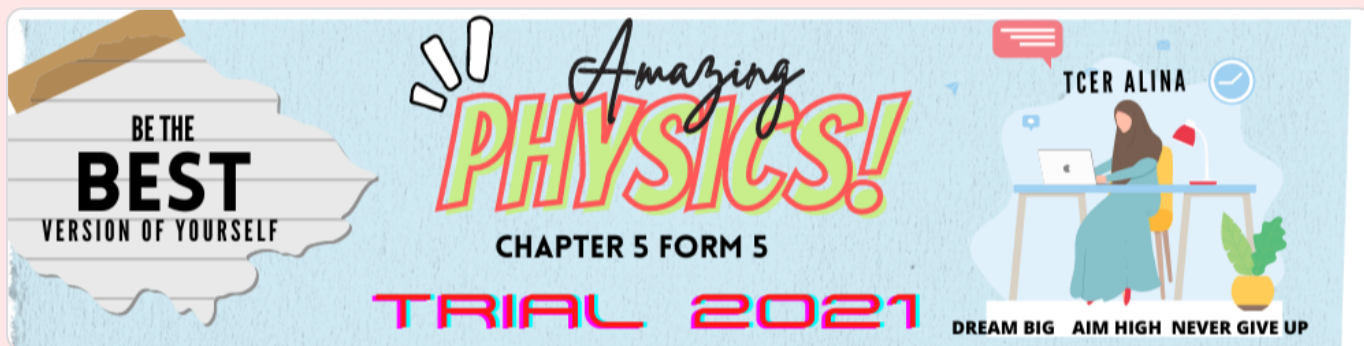




CHAPTER 5 F5: ELECTRONIC

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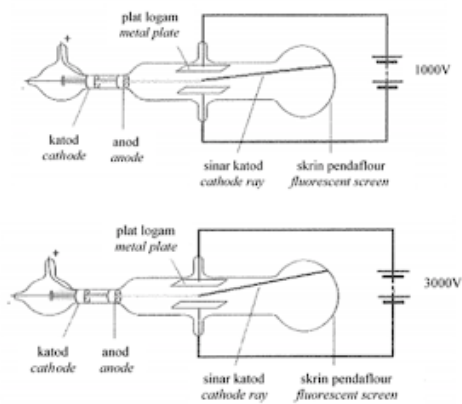
Choose



1.

1 point

Rajah menunjukkan dua tiub sinar katod yang serupa dengan nilai voltan yang dibekalkan berbeza.
The diagram shows two identical cathode ray tube with different values of voltage supplied.



Antara pernyataan berikut, yang manakah benar berdasarkan dua rajah di atas?
Which of the following statements is true based on two diagrams above?

- I Semakin bertambah kekuatan medan elektrik, semakin bertambah pesongan sinar katod.
The higher the strength of electric field, the bigger the deflection of cathode ray.
- II Semakin bertambah nilai voltan yang dibekalkan, semakin berkurang kekuatan medan elektrik.
The higher the value of voltage supply, the lower the strength of electric field.
- III Semakin bertambah kekuatan medan elektrik, semakin berkurang pesongan sinar katod.
The higher the strength of electric field, the smaller the deflection of cathode ray.
- IV Semakin bertambah nilai voltan yang dibekalkan, semakin bertambah kekuatan medan elektrik.
The higher the value of voltage supply, the higher the strength of electric field.

- A I dan II sahaja
I and II only
- B I dan III sahaja
I and III only
- C II dan III sahaja
II and III only
- D I dan IV sahaja
I and IV only

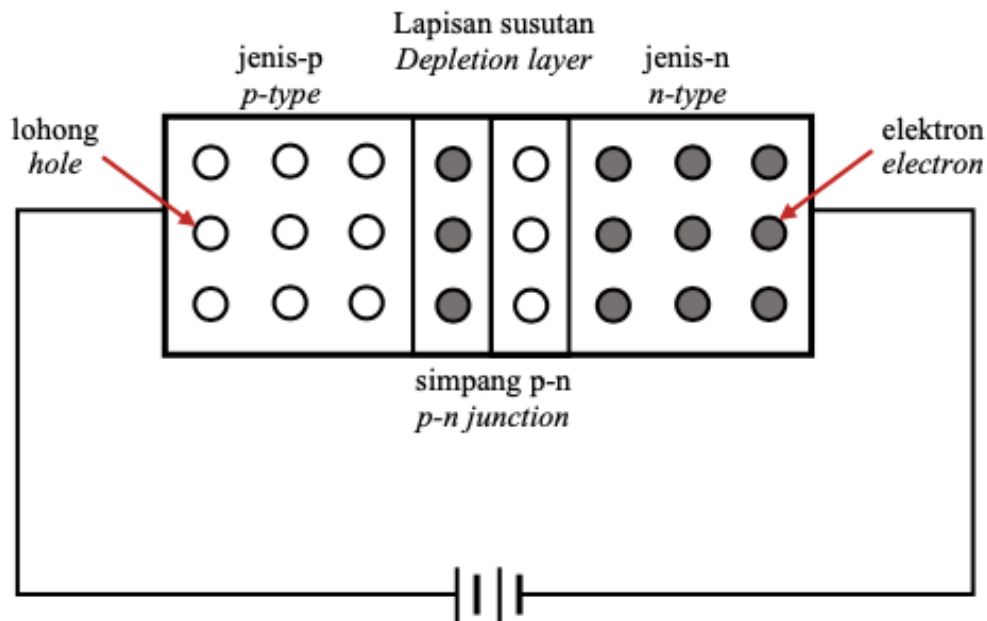
- ☐ A
- ☐ B
- ☐ C
- ☐ D

2.

1 point

Rajah menunjukkan satu simpang p-n diod. Apabila diod dalam sambungan pincang ke depan, lapisan susutan menjadi lebih nipis.

Diagram shows the depletion layer of a diode p-n junction. When the diodes in forward-bias, the depletion layer becomes narrower.



Pernyataan manakah yang menerangkan situasi itu?

Which statement explains the situation?

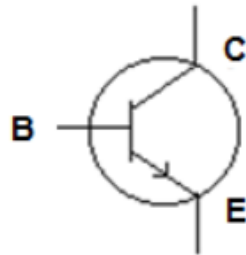
- A** Elektron dan lohong ditarik menjauhi simpang p-n.
Electrons and holes are pulled away from the p-n junction.
- B** Elektron dari jenis-n ditarik merentasi simpang p-n.
Electrons from the n-type are pulled across the p-n junction.
- C** Cas negatif mengalir dari terminal negatif ke semikonduktor jenis-p.
Negative charges flow from the negative terminal to the p-type semiconductor.
- D** Cas positif mengalir dari terminal positif ke semikonduktor jenis-p.
Positive charges flow from positive terminal to the p-type semiconductor.

- ☐ A
- ☐ B
- ☐ C
- ☐ D

3.

1 point

Rajah menunjukkan satu simbol elektronik yang mewakili satu komponen elektronik.
Diagram shows an electronic symbol representing an electronic component.



Manakah antara berikut merupakan komponen elektronik tersebut?
Which of the following is the electronic component?

- A** Diod
Diode
- B** Perintang
Resistor
- C** Transistor npn
nnp transistor
- D** Transistor pnp
pnp transistor

- ☐ A
- ☐ B
- ☐ C
- ☐ D

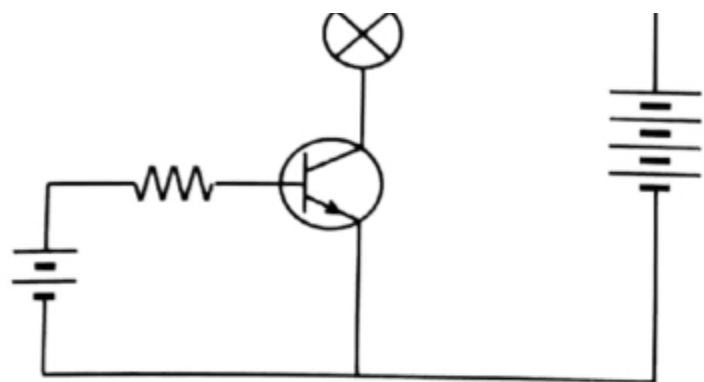
4.

1 point

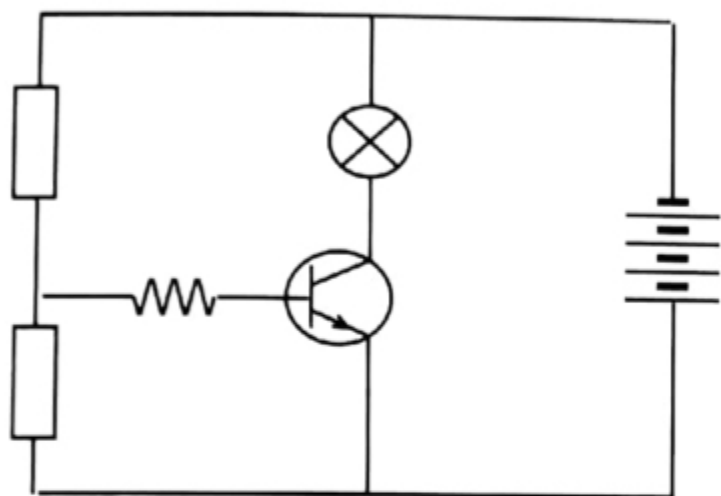
Which circuit will **not** light up the bulb?
*Litar yang manakah **tidak** akan menyalakan mentol?*

A

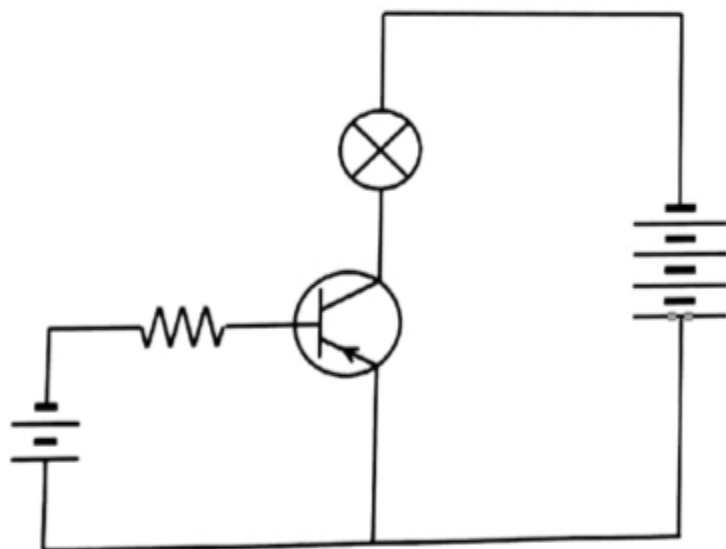




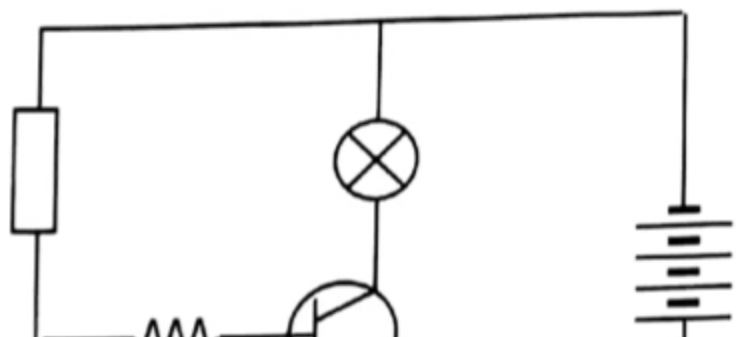
B

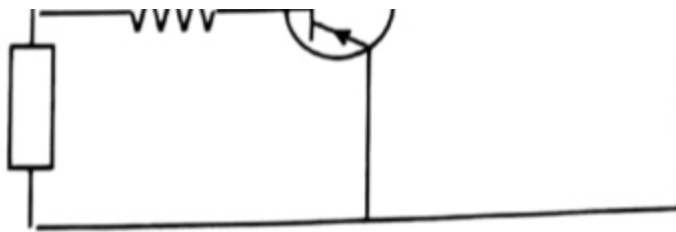


C



D





- ☐ A
- ☐ B
- ☐ C
- ☐ D

5.

1 point

Diagram 22 shows the output waveform on a cathode ray oscilloscope (CRO) screen.
Rajah 22 menunjukkan bentuk gelombang output pada skrin osiloskop sinar katod (OSK).

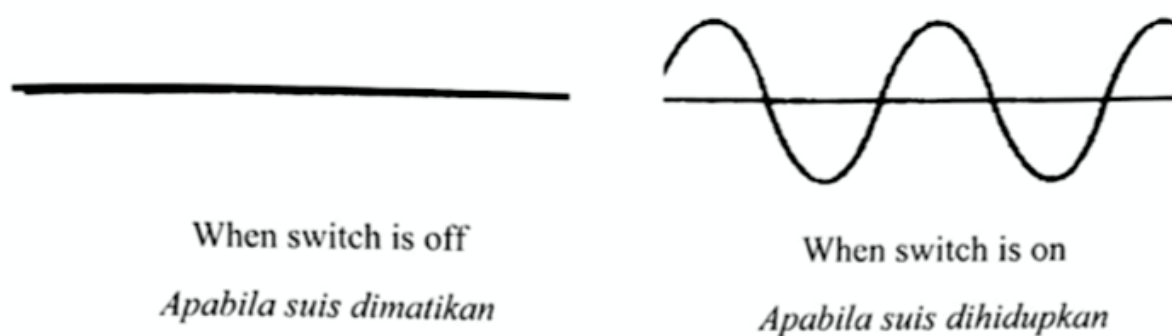
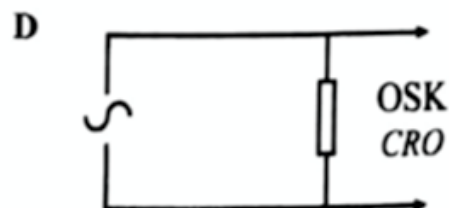
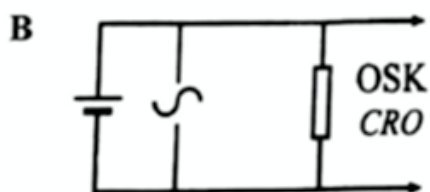
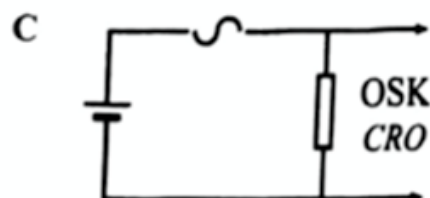
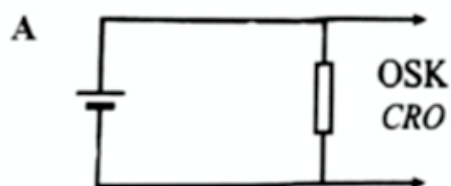


Diagram 22
Rajah 22

Which circuit will display the output waveform shown in Diagram 22

Litar yang manakah akan memaparkan bentuk gelombang output dalam Rajah 22?



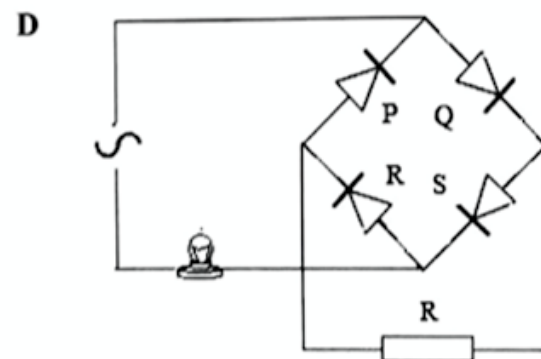
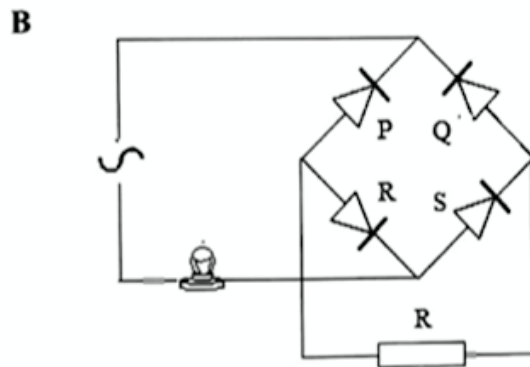
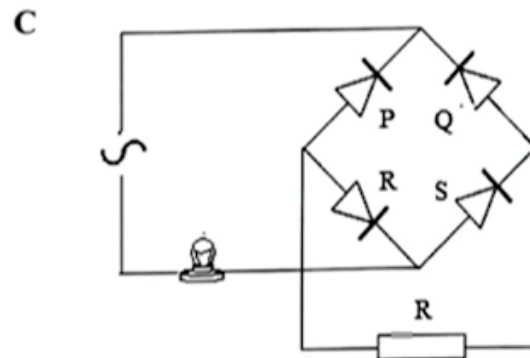
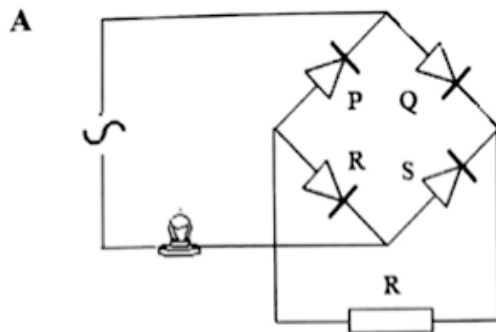
- ☐ A
- ☐ B
- ☐ C
- ☐ D

6.

1 point

The following circuit diagrams show four diodes connected to an a.c power supply. Which circuit will make the bulb lights up the brightest?

Rajah litar berikut menunjukkan empat diod yang disambung kepada bekalan kuasa a.u. Litar manakah akan menyebabkan mentol menyala paling cerah?


☐ A

☐ B

☐ C

☐ D

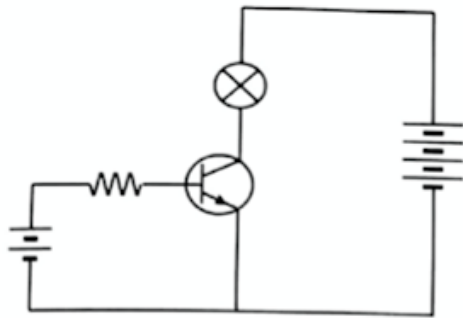
7.

1 point

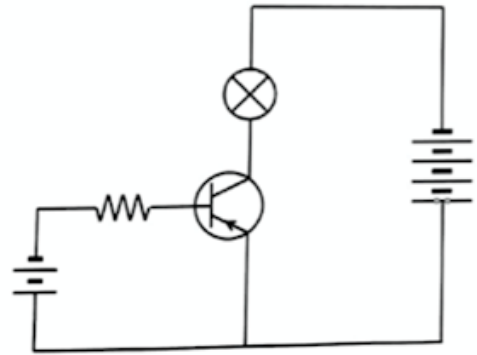
Which circuit will **not** light up the bulb?

*Litar yang manakah **tidak** akan menyalakan mentol?*

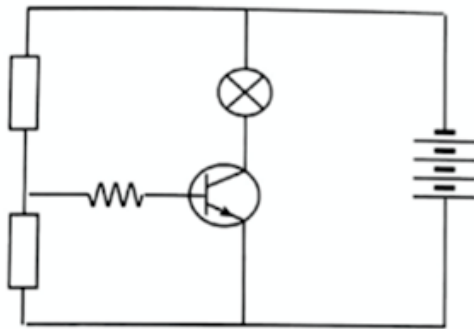
A



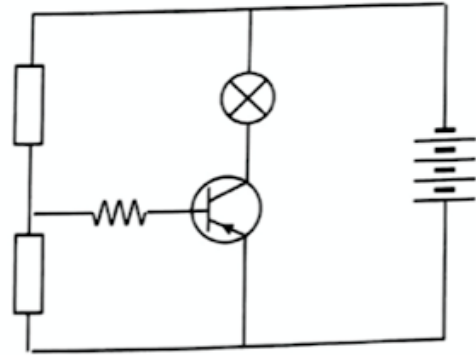
C



B



D

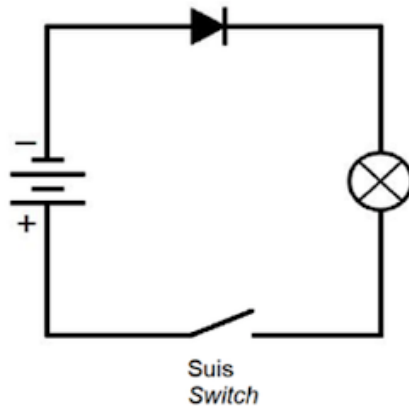
☐ A☐ B☐ C☐ D

8.

1 point

Rajah 19 menunjukkan suatu litar yang mengandungi diod dan mentol yang disambungkan ke sel kering.

Diagram 19 shows a circuit consist of a diode and a bulb connected to dry cells.



Rajah 19
Diagram 19

Apabila suis dihidupkan, mentol tidak menyala. Apakah yang perlu dilakukan untuk menyalakan mentol itu?

When the switch is on, the bulb does not light up. What needs to be done to light up the bulb?

- A** Mengurangkan kuasa mentol
Decrease the power of bulb
- B** Menambah bilangan sel kering
Increase the number of dry cell
- C** Menyongsangkan sambungan diod
Reverse the connection of diode
- D** Menghubungkan kapasitor secara selari dengan mentol
Connect a capasitor parallel to the bulb

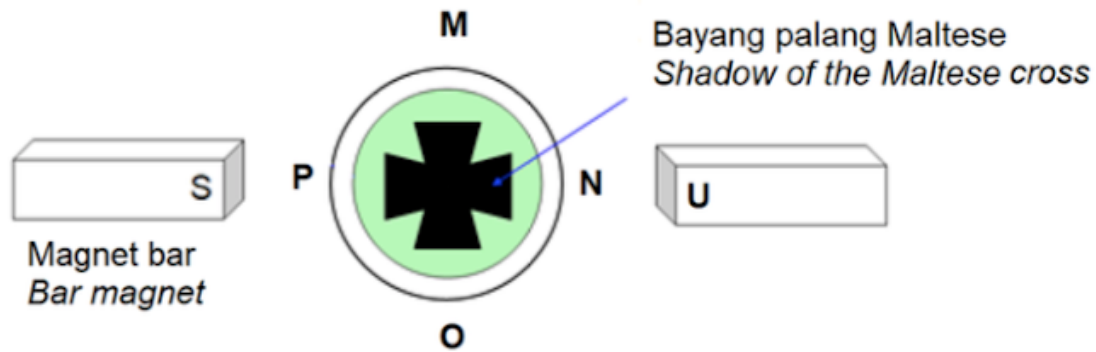
- ☐ A
- ☐ B
- ☐ C
- ☐ D

9.

1 point

Rajah 20 menunjukkan dua magnet bar telah dibawa mendekati sebuah tiub palang Maltese yang telah dihidupkan.

Diagram 20 shows two bar magnets have been brought closer to the Maltese cross tube that has been turned on.



Rajah 20
Diagram 20

Pada kedudukan manakah bayang palang Maltese itu akan dipesongkan?

At which position the shadow of Maltese cross will be deflected?

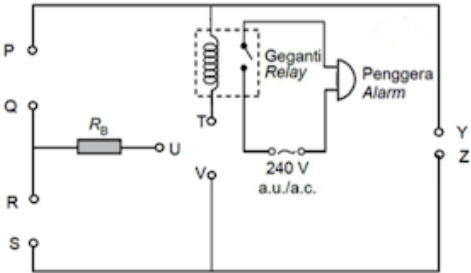
- | | |
|----------|----------|
| A | M |
| B | N |
| C | O |
| D | P |

- ☐ A
- ☐ B
- ☐ C
- ☐ D

10.

1 point

Rajah 21 menunjukkan sebuah litar sistem penggera kebakaran yang tidak lengkap.
Diagram 21 shows an incomplete circuit of a fire alarm system.



Rajah 21
Diagram 21

	Terminal Terminal			
	PQ	RS	TUV	YZ
I				
II				
III				

Jadual 1
Table 1

Jadual 1 menunjukkan beberapa cadangan sambungan komponen elektronik bagi membolehkan sistem penggera kebakaran itu berfungsi.
Table 1 shows some suggested electronic component connections to enable the fire alarm system to function.

Pilihan jawapan manakah benar?
Which of the following answer is true?

- A I dan II sahaja
I and II only
- B I dan III sahaja
I and III only
- C II dan III sahaja
II and III only
- D I, II dan III sahaja
I, II and III only

- ☐ A
- ☐ B
- ☐ C
- ☐ D

11.

1 point

Diagram 27 shows an electron beam produced from the surface of cathode.

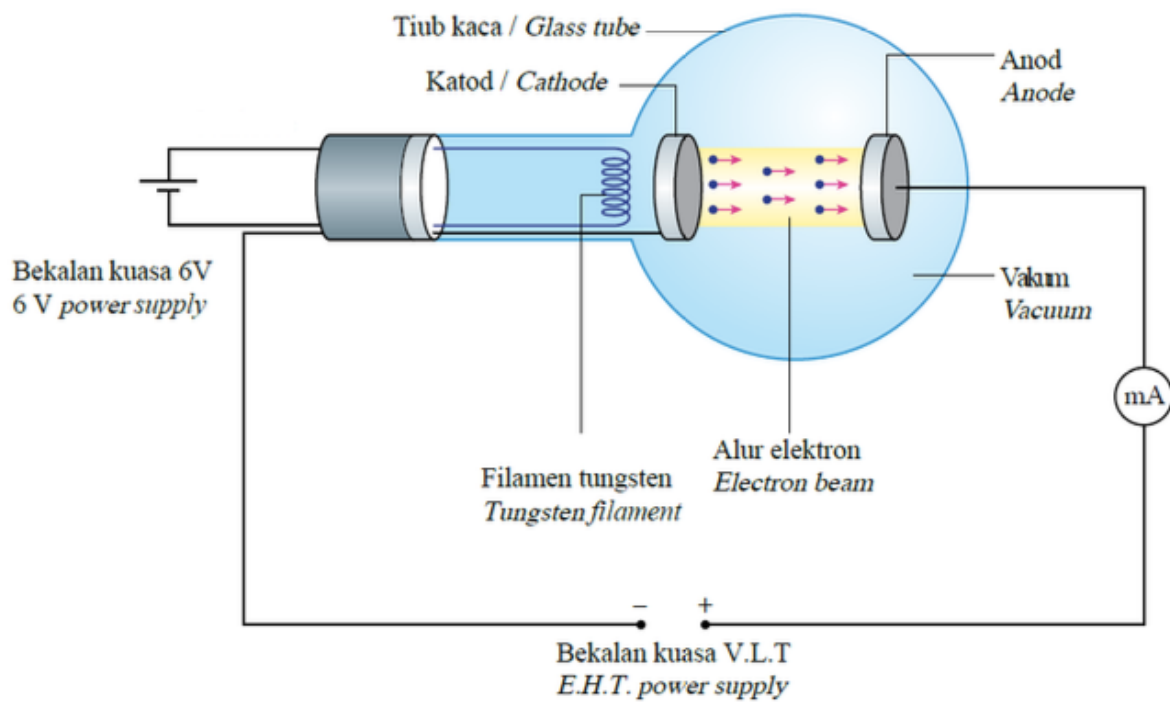


Diagram 27

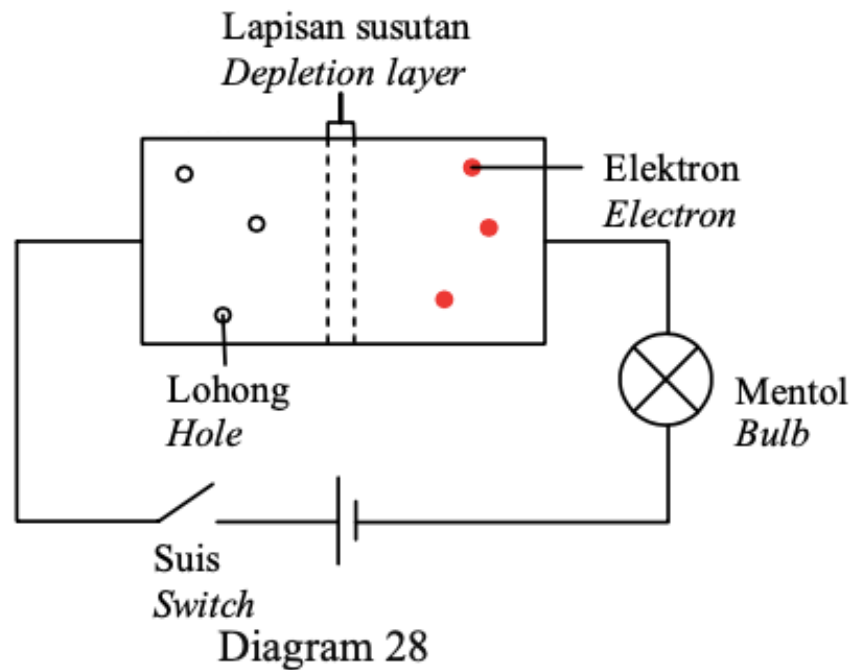
Name the process involved.

- A** Electron evaporation
- B** Doping

- C** Photoelectric effect
- D** Thermionic emission

- ☐ A
- ☐ B
- ☐ C
- ☐ D

Diagram 28 shows connection of a diode in a simple circuit.



Which of the following statement is correct when the switch is on?

- A** The bulb is not light up
- B** Connection of diode is reverse biased
- C** Depletion region will getting larger
- D** Current flow in the circuit

- ☐ A
- ☐ B
- ☐ C
- ☐ D

13.

1 point

Diagram 29 shows a temperature-controlled alarm circuit. The potential difference across XY must be at least 4.5 V to turn on the 6 V bulb.

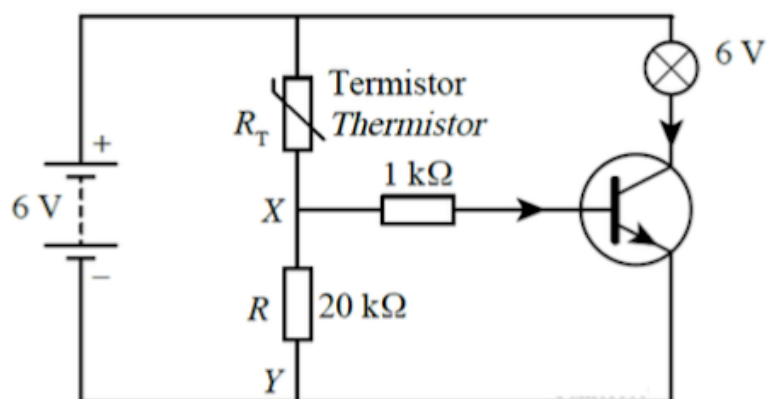


Diagram 29

What is the resistance of thermistor, R_T when the bulb is light up?

A 5.0 k Ω

C 7.4 k Ω

B 6.7 k Ω

D 8.1 k Ω

☐ A

☐ B

☐ C

☐ D

14.

1 point

Pancaran termionik ialah

Thermionic emission is

- A** pembebasan elektron daripada permukaan logam apabila berada di dalam medan magnet
the release of electrons from the surface of a metal when it is in a magnetic field
- B** pembebasan elektron daripada permukaan logam yang dipanaskan
the release of electrons from a surface of a metal when it is heated
- C** pecutan elektron daripada permukaan logam yang dipanaskan oleh bekalan kuasa voltan tinggi
the accelerating of electrons from a heated metal surface by a high voltage power supply
- D** pertukaran tenaga kinetik elektron berhalaju tinggi kepada tenaga cahaya di atas skrin berpendaflor
the conversion of kinetic energy of high speed electrons into light energy on a fluorescent screen

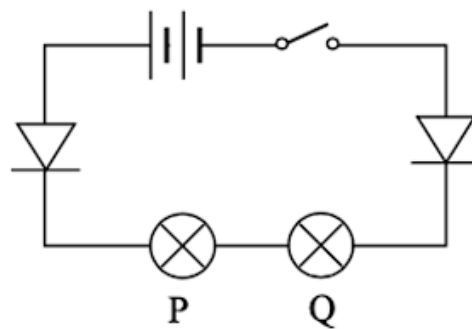
☐ A

☐ B

☐ C

☐ D

Rajah 23 menunjukkan litar yang mengandungi dua mentol yang serupa P dan Q yang disambungkan secara bersiri kepada sel kering dan dua diod
Diagram 23 shows a circuit containing two identical bulbs P and Q that are connected in series to a battery and two diodes.



Rajah 23
 Diagram 23

Apakah yang terjadi kepada mentol-mentol tersebut apabila suis dihidupkan?
What happens to the bulbs when the switch is on?

	Mentol P <i>Bulb P</i>	Mentol Q <i>Bulb Q</i>
A	Padam Light off	Padam Light off
B	Padam Light off	Menyala Light up
C	Menyala Light up	Padam Light off
D	Menyala Light up	Menyala Light up

☐ A

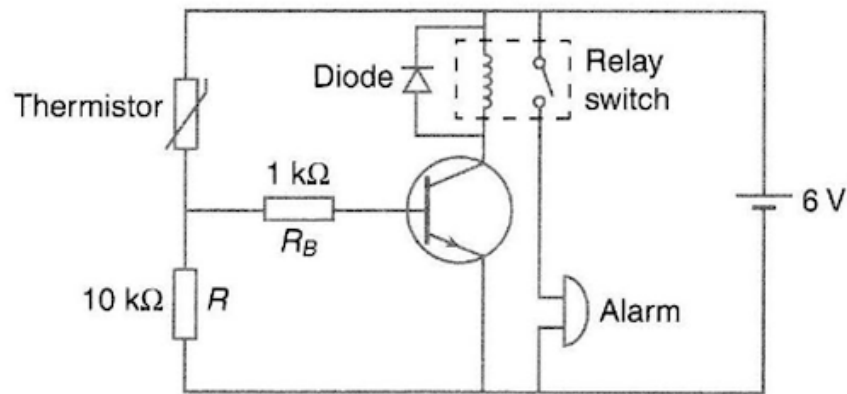
☐ B

☐ C

☐ D

Rajah 24 menunjukkan suis kawalan haba yang digunakan dalam litar bertransistor.

Diagram 24 shows a heat-controlled switch in a transistor circuit.



Rajah 24
Diagram 24

Pernyataan manakah yang benar?

Which of the following statements is true?

- A** Transistor adalah jenis pnp
The transistor is pnp .
- B** Penggera akan dihidupkan dalam keadaan sejuk.
The alarm will be turned on in cold conditions.
- C** Rintangan termistor bertambah secara linear dengan suhu
The resistance of the thermistor increases linearly to the temperature
- D** Voltan yang merentas perintang $10\text{ k}\Omega$ bertambah dalam keadaan panas
The voltage across the $10\text{ k}\Omega$ resistor increases in hot conditions

☐ A

☐ B

☐ C

☐ D

17.

1 point

Pembebasan elektron daripada permukaan logam yang dipanaskan dipanggil

The release of electrons from a surface of a metal when it is heated is known as

A foton

photon

B sinar X

X-ray

C photoelektrik

photoelectric

D pancaran termion

thermionic emmision

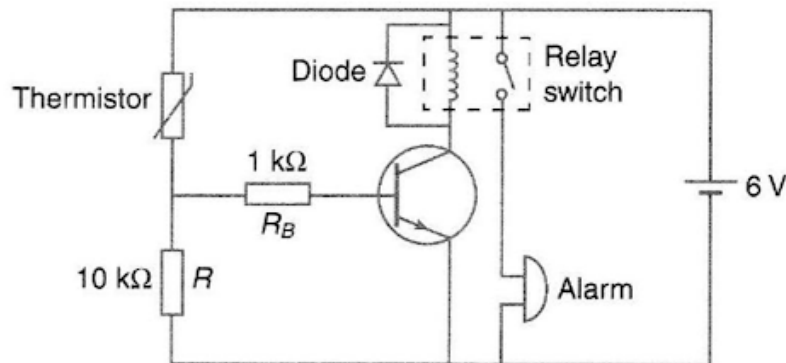
☐ A

☐ B

☐ C

☐ D

Rajah 24 menunjukkan suis kawalan haba yang digunakan dalam litar bertransistor.
Diagram 24 shows a heat-controlled switch in a transistor circuit.



Rajah 24
 Diagram 24

Pernyataan manakah yang benar?

Which of the following statements is true?

- I Transistor adalah jenis npn
The transistor is npn .
- II Penggera akan dihidupkan dalam keadaan sejuk.
The alarm will be turned on in cold conditions.
- III Voltan yang merentas perintang $10\text{ k}\Omega$ bertambah dalam keadaan panas
The voltage across the $10\text{ k}\Omega$ resistor increases in hot conditions
- IV Rintangan termistor bertambah secara linear dengan suhu
The resistance of the thermistor increases linearly to the temperature

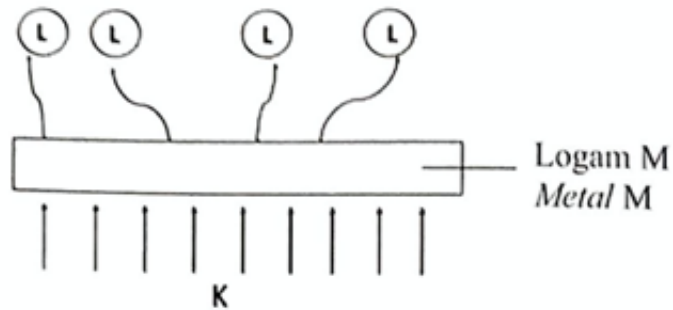
- A I dan III
- B II dan IV
- C I, II dan III
- D II, III dan IV

- ☐ A
- ☐ B
- ☐ C
- ☐ D

19.

1 point

Rajah 24 menunjukkan proses pancaran termion.
 Diagram 24 shows the process of thermionic emission.



Rajah 24
 Diagram 24

Antara berikut, yang manakah betul tentang K dan L?
 Which of the following is correct about K and L?

	K	L
A	Cahaya dikenakan <i>Light is applied</i>	Ion positif <i>Positive ion</i>
B	Cahaya dikenakan <i>Light is applied</i>	Elektron <i>Electron</i>
C	Haba dikenakan <i>Heat is applied</i>	Ion positif <i>Positive ion</i>
D	Haba dikenakan <i>Heat is applied</i>	Elektron <i>Electron</i>

☐ A

☐ B

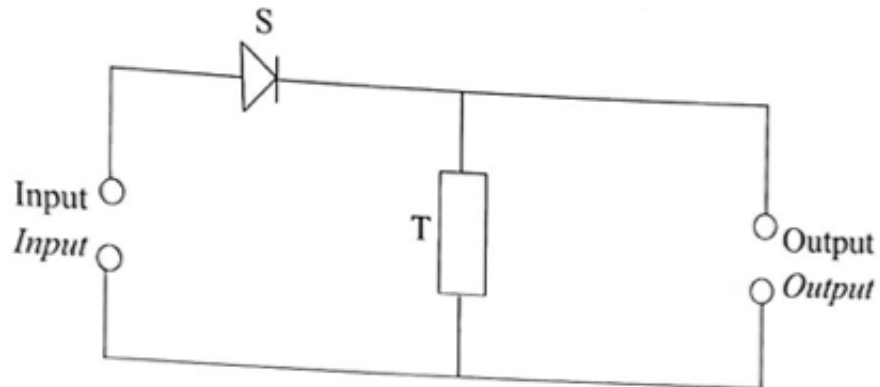
☐ C

☐ D

20.

1 point

Rajah 25 menunjukkan litar rectifier.
Diagram 25 shows a rectifier circuit.



Rajah 25
Diagram 25

Manakah pernyataan yang benar?
Which statement is true?

- A Rektifier menukarkan arus terus kepada arus ulang alik
A rectifier changes direct current to alternating current
- B Peranti S membenarkan arus mengalir kedua-dua arah
Device S allows current to flow in both direction
- C Peranti T bertindak sebagai satu rektifier
Device T acts as a rectifier
- D Litar rektifier masih akan berfungsi sekiranya peranti S disongsangkan
The rectifier circuit will still work if device S is reversed

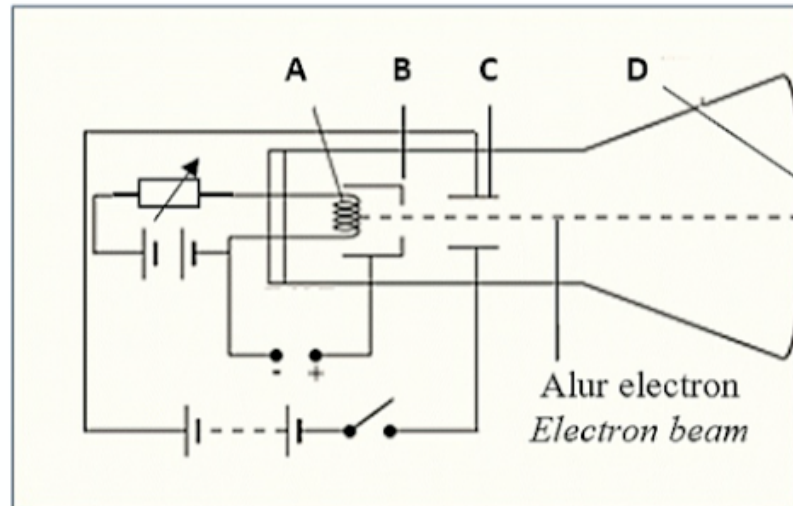
- ☐ A
- ☐ B
- ☐ C
- ☐ D

21.

1 point

Rajah 23 menunjukkan struktur sebuah osiloskop sinar katod.

Diagram 23 shows the structure of a cathode ray oscilloscope.



Rajah 23

Diagram 23

Antara bahagian **A**, **B**, **C** dan **D**, yang manakah menukarkan tenaga kinetik alur elektron kepada tenaga cahaya?

*Which of the part **A**, **B**, **C** or **D** changes the kinetic energy of electron beam into light energy?*

- ☐ A
- ☐ B
- ☐ C
- ☐ D

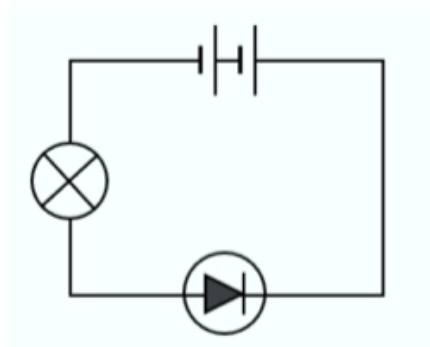
22.

1 point

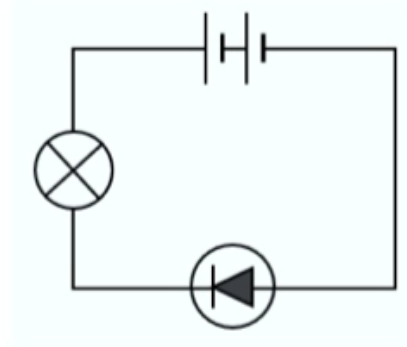
Antara litar yang berikut, yang manakah menunjukkan susunan diod pincang ke depan?

Which of the following circuits shows the forward-biased arrangement of a diode?

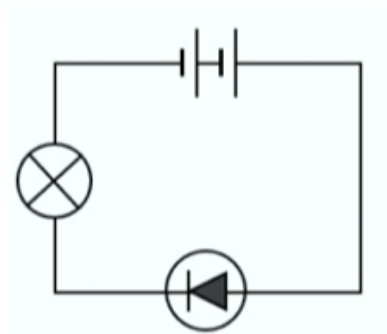
A



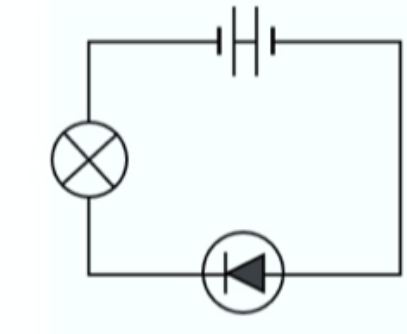
C



B



D

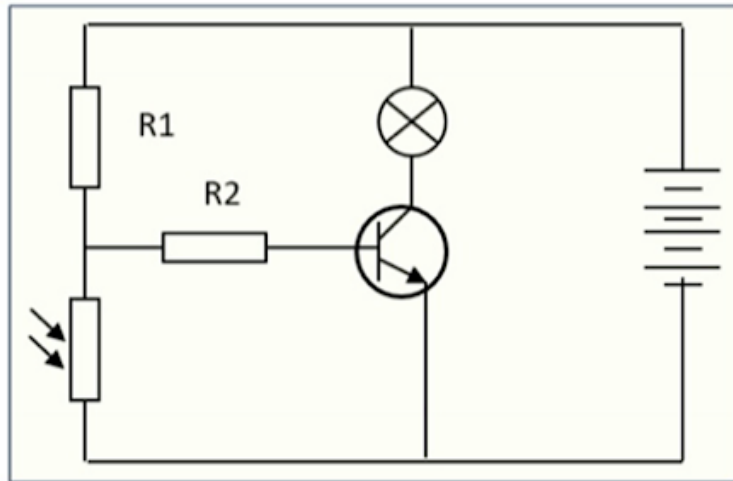
☐ A☐ B☐ C☐ D

23.

1 point

Rajah 24 menunjukkan litar pensuisan transistor dengan sebuah perintang peka cahaya.

Diagram 24 shows a transistor switching circuit with a light dependent resistor.



Rajah 24

Diagram 24

Mentol akan menyala apabila

The bulb will light up when

- A perintang R1 ditanggalkan
the resistor R1 is disconnected
- B apabila terminal bateri disongsangkan
the terminals of the battery are reversed
- C persekitaran adalah terang
the surrounding is bright
- D persekitaran adalah gelap
the surrounding is dark

☐ A

☐ B

☐ C

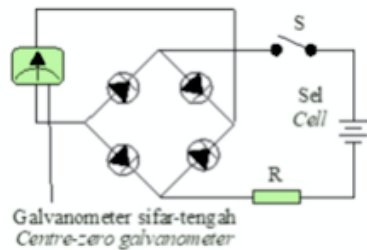
☐ D

24.

1 point

Rajah 21 menunjukkan empat diod dalam suatu litar rektifikasi penuh gelombang disambung kepada satu sel, suis S, perintang R dan galvanometer sifar-tengah. Penunjuk galvanometer itu terpesong ke sebelah kanan apabila suis S dihidupkan.

Diagram 21 shows four diodes in full wave rectification circuit connected to a cell switch S, resistor R and centre-zero galvanometer pointer is deflected to the right when switch S is turned on.



Rajah 21
Diagram 21

Apakah akan terjadi kepada penunjuk galvanometer itu jika terminal-terminal sel itu disongsangkan dan suis S kemudian dihidupkan?

What will happen to the galvanometer pointer if the terminals of the cell is reversed and switch S is then turned on?

- A Penunjuk galvanometer itu terpesong ke sebelah kiri
The galvanometer pointer is deflected to the left
- B Penunjuk galvanometer itu tidak terpesong
The galvanometer pointer is not deflected
- C Penunjuk galvanometer itu terpesong ke sebelah kanan
The galvanometer pointer is deflected to the right
- D Penunjuk galvanometer itu berayun ke sebelah kanan dan kemudian ke sebelah kiri
The galvanometer pointer oscillates to the left and then to the right

☐ A

☐ B

☐ C

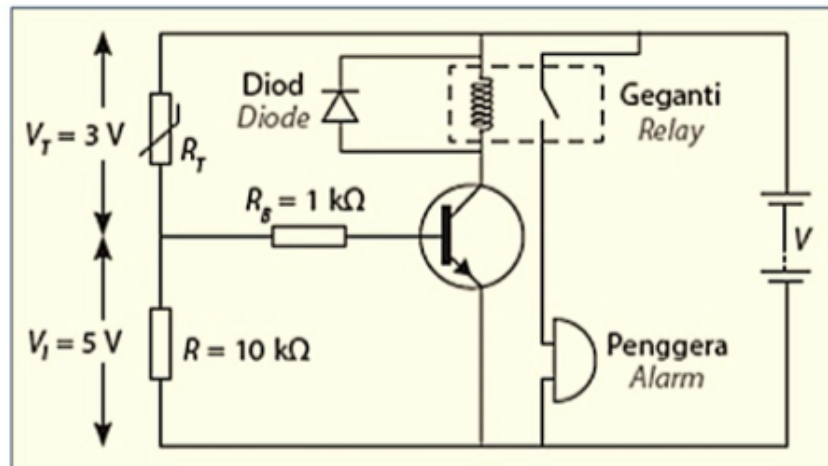
☐ D

25.

1 point

Rajah 22 menunjukkan satu litar bertransistor.

Diagram 22 shows a transistor circuit.



Rajah 22

Diagram 22

Apakah nilai R_T ?

What is the value of R_T ?

- A 80 k Ω
- B 30 k Ω
- C 6 k Ω
- D 50 k Ω

- ☐ A
- ☐ B
- ☐ C
- ☐ D

26.

1 point

Diagram 31 shows a deflection tube which was used to investigate the characteristics of cathode ray.

Rajah 31 menunjukkan sebuah tiub pemesanan yang digunakan untuk menyiasat ciri-ciri sinar katod.

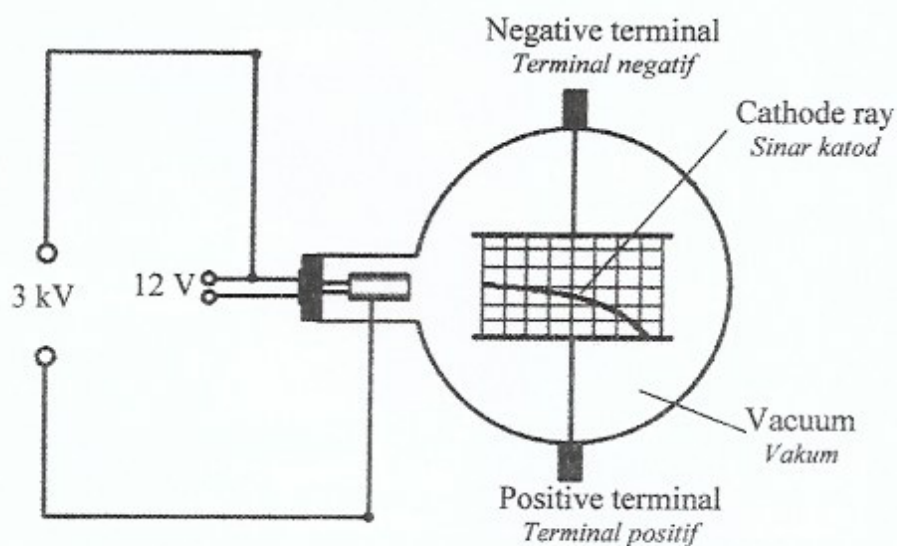


Diagram 31
Rajah 31

What is the conclusion of the investigation?

Apakah kesimpulan dari penyiasatan tersebut?

- A Cathode ray is positively charged.
Sinar katod bercas positif.
- B Cathode ray travels in a straight line.
Sinar katod merambat dalam garis lurus.
- C Cathode ray can be deflected by electric field.
Sinar katod boleh dipesongkan oleh medan elektrik.
- D Cathode ray can be deflected by magnetic fields.
Sinar katod boleh dipesongkan oleh medan magnet.

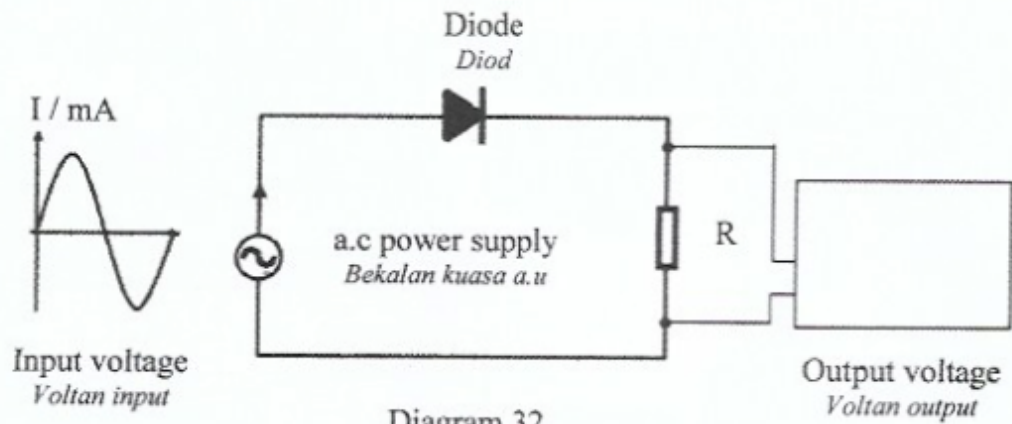
- ☐ A
- ☐ B
- ☐ C
- ☐ D

27.

1 point

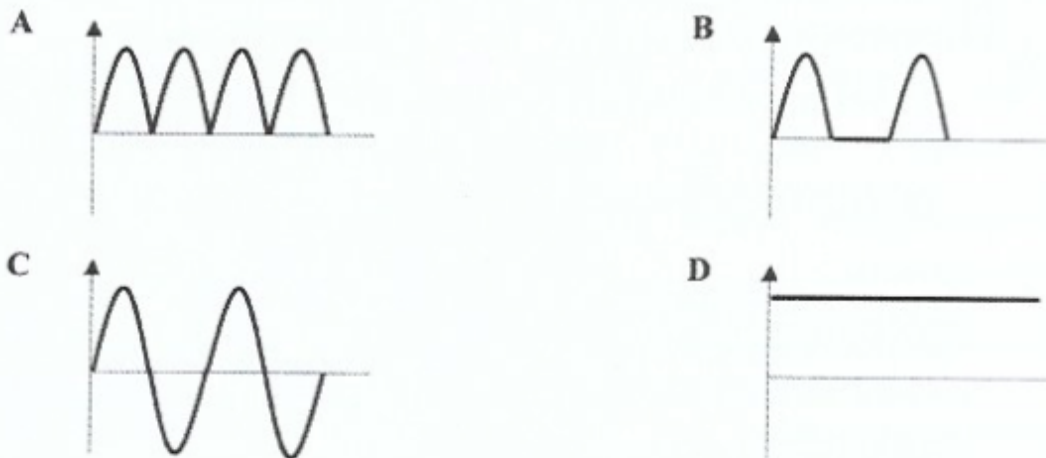
Diagram 32 shows a rectification circuit.

Rajah 32 menunjukkan satu litar rektifikasi.



Which graph shows the correct output voltage?

Graf yang manakah menunjukkan voltan output yang betul?



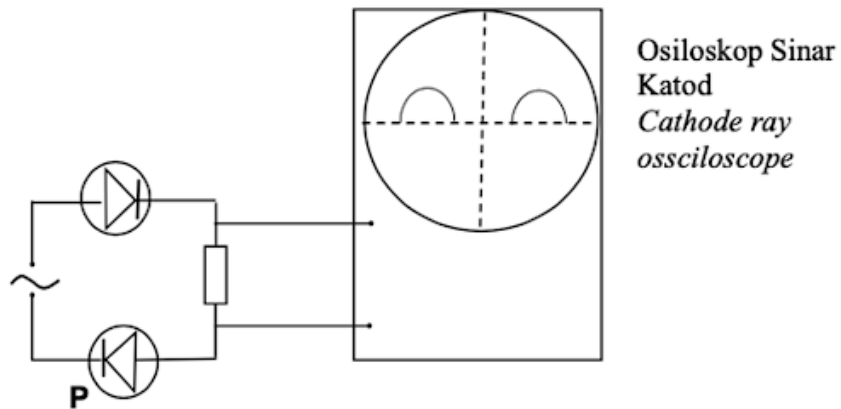
- ☐ A
- ☐ B
- ☐ C
- ☐ D

28.

1 point

Rajah 35 menunjukkan satu litar yang disambungkan kepada osiloskop sinar katod (OSK).

Diagram 35 shows a circuit connected to a cathode ray oscilloscope (CRO).

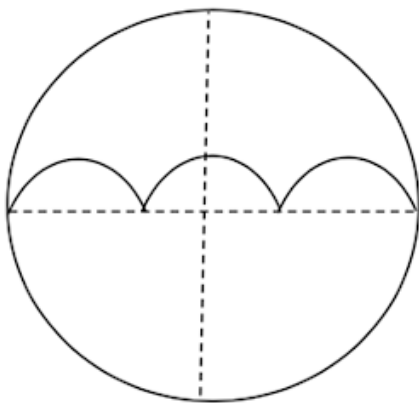


Rajah 35
Diagram 35

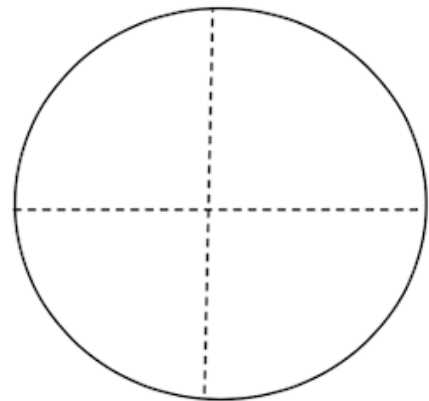
Antara surihan berikut, yang manakah surihan yang betul dipaparkan pada OSK apabila diod P disongsangkan ?

Which of the following traces is correctly displayed on the OSK when the P diode is inverted?

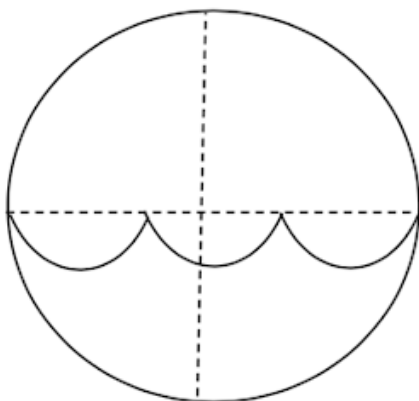
A



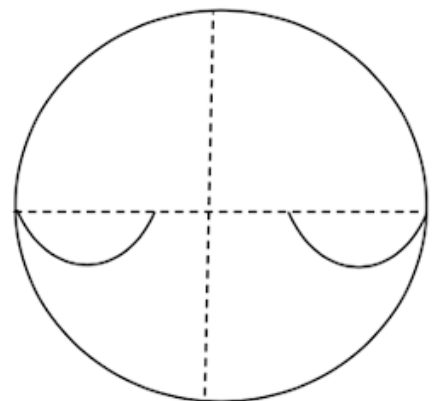
C



B



D



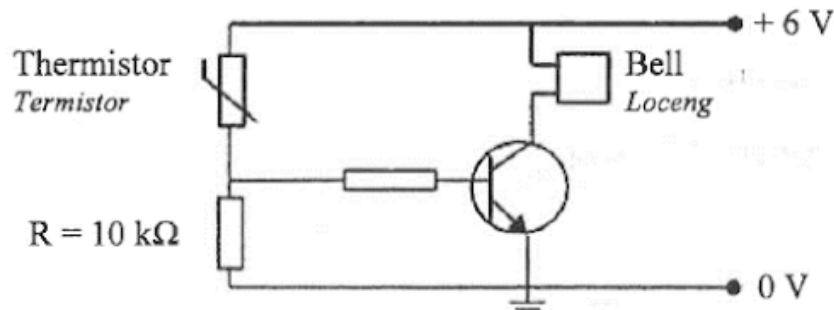
☐ A

☐ B

☐ C

☐ D

Rajah 36 menunjukkan satu litar automatik yang menggunakan transistor.
Diagram 36 shows an automatic circuit using transistor.



Rajah 36
Diagram 36

Rintangan termistor berkurang jika suhu persekitaran bertambah. Loceng akan berbunyi apabila beza keupayaan merentasi R adalah 4 V. Berapakah nilai rintangan termistor?

The resistance of the thermistor decreases as the surrounding temperature rises. The bell will ring when the potential difference across resistor R is 4 V. What is the resistance of the thermistor?

- A 4 k Ω
- B 5 k Ω
- C 10 k Ω
- D 16 k Ω

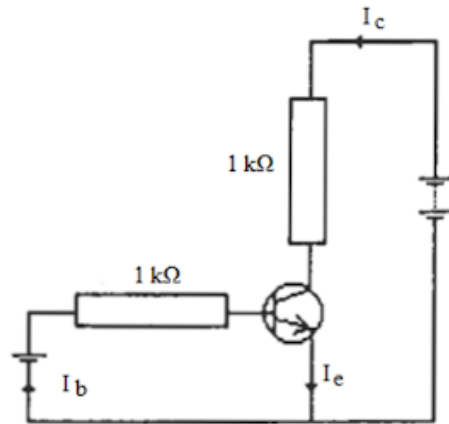
- ☐ A
- ☐ B
- ☐ C
- ☐ D

30.

1 point

Satu transistor n-p-n disambungkan pada bekalan arus terus seperti dalam Rajah 25.

An n-p-n transistor is connected to a direct current power supply as shown in Diagram 25.



Rajah 25
Diagram 25

Antara berikut yang manakah **benar**?

Which of the following is **correct**?

- A $I_c > I_c > I_b$
- B $I_e > I_b > I_c$
- C $I_c > I_e > I_b$
- D $I_c > I_b > I_e$

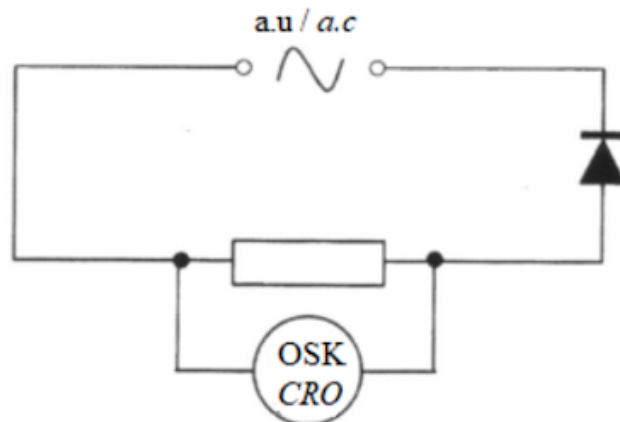
- ☐ A
- ☐ B
- ☐ C
- ☐ D

31.

1 point

Rajah 26 menunjukkan litar dengan osiloskop sinar katod (OSK).

Diagram 26 shows an electric circuit. The resistor is connected to cathode-ray-oscilloscope (CRO).

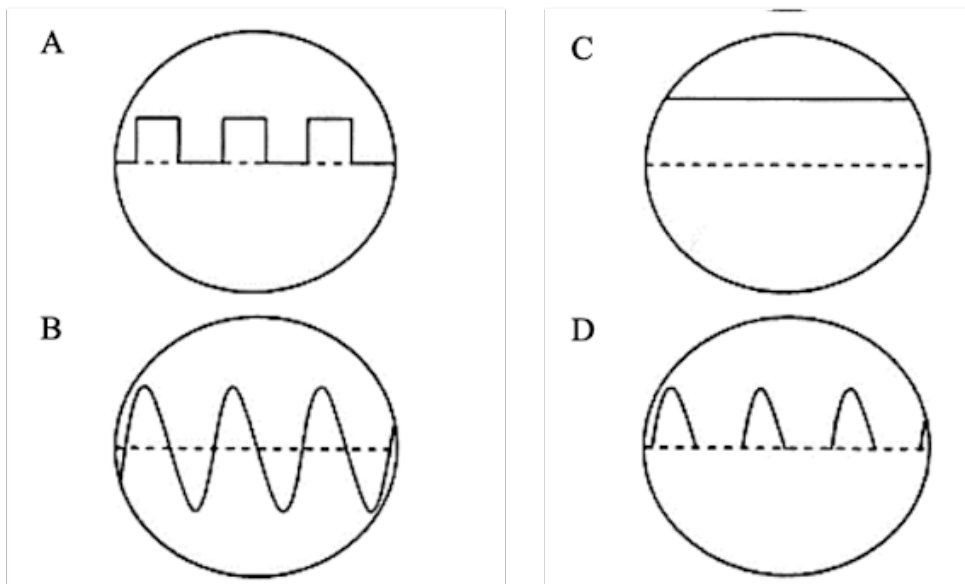


Rajah 26

Diagram 26

Surihan yang manakah akan dipaparkan pada skrin OSK?

Which trace would appear on screen of the CRO?



- ☐ A
- ☐ B
- ☐ C
- ☐ D

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