

SCIENCE FORM 3

MODULE 8: GENERATION OF ELECTRICITY

Arahan:

1. Modul ini mengandungi **tiga puluh enam** soalan. Semua soalan adalah dalam bahasa Inggeris.
2. Modul merangkumi **enam** konstruk yang diuji
K1-Memahami soalan dalam Bahasa Inggeris
K3-Memahami istilah sains dalam Bahasa Inggeris
K5-Menguasai konstruk pengetahuan
K6-Menguasai konstruk kefahaman
K7-Menguasai konstruk kemahiran
K10-Memahami pengajaran dan pembelajaran dalam Bahasa Inggeris
3. Murid hendaklah menulis maklumat diri dalam kertas jawapan objektif disediakan. Murid juga perlu memastikan maklumat konstruk, nombor soalan dan jumlah soalan seperti yang dibaca oleh guru di dalam ruangan disediakan dalam kertas jawapan objektif sebelum ujian.
4. Bagi **soalan objektif**, anda perlu menandakan jawapan dengan **menghitamkan pilihan jawapan** pada pilihan jawapan **A** , **B** , **C** atau **D** pada kertas jawapan objektif.

Contoh:

Antara berikut, yang manakah haiwan?

A. Pokok B. Kambing C. Kereta D. Pen



5. Untuk **soalan subjektif**, jawapan hendaklah **ditulis pada kertas berasingan** yang disediakan oleh guru.
6. Bagi **soalan 32 hingga 36**, murid hendaklah mendengar arahan daripada guru.
7. Jawab **semua** soalan.

Modul ini mengandungi **14** halaman bercetak

1 The table shows the functions of transformers.

Type of transformer	Function
Step-down transformer	To decrease the voltage
Step-up transformer	To increase the voltage

What is the function of a step - down transformer?

- A To lower the voltage
- B To step-up the voltage
- C To distribute power
- D To generate voltage

2 A 3-pin plug consists of brown, blue and yellow with green stripes wires. How many coloured wires does a 3-pin plug have?

- A One
- B Two
- C Three
- D Four

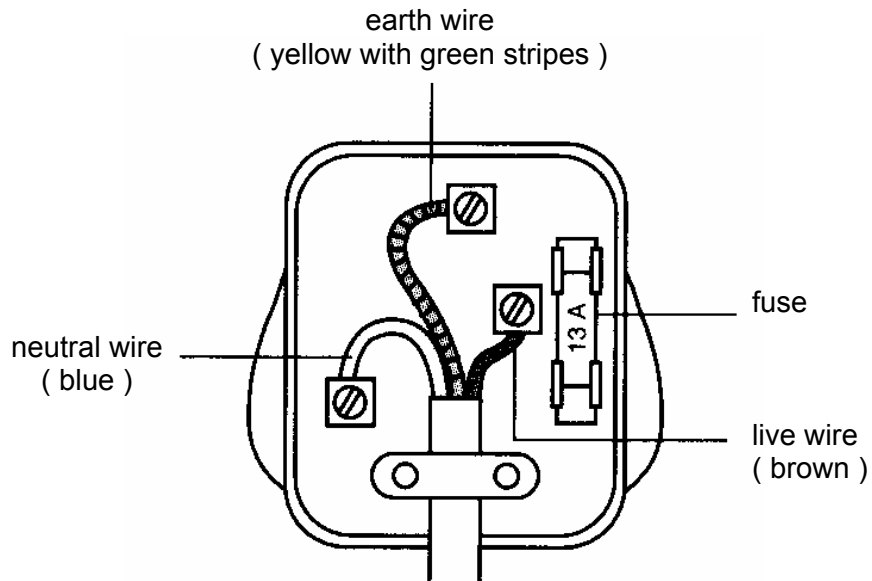
3 The table shows types of generators and their sources.

Type of generator	Source
Hydroelectric generator	Water
Thermal generator	Fossil fuel

Which of the following generator of electrical energy uses water as a source?

- A Thermal generator
- B Gas turbine generator
- C Nuclear generator
- D Hydroelectric generator

4 The figure shows a 3 - pin plug



The colour of a live wire is _____

- A yellow with green stripes
 - B blue
 - C brown
 - D white
- 5 Alternative sources of energy that come from the plant fibre, husks, paddy straws, coconut and oil palm husks are called _____ .
- A solar energy
 - B heat energy
 - C biomass energy
 - D potential energy
- 6 Name the wire that allows excess current to escape directly to the earth to prevent electric shock.
- A Live wire
 - B Earth wire
 - C Neutral wire

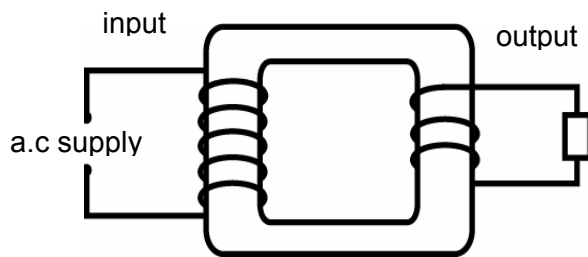
7 A current produced by a battery and flows only in one direction is known as a / an _____ .

- A alternating current
- B direct current
- C excess current

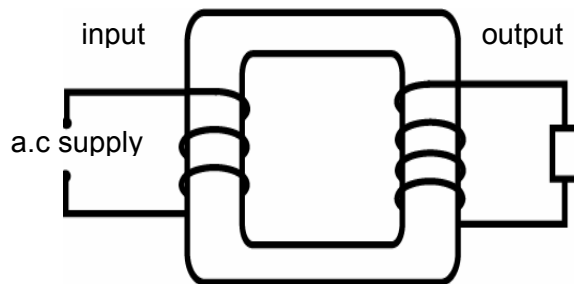
8 The current that flows through a shorter path with a lower resistance is known as a _____

- A complete circuit
- B series circuit
- C short circuit
- D parallel circuit

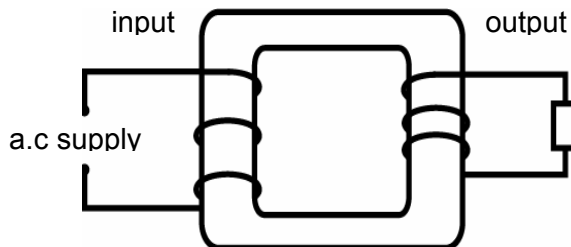
9 Identify a step-down transformer



A

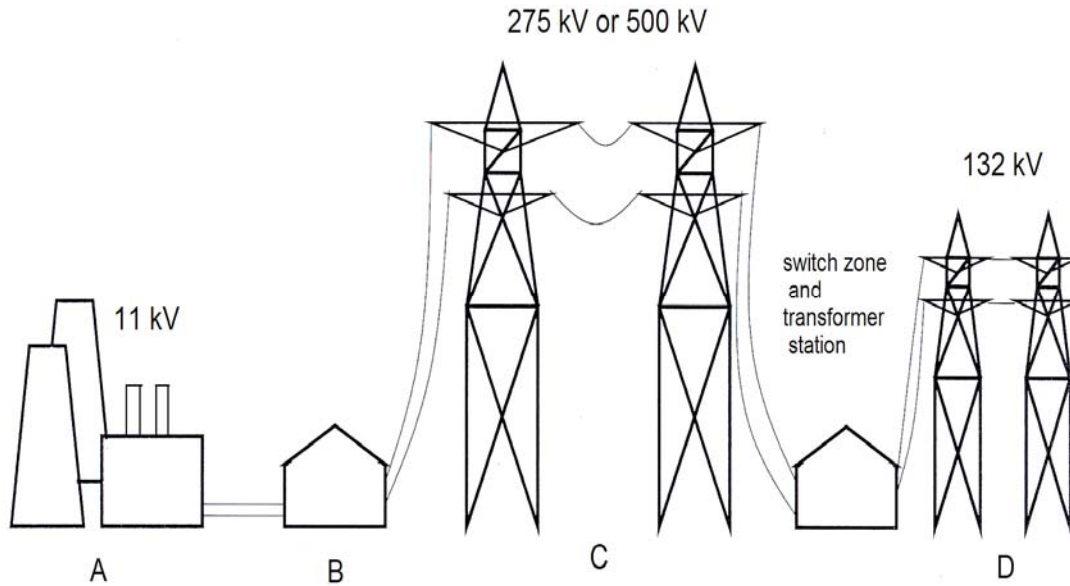


B



C

- 10 The figure shows a transmission system. Which part represents the National Grid Network?



- 11 A fuse is connected to the _____

- A earth wire
- B neutral wire
- C live wire

- 12 At the hydroelectric station, the turbine is rotated by

- A gas
- B water
- C piston
- D steam

- 13 Which wire is **correctly** matched with its colour?

	Wire	Colour
A	Neutral	Blue
B	Earth	Brown
C	Live	Green

- 14 A fuse is made of a material that has a _____
- A low melting point
 - B low freezing point
 - C low boiling point
- 15 Which of the following electrical generators uses a renewable energy source?
- A Thermal generator
 - B Hydroelectric generator
 - C Diesel generator
 - D Gas turbine generator

- 16 Which of the following is **correctly** matched?

	Wire	Function
A	Neutral	Carries electric current back to the earth
B	Earth	Carries the electric current back to its source
C	Live	Carries electric current from substation to the house

- 17 What is the value of voltage supplied to our homes?
- A 240 V
 - B 1100 V
 - C 1500 V
 - D 33000 V
- 18 Which device is used at homes to prevent short circuit?
- A Switch
 - B Plug
 - C Fuse
 - D Transformer
- 19 What happens to the earth wire when a short circuit occurs ?
- A It melts
 - B It breaks the circuit
 - C It blows the fuse in a 3 - pin plug
 - D It directs the leaked current to the ground

20 The amount of electrical energy used at home depends on

- I power
- II resistance
- III time

- A I only
- B I and II
- C I and III
- D II and III

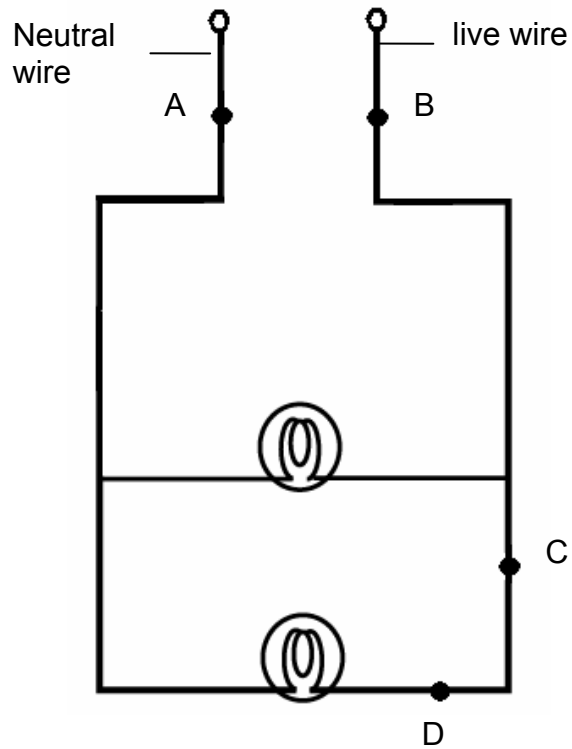
21 The function of a fuse in the fuse box in an electrical wiring system is to

- A measure the amount of electrical energy used.
- B decrease the voltage of the current supplied to homes.
- C increase the voltage of the current supplied to homes.
- D cut off the current supply when the current exceeds a certain value.

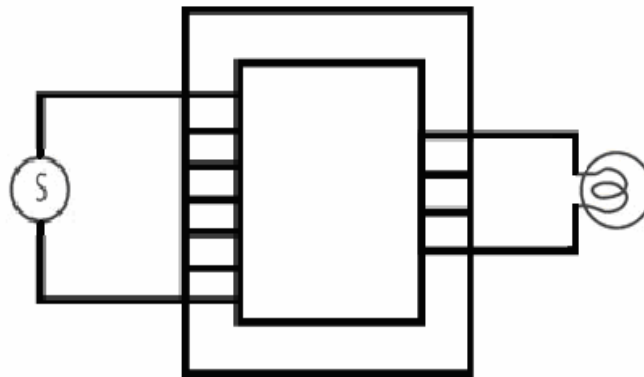
22 Why does the fuse in a 3-pin plug melt when it is connected to an electric iron?

- A The live wire is too thin
- B The fuse is connected to the Earth wire
- C There is excess current flowing in the circuit
- D The neutral wire has a very high melting point

- 23 A circuit is set up as shown. Where should a fuse be placed in order to prevent excess current from flowing through it?



- 24



What is the device shown in the figure?

- A Primary coil
- B Secondary coil
- C Step-up transformer
- D Step-down transformer

25

- Used to increase voltage
- Output voltage is greater
- Secondary coil is more than primary coil.

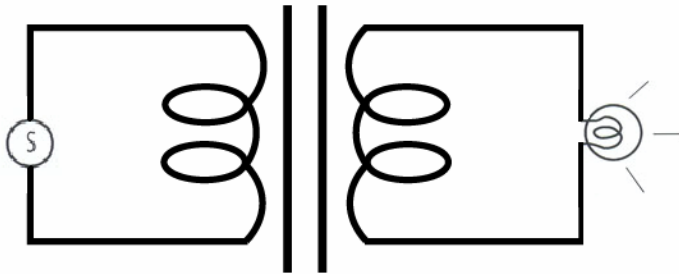
The device that has the above characteristics is a _____

- A transformer
- B power distributor
- C step-up transformer
- D step-down transformer

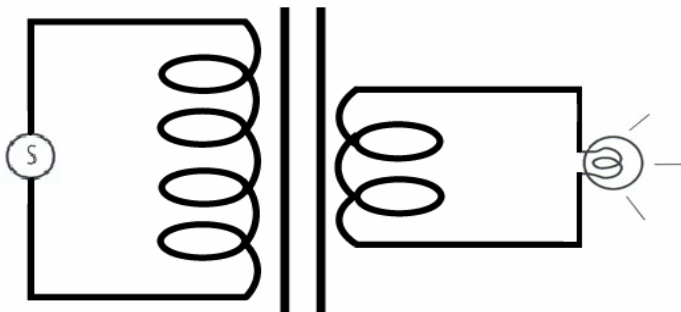
26 Kampung Sentosa is located in a rural area. There is a river flowing through the village.
Which of the following is more economical to generate electricity for the village?

- A Diesel power station
- B Thermal power station
- C Gas turbine power station
- D Hydroelectric power station

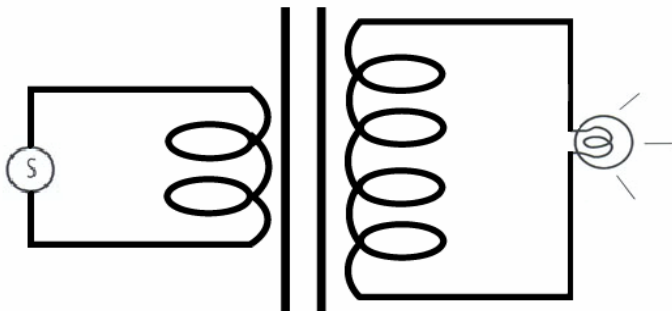
- 27 A transformer has a voltage of 4.0 V in the primary coil and 2.0 V in the secondary coil.
Which diagram represents this transformer?



A



B



C

- 28 An electric light bulb is labelled 120 W, 240 V.
What is the amount of current flowing through the bulb?
- A 240 A
 - B 120 A
 - C 2.0 A
 - D 0.5 A

- 29 An electric appliance labelled 1000 W is supplied with a voltage of 250 V .
What is the rating value of a fuse that is suitable to be used?
[Given that, $P= VI$]

- A 3 A
- B 4 A
- C 5 A

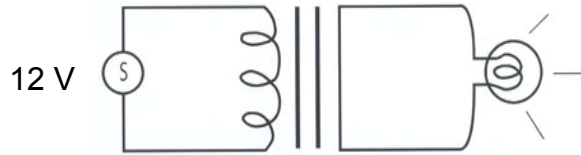
30

Electrical energy (kWh) = power X time
Cost for 1 kWh of electrical energy = 20 sen

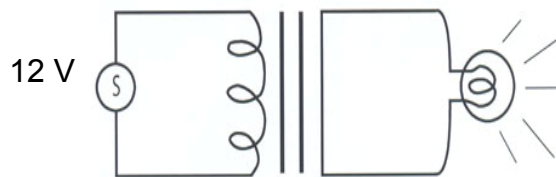
Based on the information above, which of the following consumes the highest cost of electrical energy?

	Electrical appliance	Power (W)	Time used (h)
A	Iron	1000	$\frac{1}{2}$
B	Electric kettle	1500	$\frac{1}{2}$
C	Rice cooker	450	1
D	Table fan	45	5

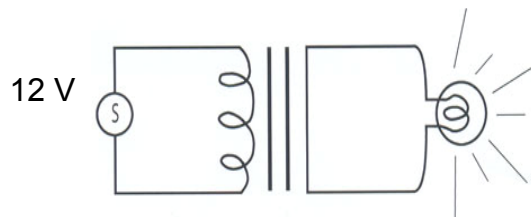
- 31 The diagram shows three similar bulbs connected to transformers A, B and C. The number of turns in the primary coils for each transformer is the same.



A



B



C

Which transformer has the highest number of turns in the secondary coil?

Question 32 to 36.

Listen carefully to the text read by the teacher. Then, answer the questions.

- 32 Which of the following causes turbine to rotate?

- A Coal
- B Oil
- C Steam

- 33 How many coils are there in a simple transformer?
- A One
 - B Two
 - C Three
- 34 What determines the output voltage in a transformer?
- A The number of turns in primary coil only
 - B The number of turns in secondary coil only
 - C The number of turns in primary and secondary coil
- 35 The electrical wiring system at homes includes
- A circuit breaker and electric cable
 - B transformer and electric metre
 - C fuse box and main switch
- 36 What is the colour code for a live wire?
- A Brown
 - B Blue
 - C Yellow with green stripes



KEMENTERIAN PELAJARAN MALAYSIA
KERTAS JAWAPAN OBJEKTIF
Ujian Diagnostik



Nama Pelajar:

Tahun/ Tingkatan : 3 Mata Pelajaran: SAINS

Nama Sekolah: Modul: 8

**GUNAKAN PENSIL 2B ATAU BB SAHAJA.
TENTUKAN TIAP-TIAP TANDA ITU HITAM DAN MEMENUHI KESELURUHAN RUANG.
PADAMKAN HINGGA HABIS MANA-MANA TANDA YANG ANDA UBAH
SILA HITAMKAN JAWAPAN DI BAWAH MENGIKUT HURUF JAWAPAN YANG ANDA PILIH**

- 1 (A) (B) (C) (D) (E)
- 2 (A) (B) (C) (D) (E)
- 3 (A) (B) (C) (D) (E)
- 4 (A) (B) (C) (D) (E)
- 5 (A) (B) (C) (D) (E)

- 31 (A) (B) (C) (D) (E)
- 32 (A) (B) (C) (D) (E)
- 33 (A) (B) (C) (D) (E)
- 34 (A) (B) (C) (D) (E)
- 35 (A) (B) (C) (D) (E)

- 46 (A) (B) (C) (D) (E)
- 47 (A) (B) (C) (D) (E)
- 48 (A) (B) (C) (D) (E)
- 49 (A) (B) (C) (D) (E)
- 50 (A) (B) (C) (D) (E)

- 6 (A) (B) (C) (D) (E)
- 7 (A) (B) (C) (D) (E)
- 8 (A) (B) (C) (D) (E)
- 9 (A) (B) (C) (D) (E)
- 10 (A) (B) (C) (D) (E)

- 36 (A) (B) (C) (D) (E)
- 37 (A) (B) (C) (D) (E)
- 38 (A) (B) (C) (D) (E)
- 39 (A) (B) (C) (D) (E)
- 40 (A) (B) (C) (D) (E)

- 51 (A) (B) (C) (D) (E)
- 52 (A) (B) (C) (D) (E)
- 53 (A) (B) (C) (D) (E)
- 54 (A) (B) (C) (D) (E)
- 55 (A) (B) (C) (D) (E)

- 11 (A) (B) (C) (D) (E)
- 12 (A) (B) (C) (D) (E)
- 13 (A) (B) (C) (D) (E)
- 14 (A) (B) (C) (D) (E)
- 15 (A) (B) (C) (D) (E)

- 41 (A) (B) (C) (D) (E)
- 42 (A) (B) (C) (D) (E)
- 43 (A) (B) (C) (D) (E)
- 44 (A) (B) (C) (D) (E)
- 45 (A) (B) (C) (D) (E)

- 56 (A) (B) (C) (D) (E)
- 57 (A) (B) (C) (D) (E)
- 58 (A) (B) (C) (D) (E)
- 59 (A) (B) (C) (D) (E)
- 60 (A) (B) (C) (D) (E)

- 16 (A) (B) (C) (D) (E)
- 17 (A) (B) (C) (D) (E)
- 18 (A) (B) (C) (D) (E)
- 19 (A) (B) (C) (D) (E)
- 20 (A) (B) (C) (D) (E)
- 21 (A) (B) (C) (D) (E)
- 22 (A) (B) (C) (D) (E)
- 23 (A) (B) (C) (D) (E)
- 24 (A) (B) (C) (D) (E)
- 25 (A) (B) (C) (D) (E)
- 26 (A) (B) (C) (D) (E)
- 27 (A) (B) (C) (D) (E)
- 28 (A) (B) (C) (D) (E)
- 29 (A) (B) (C) (D) (E)
- 30 (A) (B) (C) (D) (E)

	<u>Konstruk</u>	<u>No. Soalan</u>	<u>Jumlah Soalan</u>	<u>Bilangan Soalan Gagal Dijawab</u>	<u>Kegunaan Guru</u>
1	K1	1-4	4	<input type="checkbox"/>	<input type="checkbox"/>
2	K3	5-8	4	<input type="checkbox"/>	<input type="checkbox"/>
3	K5	9-20	12	<input type="checkbox"/>	<input type="checkbox"/>
4	K6	21-25	5	<input type="checkbox"/>	<input type="checkbox"/>
5	K7	26-31	6	<input type="checkbox"/>	<input type="checkbox"/>
6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	K10	32-36	5	<input type="checkbox"/>	<input type="checkbox"/>
8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>