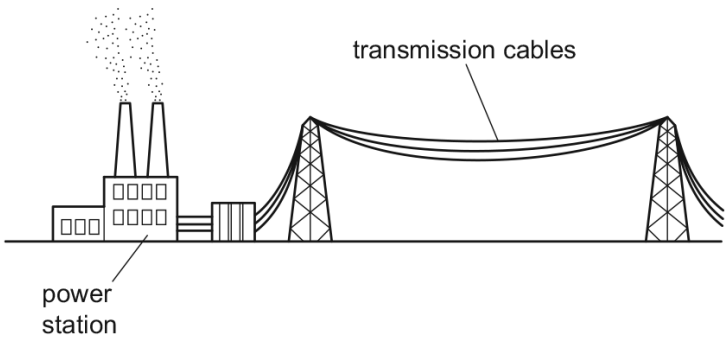
What is the voltage induced across the secondary coil?

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

---

121. 0625_w14_qp_11 Q: 34

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.

---

122. 0625_w14_qp_11 Q: 35

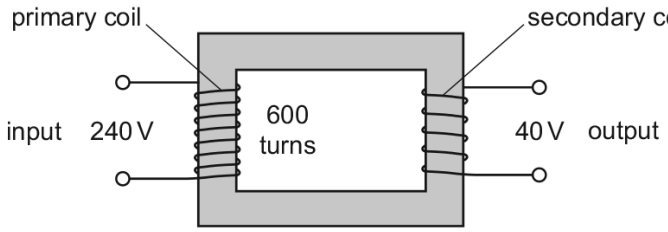
Which diagram shows the magnetic field pattern around a wire that is carrying a current perpendicular to the page?

---

123. 0625_w14_qp_11 Q: 36

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.



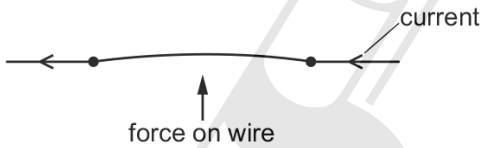
How many turns are there on the secondary coil?

A 100 **B** 320 **C** 400 **D** 3600

---

124. 0625_w14_qp_13 Q: 34

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

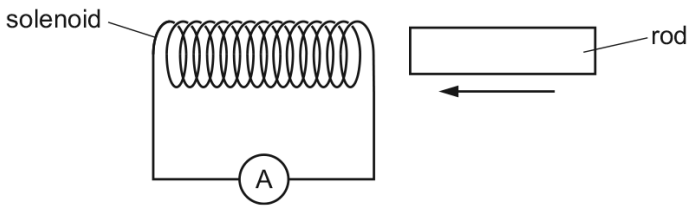
C out of the page

D upwards

---

125. 0625_w14_qp_13 Q: 35

A solenoid is connected to a very sensitive ammeter. A rod is inserted into one end of the solenoid. The ammeter shows that there is a small electric current in the circuit while the rod is moving.



Which rod is being inserted?

A a heated copper rod

B a magnetised steel rod

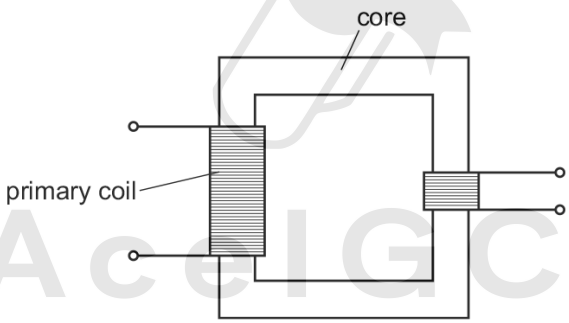
C an uncharged nylon rod

D a radioactive uranium rod

---

126. 0625_w14_qp_13 Q: 36

The diagram shows the structure of a transformer.



Which row shows a suitable material for the primary coil and a suitable material for the core?

	primary coil	core
A	copper	copper
B	copper	iron
C	iron	copper
D	iron	iron

---

127. 0625_s13_qp_11 Q: 35

An electric current can produce a heating effect and a magnetic effect.

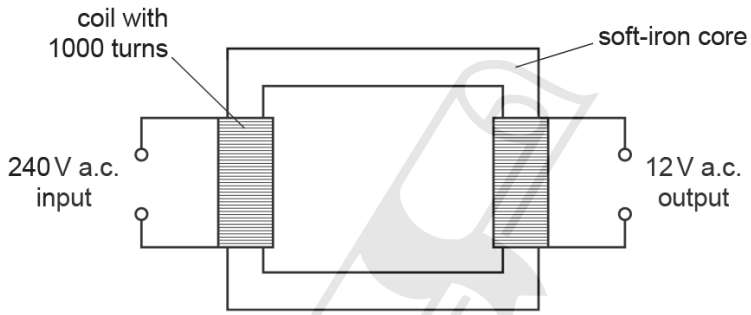
Which row shows the effect that a relay uses, together with one application of a relay?

	effect used by a relay	one application of a relay
A	heating effect	allowing a small current to switch on a large current
B	heating effect	changing the voltage of an alternating current
C	magnetic effect	allowing a small current to switch on a large current
D	magnetic effect	changing the voltage of an alternating current

---

128. 0625_s13_qp_11 Q: 36

The diagram shows a mains transformer that has an output voltage of 12 V.



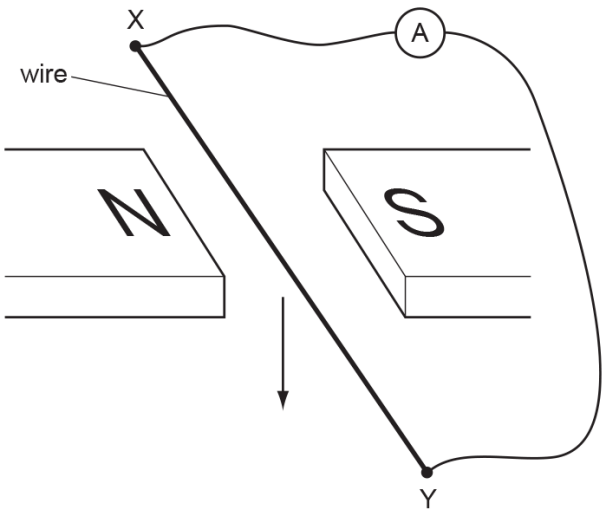
How many turns of wire are in the secondary coil?

A 12 **B** 20 **C** 50 **D** 20 000

---

129. 0625_s13_qp_11 Q: 37

The diagram shows an experiment to demonstrate electromagnetic induction.



X and Y are joined, in turn, by four wires, each made of a different material.

Each wire is then moved quickly downwards between the magnets.

Which material will **not** give rise to an induced current in the wire?

A aluminium

B copper

C iron

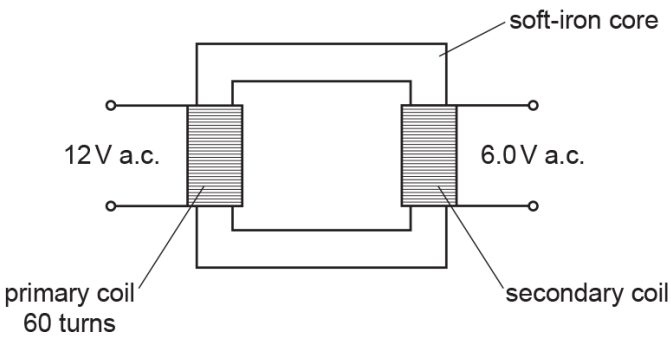
D nylon

---

130. 0625_s13_qp_12 Q: 35

A student wants to make a transformer to step 12 V down to 6.0 V.

She winds 60 turns of wire around an iron core as shown in the diagram.



How many turns of wire should she wind on the secondary coil of her transformer?

A 5 **B** 30 **C** 60 **D** 120

---

131. 0625_s13_qp_12 Q: 36

A toy railway engine is driven around a track by a d.c. electric motor.

How can the speed of the motor be increased?

A Use a motor made with fewer turns of wire.

B Use a smaller d.c. voltage.

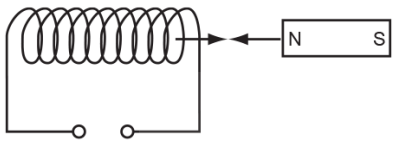
C Use a stronger magnet in the motor.

D Use the supply with its connections reversed.

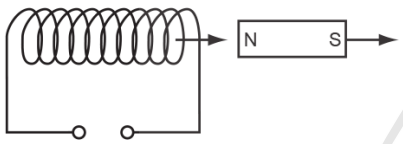
---

132. 0625_w13_qp_11 Q: 35

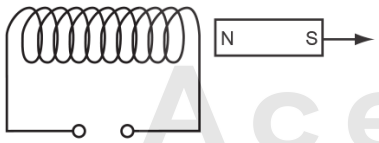
Which diagram shows a movement that will **not** produce the changing magnetic field needed to induce an e.m.f. in the coil?

A 

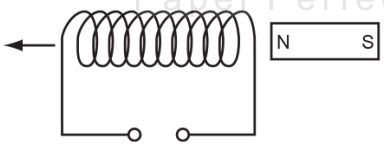
moving a magnet and a coil towards each other at the same speed

B 

moving a magnet and a coil in the same direction at the same speed

C 

moving a magnet away from a fixed coil

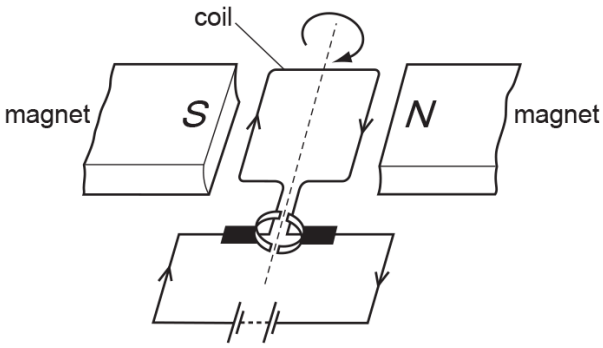
D 

moving a coil away from a fixed magnet

---

133. 0625_w13_qp_11 Q: 36

The diagram shows a simple d.c. electric motor which is rotating.



Which change will make the motor rotate more quickly?

A increasing the number of turns on the coil

B removing the magnets

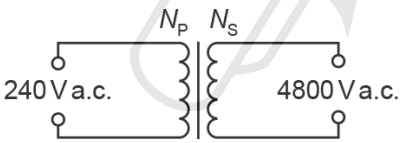
C reversing the battery

D reversing the polarity of the magnets

---

134. 0625_w13_qp_11 Q: 37

A transformer is needed to convert a supply of 240 V a.c. into 4800 V a.c.



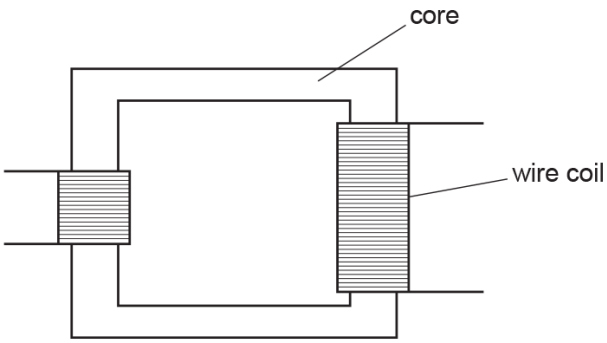
Which pair of coils would be suitable for this transformer?

	number of turns on primary coil N_P	number of turns on secondary coil N_S
A	50	1000
B	240	48000
C	480	24
D	2000	100

---

135. 0625_w13_qp_13 Q: 35

The diagram shows a transformer.



Which materials are suitable to use in its construction?

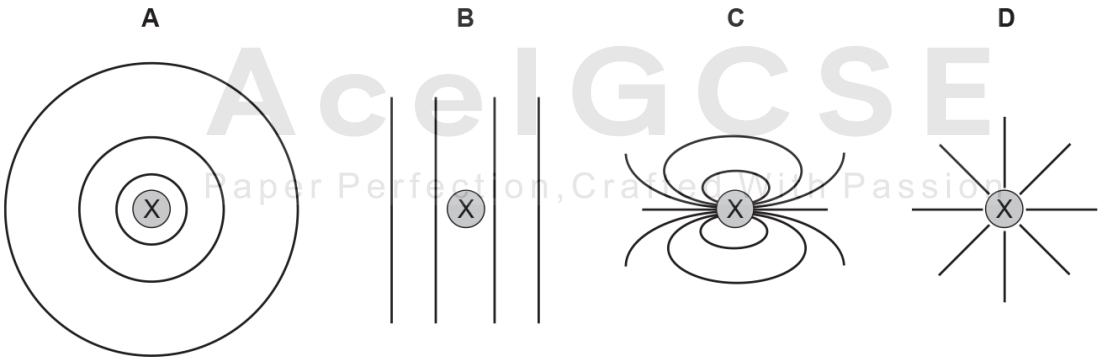
	core	wire coil
A	copper	iron
B	iron	copper
C	steel	copper
D	steel	iron

---

136. 0625_w13_qp_13 Q: 36

The direction of the current flowing in a straight wire X is into the paper.

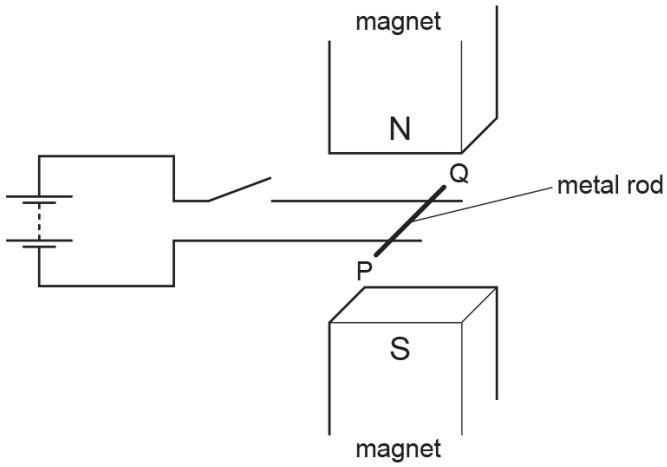
Which diagram shows the shape of the magnetic field pattern around the wire?



---

137. 0625_w13_qp_13 Q: 37

A metal rod PQ rests on two horizontal metal wires that are attached to a battery. The rod lies between the poles of a magnet.



When the switch is closed, the rod moves to the right.

What could be changed so that the rod moves to the left?

A Open the switch.

B Reverse the battery terminals and exchange the poles of the magnet.

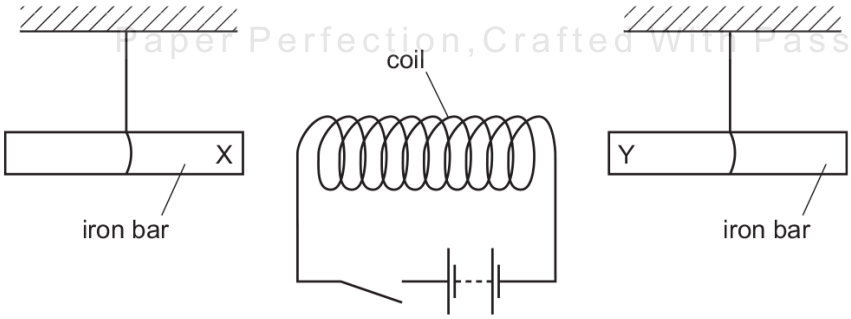
C Reverse the battery terminals but without exchanging the poles of the magnet.

D Turn the metal rod around (P and Q exchanged).

---

138. 0625_s12_qp_11 Q: 35

The diagram shows a coil connected to a battery and a switch. Two unmagnetised iron bars hang freely near opposite ends of the coil.



What happens to the iron bars when the switch is closed?

A Both X and Y move away from the coil.

B Both X and Y move towards the coil.

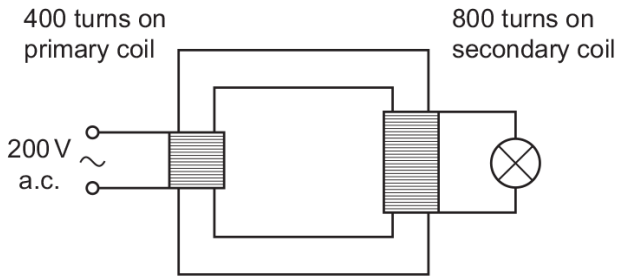
C X moves towards the coil, Y moves away from the coil.

D Y moves towards the coil, X moves away from the coil.

---

139. 0625_s12_qp_12 Q: 35

The diagram shows a transformer. The input voltage and the number of turns on each coil are shown.



What is the output voltage?

A 100 V **B** 200 V **C** 400 V **D** 800 V

---

140. 0625_s12_qp_12 Q: 36

Which device uses slip rings?

A a cathode-ray tube

B a d.c. motor

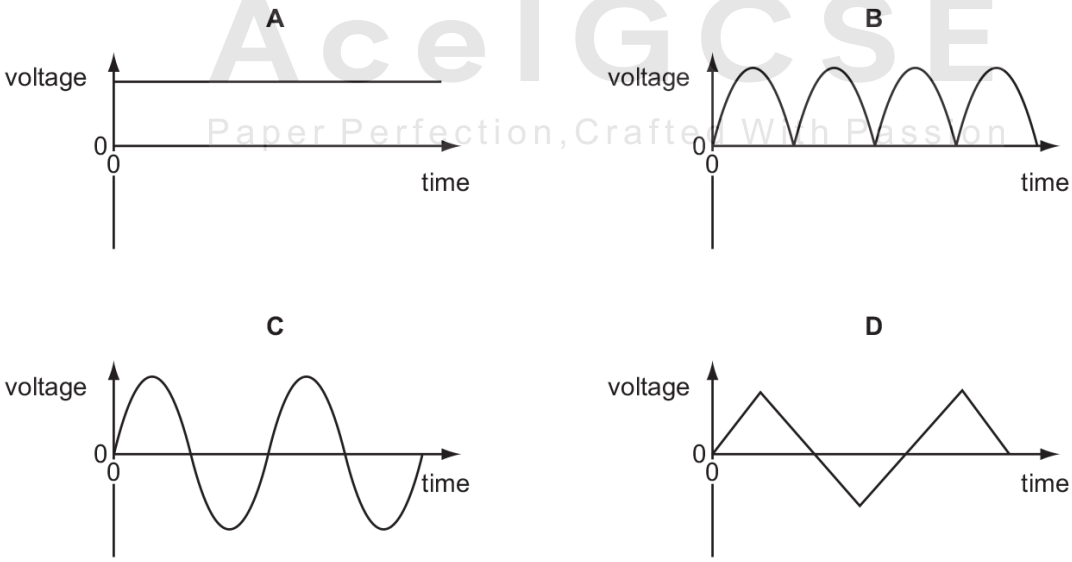
C an a.c. generator

D a solenoid

---

141. 0625_w12_qp_11 Q: 35

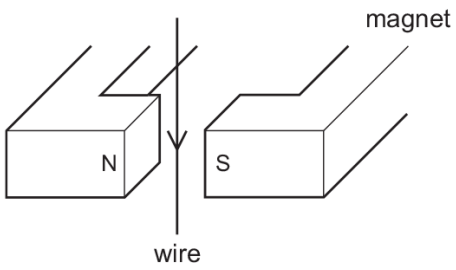
Which graph shows how the voltage of a simple a.c. generator varies with time?



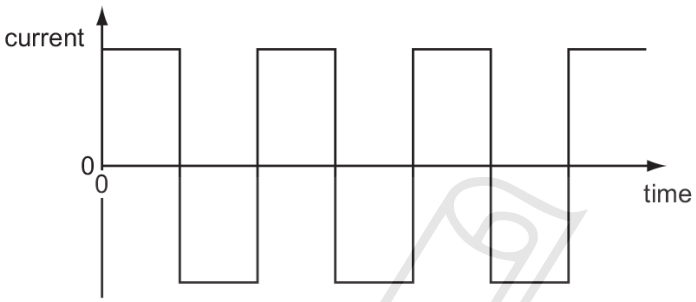
---

142. 0625_w12_qp_11 Q: 36

The diagram shows a wire in the magnetic field between two poles of a magnet.



The current in the wire repeatedly changes between a constant value in one direction and a constant value in the opposite direction. This is shown on the graph.



What is the effect on the wire?

A The force on the wire alternates between one direction and the opposite direction.

B The force on the wire is constant in size and direction.

C There is no force acting on the wire at any time.

D There is only a force on the wire when the current reverses.

---

143. 0625_w12_qp_13 Q: 36

In the construction of a transformer, which items must be included?

A an iron core and a permanent magnet

B an iron core and two coils of wire

C a steel core and a permanent magnet

D a steel core and two coils of wire

SN	Paper	Q. No.	Answer
01	0625_s12_qp_12	34	D
02	0625_m22_qp_22	35	B
03	0625_m22_qp_22	36	C
04	0625_m22_qp_22	37	D
05	0625_m21_qp_22	36	C
06	0625_m21_qp_22	37	D
07	0625_s21_qp_21	34	B
08	0625_s21_qp_21	35	B
09	0625_s21_qp_21	36	B
10	0625_s21_qp_22	36	C
11	0625_s21_qp_23	35	A
12	0625_s21_qp_23	36	C
13	0625_w21_qp_21	34	C
14	0625_w21_qp_21	35	A
15	0625_w21_qp_21	36	D
16	0625_w21_qp_22	33	B
17	0625_w21_qp_22	34	D
18	0625_w21_qp_22	35	B
19	0625_w21_qp_22	36	C
20	0625_w21_qp_23	35	A
21	0625_w21_qp_23	36	A
22	0625_m20_qp_22	36	C
23	0625_m20_qp_22	37	C
24	0625_p20_qp_20	35	B
25	0625_p20_qp_20	36	A
26	0625_p20_qp_20	37	D
27	0625_p20_qp_20	38	A
28	0625_s20_qp_21	34	B
29	0625_s20_qp_21	35	B
30	0625_s20_qp_21	36	C
31	0625_s20_qp_22	35	C
32	0625_s20_qp_22	36	B
33	0625_s20_qp_23	36	A
34	0625_w20_qp_21	35	A
35	0625_w20_qp_21	36	C
36	0625_w20_qp_21	37	C
37	0625_w20_qp_22	29	C
38	0625_w20_qp_22	34	B
39	0625_w20_qp_22	35	A
40	0625_w20_qp_22	36	C
41	0625_w20_qp_23	34	D
42	0625_w20_qp_23	35	A
43	0625_w20_qp_23	36	A
44	0625_m19_qp_22	36	A
45	0625_m19_qp_22	37	D
46	0625_s19_qp_21	36	A
47	0625_s19_qp_21	37	D
48	0625_s19_qp_22	36	A
49	0625_s19_qp_22	37	B
50	0625_s19_qp_23	37	A
51	0625_w19_qp_21	34	C
52	0625_w19_qp_21	35	B
53	0625_w19_qp_21	36	C
54	0625_w19_qp_22	35	B
55	0625_w19_qp_22	36	C
53	0625_w19_qp_23	34	B
57	0625_w19_qp_23	35	A
58	0625_w19_qp_23	36	B
59	0625_m18_qp_22	36	A
60	0625_s18_qp_21	34	C
61	0625_s18_qp_21	35	A
62	0625_s18_qp_21	36	A
63	0625_s18_qp_22	34	A
64	0625_s18_qp_22	35	A
65	0625_s18_qp_22	36	A
66	0625_s18_qp_23	34	C
67	0625_s18_qp_23	35	C
68	0625_s18_qp_23	36	C
69	0625_w18_qp_21	35	C
70	0625_w18_qp_21	36	A
71	0625_w18_qp_22	35	D
72	0625_w18_qp_22	36	A
73	0625_w18_qp_23	35	C
74	0625_w18_qp_23	36	C
75	0625_m17_qp_22	35	A
76	0625_m17_qp_22	36	D
77	0625_s17_qp_21	26	C
78	0625_s17_qp_21	35	C
79	0625_s17_qp_22	36	A
80	0625_s17_qp_23	25	C
81	0625_s17_qp_23	35	C
82	0625_w17_qp_21	36	D
83	0625_w17_qp_21	37	C
84	0625_w17_qp_22	36	A
85	0625_w17_qp_22	37	B
86	0625_w17_qp_23	32	C
87	0625_w17_qp_23	36	D
88	0625_w17_qp_23	37	C
89	0625_m16_qp_22	35	C
90	0625_m16_qp_22	36	B
91	0625_p16_qp_20	35	B
92	0625_p16_qp_20	36	A
93	0625_p16_qp_20	37	D
94	0625_p16_qp_20	38	A
95	0625_s16_qp_21	34	B
96	0625_s16_qp_21	35	B
97	0625_s16_qp_21	36	C
98	0625_w16_qp_21	36	C

SN	Paper	Q. No.	Answer
99	0625_m15_qp_12	34	D
100	0625_m15_qp_12	35	C
101	0625_m15_qp_12	36	C
102	0625_s15_qp_11	34	D
103	0625_s15_qp_11	35	C
104	0625_s15_qp_11	36	C
105	0625_s15_qp_12	34	C
106	0625_s15_qp_12	35	D
107	0625_s15_qp_12	36	D
108	0625_s15_qp_13	34	C
109	0625_s15_qp_13	35	B
110	0625_w15_qp_11	34	D
111	0625_w15_qp_11	35	C
112	0625_w15_qp_11	36	A
113	0625_w15_qp_12	35	D
114	0625_w15_qp_13	34	B
115	0625_w15_qp_13	35	D
116	0625_s14_qp_11	34	A
117	0625_s14_qp_11	35	B
118	0625_s14_qp_11	36	D
119	0625_s14_qp_12	35	A
120	0625_s14_qp_12	36	A
121	0625_w14_qp_11	34	B
122	0625_w14_qp_11	35	B
123	0625_w14_qp_11	36	A
124	0625_w14_qp_13	34	D
125	0625_w14_qp_13	35	B
126	0625_w14_qp_13	36	B
127	0625_s13_qp_11	35	C
128	0625_s13_qp_11	36	C
129	0625_s13_qp_11	37	D
130	0625_s13_qp_12	35	B
131	0625_s13_qp_12	36	C
132	0625_w13_qp_11	35	B
133	0625_w13_qp_11	36	A
134	0625_w13_qp_11	37	A
135	0625_w13_qp_13	35	B
136	0625_w13_qp_13	36	A
137	0625_w13_qp_13	37	C
138	0625_s12_qp_11	35	B
139	0625_s12_qp_12	35	C
140	0625_s12_qp_12	36	C
141	0625_w12_qp_11	35	C
142	0625_w12_qp_11	36	A
143	0625_w12_qp_13	36	B