MEGA LECTURE

www.megalecture.com · www.youtube.com/@megalecture

Online tutoring for Cambridge IGCSE, O Level & A Level Physics

IGCSE PHYSICS 0625 · TOPICAL PAST PAPERS

Electromagnetic Induction

Paper 1 — Multiple-Choice Questions (topical compilation)

Fahad H. Ahmad

Contact: +92 323 509 4443

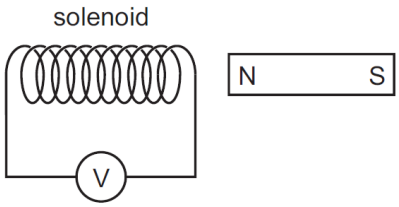
M.Eng NUS Singapore · B.Eng NUST · 15+ years of teaching experience in Singapore, UAE & Pakistan · 60,000+ subscribers and 20 million+ video lecture views.

ELECTROMAGNETIC INDUCTION
PAPER 1 QUESTIONS

Principles of electromagnetic induction

QUESTION # 1

37 The N-pole of a magnet is moved into a solenoid and an e.m.f. is induced.



What causes an increase in the induced e.m.f.?

A moving the magnet more quickly

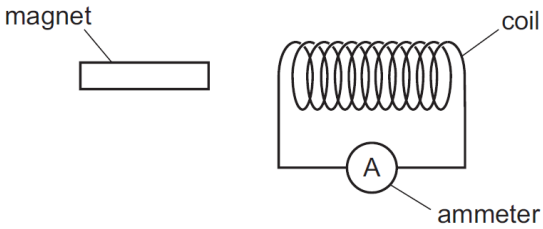
B moving the magnet more slowly

C pulling the magnet out instead of pushing it in

D using the S-pole of the magnet instead of the N-pole

QUESTION # 2

40 The diagram shows a coil connected to a very sensitive ammeter. A magnet is next to the coil.



Which action results in a zero reading on the ammeter?

A moving the coil and the magnet at the same speed in opposite directions

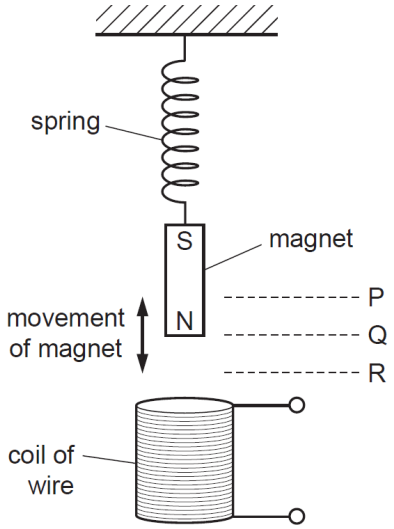
B moving the coil and the magnet at the same speed in the same direction

C moving the coil away from the stationary magnet

D moving the magnet towards the stationary coil

QUESTION # 3

34 A magnet moves up and down above a coil of wire.



The bottom of the magnet moves up and down between P and R.

Where is the bottom of the magnet when there is no induced electromotive force (e.m.f.) in the coil?

A at P and at Q

B at P and at R

C at Q only

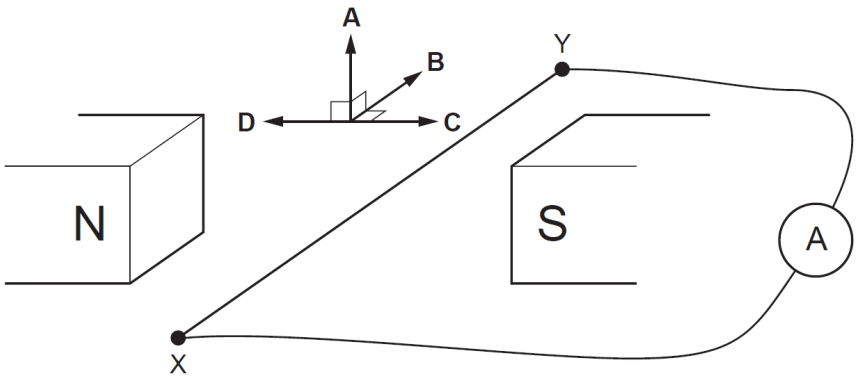
D at R only

QUESTION # 4

34 The diagram shows a wire XY lying between the poles of a magnet.

The ends of the wire are connected to a sensitive ammeter. The wire is moved and a reading is registered.

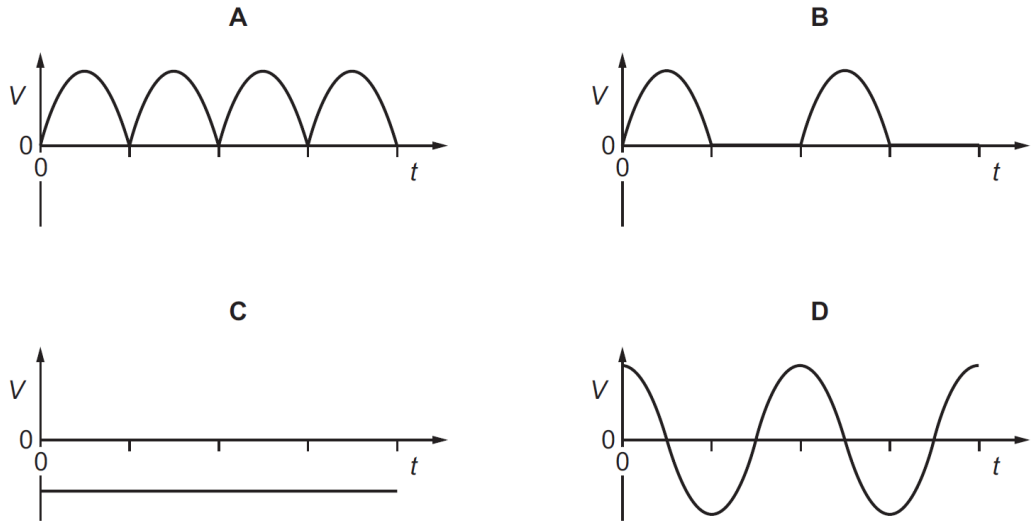
In which direction is the wire moved?



The A.C. generator

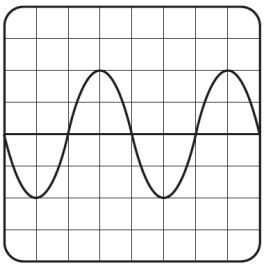
QUESTION # 1

33 Which graph shows the voltage output *V* against time *t* for an a.c. generator?



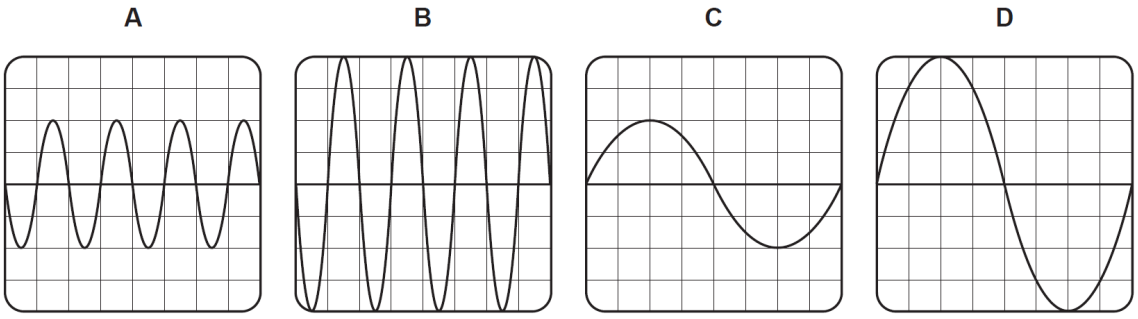
QUESTION # 2

37 A coil is rotating in a magnetic field. The coil is connected to an oscilloscope. The diagram shows the trace on the screen of the oscilloscope.



The coil now speeds up and rotates twice as fast.

Which diagram shows the new trace?



QUESTION # 3

34 What is used with a magnet to create an induced electromotive force (e.m.f.) in a simple a.c. generator?

A a battery

B a coil of wire

C a voltmeter

D a relay

QUESTION # 4

35 What changes kinetic (movement) energy into electrical energy?

A a car battery

B an electric fire

C an electric motor

D a wind turbine

The transformer

QUESTION # 1

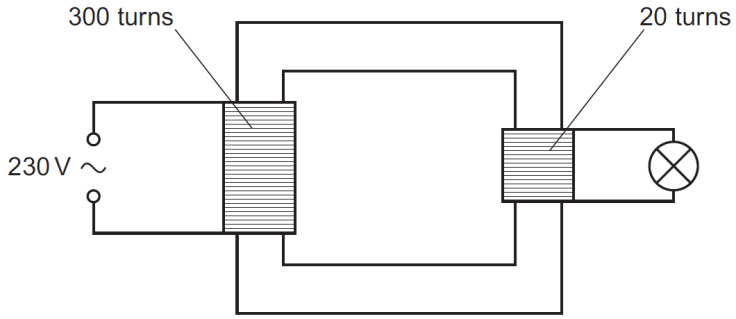
34 Electrical power is transmitted by cables over long distances at very high voltages.

What are the effects of using a high voltage transmission system?

	power loss in the cables	current in the cables
A	high	high
B	high	low
C	low	high
D	low	low

QUESTION # 2

39 A student uses a transformer to light a filament lamp using a 230 V a.c. supply. The lamp has a maximum voltage rating of 6.0 V.



What happens when the circuit is switched on?

A The lamp does not light at all.

B The lamp lights dimly.

C The lamp lights at normal brightness.

D The lamp lights up brightly and then goes out.

QUESTION # 3

38 Which material is used for the core of a transformer?

A copper

B iron

C plastic

D steel

QUESTION # 4

36 A step-down transformer has a primary coil and a secondary coil wound on a soft-iron core.

The primary coil is connected to a 6.0 V direct current (d.c.) supply.

Which statement about the transformer is correct?

A The output voltage is equal to 6.0 V.

B The output voltage is greater than 6.0 V.

C The output voltage is less than 6.0 V but more than zero.

D There is no output voltage.

QUESTION # 5

35 Which material is most suitable for the core of a transformer and which material is most suitable for the coils in the transformer?

	material for core	material for coils
A	iron	copper
B	iron	steel
C	steel	copper
D	steel	iron

QUESTION # 6

34 A 12 V lamp glows at normal brightness when connected to the secondary coil of a mains transformer. The mains voltage is 240 V.

The transformer is 100% efficient and the primary coil has 200 turns.

How many turns are there on the secondary coil?

A 10 **B** 14 **C** 4000 **D** 580 000

QUESTION # 7

35 Which row shows how the electrical energy produced by a power station is transmitted to distant towns?

	current	voltage
A	alternating	low
B	alternating	very high
C	direct	low
D	direct	very high

QUESTION # 8

37 The input voltage to a transformer is 24 V a.c. and the output voltage is 6.0 V.

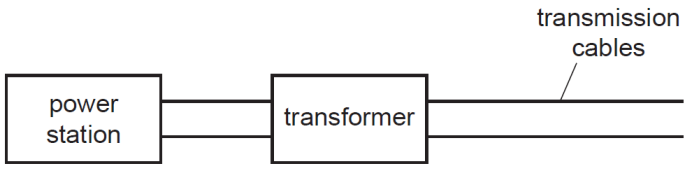
The input coil has 720 turns.

How many turns are on the output coil?

A 5 **B** 180 **C** 2900 **D** 100 000

QUESTION # 9

37 Transformers are used to transmit electrical energy between power stations and transmission cables, as shown.



What is the purpose of the transformer in the diagram?

A to decrease the current and the potential difference from the power station

B to decrease the current and increase the potential difference from the power station

C to increase the current and the potential difference from the power station

D to increase the current and decrease the potential difference from the power station

QUESTION # 10

36 A transformer has 4800 turns on its primary coil and 480 turns on its secondary coil.

The primary coil is connected to a 240 V a.c. supply. The secondary coil is connected to a lamp.

How does the output current in the lamp compare with the input current?

A higher frequency a.c.

B lower frequency a.c.

C current in one direction only

D the same frequency a.c.