aMaZiNG

FIZIK!

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PHYSICS

BY CHAPTER F4 & F5

F5 CH5: ELECTRONIC

COMPILATION OF OBJECTIVE QUESTIONS

1 Proses yang membebaskan electron dari permukaan logam yang panas dipanggil
The process of releasing electron from the heated metal surface area are called

A Pancaran termion
Thermionic emission
B Pancaran infrared
Infrared emission
C Aruhan elektron
Electron induction
D Pengionan molekul
Molecule ionisation

2 Rajah 1 menunjukkan struktur sebuah tiub sinar katod.
Beza keupayaan merentasi plat pemesong adalah tetap.
Diagram 1 shows the design of a cathode-ray oscilloscope.
There is a constant potential difference across the deflection plates.

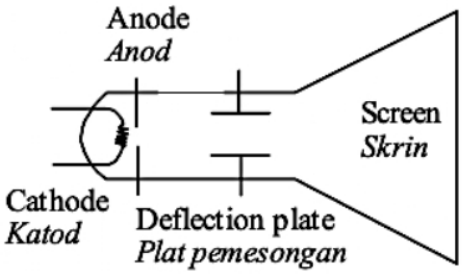


Diagram 1

Perubahan manakah akan meningkatkan pemesongan titik cahaya pada skrin?
Which change will increase the deflection of the spot on the screen?

A Memanjangkan panjang plat pemesongan
Increasing the length of the deflection plate
B Melebarkan jarak pemisahan antara plat-plat pemesongan
Increasing the separation of the deflection plate
C Mengurangkan jarak antara plat pemesong dan skrin
Decreasing the distance from the deflection plates to the screen
D Menambahkan beza keupayaan antara katod dan anod
Increasing the potential difference between cathode and anode

3 Sinar katod terdiri daripada
Cathode rays consist of

A zarah pendarfluor.
fluorescent particles.
B sinar cahaya dari skrin.
light rays from a screen.
C sinar cahaya dari filamen panas.
light rays from hot filament.
D alur zarah yang bergerak pantas.
beams of fast moving particles.

4 Rajah 2 menunjukkan dua diod disambung secara selari dalam satu litar.
Diagram 2 shows two diodes which are connected parallel in a circuit.

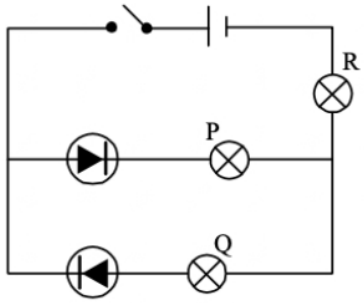


Diagram 2

Apabila suis ditutup, mentol manakah yang akan menyala?
When switch is closed, which bulb/bulbs will light up?

A P sahaja
B P dan Q sahaja
C P dan R sahaja
D P, Q dan R

5 Rajah 3 menunjukkan litar yang mengandungi diod dan mentol. Bila suis dihidupkan mentol tidak menyala
Diagram 3 shows a circuit consisitng of diodes and bulb. When the switch is on, the bulb does not light up.

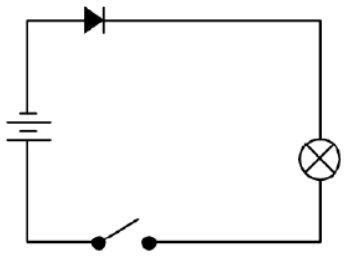


Diagram 3

Apabila yang perlu dilakukan supaya mentol menyala?
What should be done to make the bulb light up?

A Sambung diod secara songsang
Reverse the connection of the diode
B Tambah bilangan mentol
Increase the number of bulbs
C Sambungkan perintang secara siri dengan mentol
Connect a resistor in series with the bulb
D Sambungkan lebih dari satu bateri secara siri dengan mentol
Connect one more battery in series with the bulb

6 Rajah 4 menunjukkan sebuah osiloskop sinar katod (OSK) disambungkan ke suatu litar elektrik.
Diagram 4 shows a cathode ray oscilloscope (CRO) connected to an electrical circuit.

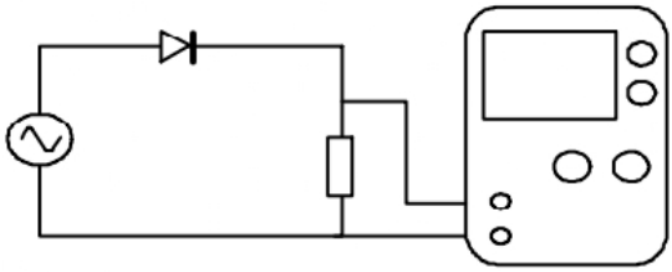
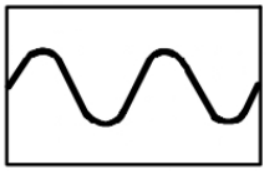


Diagram 4

Rajah manakah menunjukkan surih yang dipaparkan pada skrin OSK?
Which diagram shows the trace displayed on the screen of the CRO?

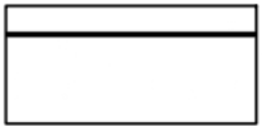
A



B

C

D



7 Rajah 5 menunjukkan litar rektifikasi gelombang penuh.
Diagram 5 shows a full wave rectifier circuit.

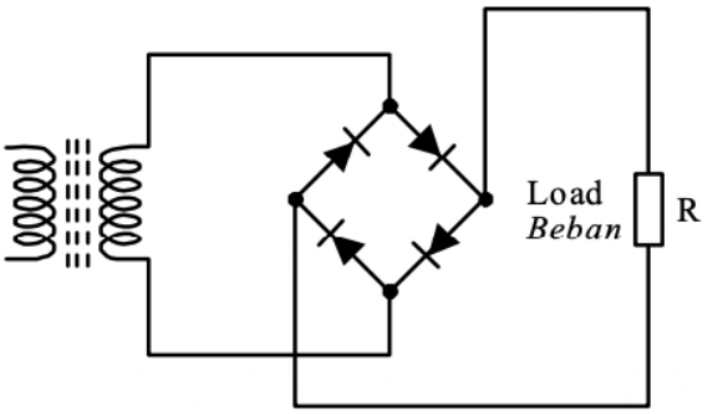


Diagram 5

Cadangkan satu modifikasi yang perlu lakukan pada litar di Rajah 5 untuk memperolehi rektifikasi gelombang penuh yang licin?
Suggest a modification that has to be done to the circuit in Diagram 5 to obtain a smoothened full wave rectification?

A Tambah sebuah inductor selari dengan R
Add an inductor parallel to R

B Tambah sebuah kapasitor selari dengan R *Add a capacitor parallel to R*

C Tambah sebuah transistor selari dengan R
Add a transistor parallel to R

D Tambah sebuah transformer selari dengan R
Add a transformer parallel to R

8 Rajah 6 menunjukkan terminal output bagi satu penjana elektrik disambung kepada osiloskop sinar katod. (O.S.K).
Diagram 6 shows the output terminals of an electric generator being connected to a cathode-ray oscilloscope. (C.R.O).

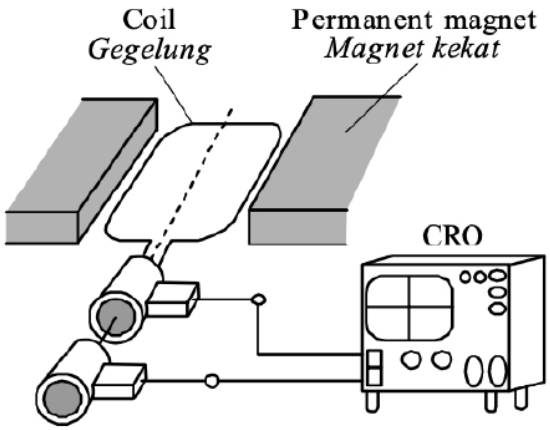
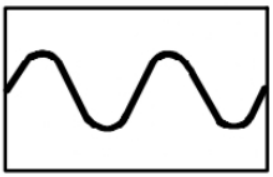


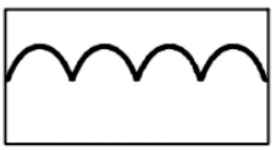
Diagram 6

Yang manakah berikut akan dipaparkan pada skrin apabila dasar-masa dihidupkan?
Which of the following will be displayed on the screen when the time-base is turned on?

A

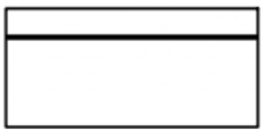


B



C

D

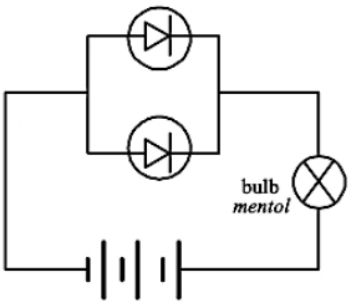


9 Pada suhu rendah, semikonduktor tulen bertindak sebagai
At low temperature, pure semiconductor will acts as

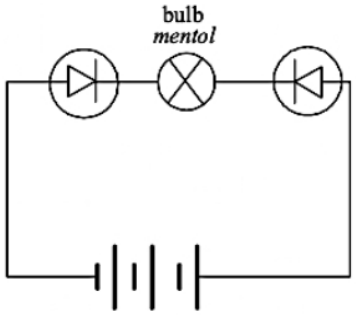
A Konduktor / *Conductor*
B Penebat / *Insulator*
C Kapasitor / *Capacitor*
D Diod / *Diode*

10 Antara sambungan litar-litar berikut, yang manakah akan menyalakan mentol?
Which of the following circuits will light up the bulb?

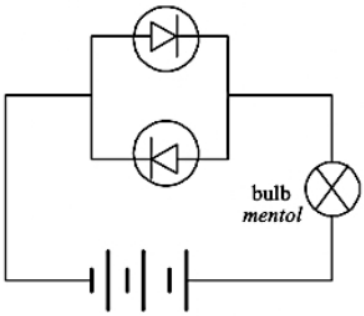
A



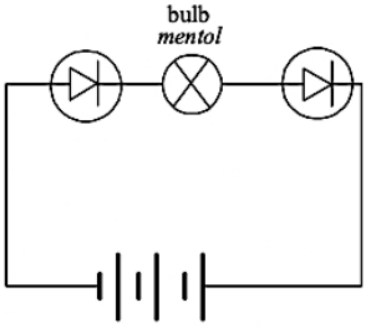
C



B



D



11 Rajah 7 menunjukkan lima mentol yang sama dalam litar.
Diagram 7 shows five identical bulbs in a circuit.

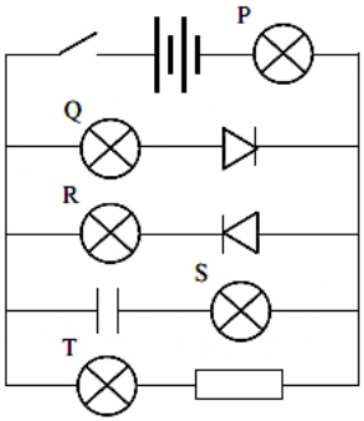


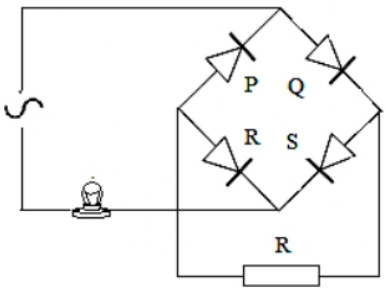
Diagram 7

Mentol mana yang menyala berterusan semasa suis dihidupkan?
Which bulbs light up continuously when the switch is on?

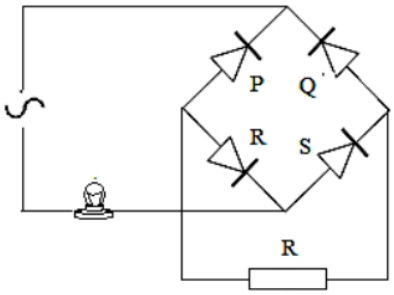
A P, Q dan T sahaja
B Q dan S sahaja
C P dan R sahaja
D P dan R

12 Rajah litar berikut menunjukkan empat diod yang disambungkan ke bekalan kuasa ac.
Litar manakah yang akan menyalakan mentol dengan kecerahan maksimum?
The following circuit diagrams show four diodes connected to an ac power supply.
Which circuit will make the bulb lights up with maximum brightness?

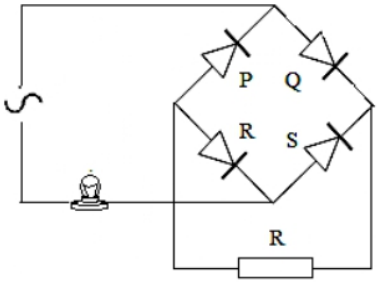
A



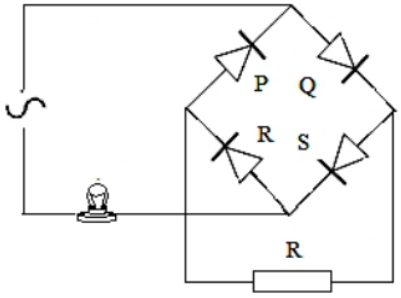
C



B



D



13 Rajah 8 menunjukkan suatu litar transistor.
Diagram 8 shows a transistor circuit.

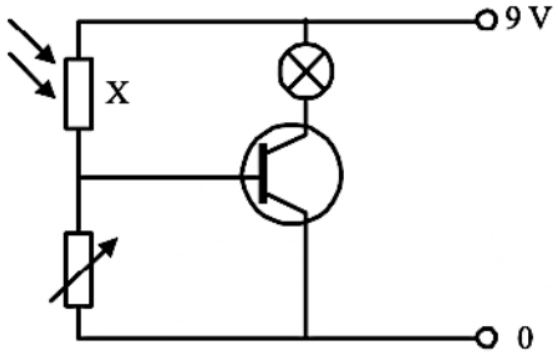


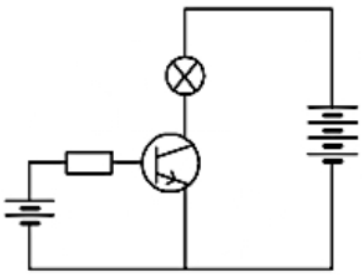
Diagram 8

Apakah komponen X dan bilakah mentol menyala?
What is component X and when will the bulb light up?

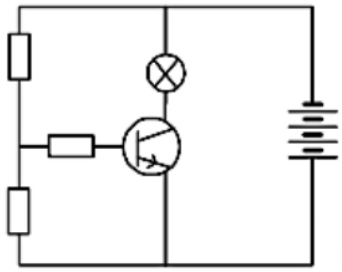
	Komponen X ***Component X***	**Mentol menyala pada waktu..** ***The bulb lights up during the..***
A	Perintang peka haba *Heat dependent resistor*	Siang *Day*
B	Perintang peka haba *Heat dependent resistor*	Malam *Night*
C	Perintang peka cahaya *Light dependent resistor*	Siang *Day*
D	Perintang peka cahaya *Light dependent resistor*	Malam *Night*

14 Antara litar-litar berikut, yang manakah menyalakan mentol?
Which of the following circuits light up the bulb?

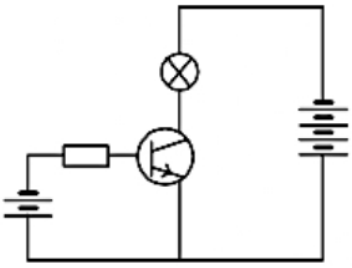
A



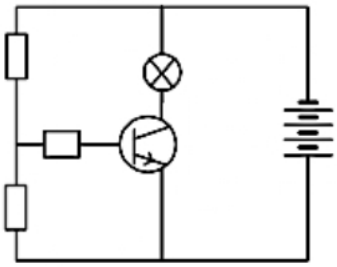
C



B



D



15 Rajah 9 menunjukkan simbol bagi satu transistor.
Diagram 9 shows the symbol of a transistor.

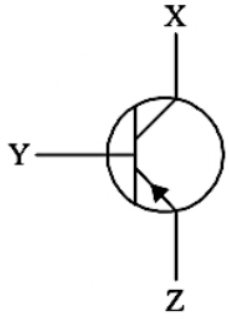


Diagram 9

Apakah nama bagi terminal X, Y dan Z?
What are the names of the terminals X, Y and Z?

	X	Y	Z
A	Tapak *Base*	Pengumpul *Collector*	Pengeluar *Emitter*
B	Pengeluar *Emitter*	Tapak *Base*	Pengumpul *Collector*
C	Pengumpul *Collector*	Pengeluar *Emitter*	Tapak *Base*
D	Pengumpul *Collector*	Tapak *Base*	Pengeluar *Emitter*

16 Rajah 10 menunjukkan litar suis automatik untuk menyalakan mentol pada waktu siang hari.
Diagram 10 shows an automatic switch circuit to light up a bulb during the day time.

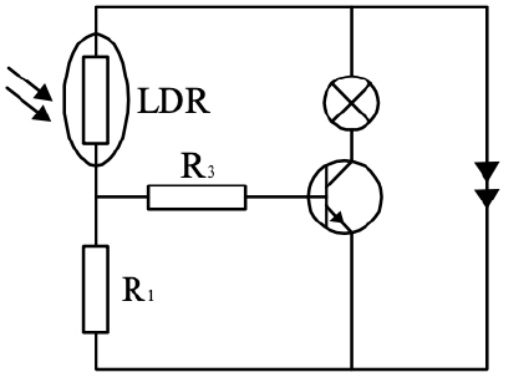


Diagram 10

Apakah perubahan yang perlu dilakukan untuk menyalakan mentol pada waktu malam?
What changes should be done to light up the bulb at night?

A Saling tukar antara R_1 and R_3
Interchange R_1 and R_3
B Ganti transistor npn dengan transistor pnp
Replace the npn transistor with a pnp transistor
C Songsangkan terminal bateri
Reverse the terminal of the battery
D Saling tukar antara R_1 and PPC
Interchange R_1 and LDR

17 Rajah 11 menunjukkan sebuah transistor sebagai suis automatic.
Diagram 11 shows a transistor as an automatic switching circuit.

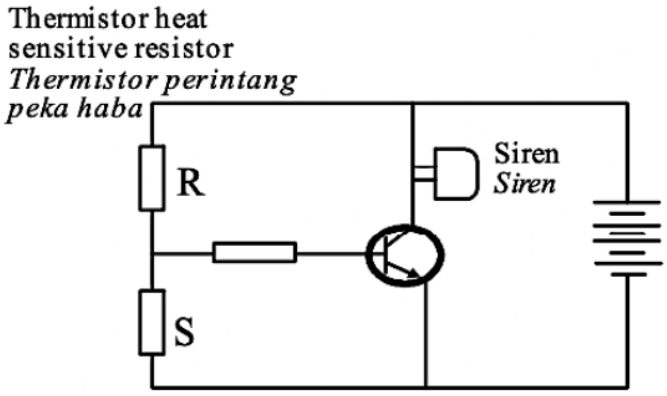


Diagram 11

Siren akan berbunyi apabila
The siren will on when

A perintang S ditanggalkan / *the resistor s is disconnected*
B apabila terminal bateri disongsangkan / *the terminals of the battery are reversed*
C persekitaran adalah panas / *the surrounding is hot*
D persekitaran adalah sejuk / *the surrounding is cold*

18 Rajah 12 menunjukkan satu litar elektrik.
Diagram 12 shows an electric circuit.

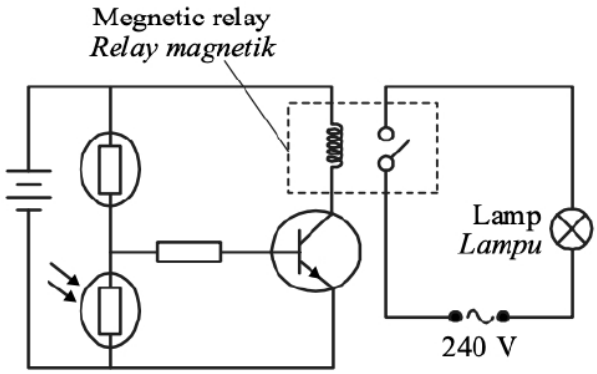


Diagram 12

Apakah fungsi transistor dalam litar tersebut?
What is the function of transistor in this circuit?

A Sebagai suis automatik
As an automatic switch

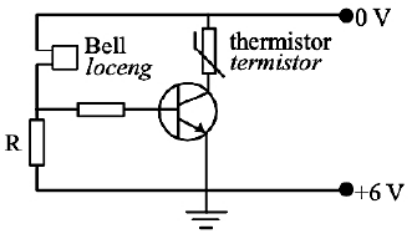
B Sebagai penguat arus
As current amplifier

C Sebagai modulator
As a modulator

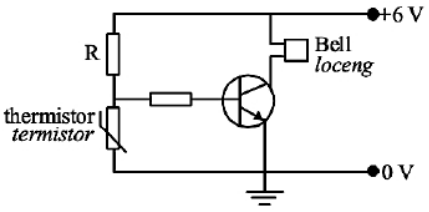
D Sebagai rectifier
As a rectifier

19 Suatu termistor and transistor disambungkan kepada suatu litar penggera kebakaran.
Rintangan termistor berkurang apabila suhu meningkat.
Litar yang manakah akan berbunyi apabila berlaku kebakaran
A thermistor and a transistor are connected in a fire alarm circuit.
The resistance of the thermistor decreases as the temperature rises.
Which of the following circuits will cause the bell to ring when there is fire?

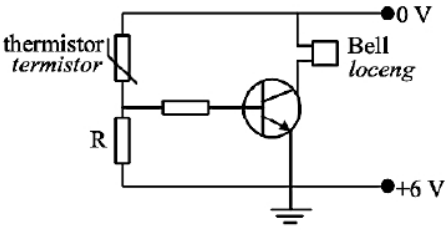
A



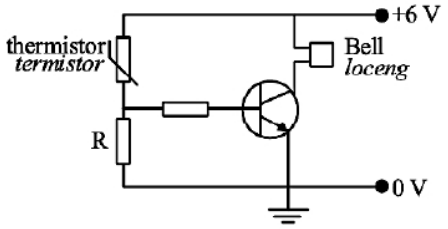
B



C



D



20 Rajah 13 menunjukkan symbol satu transistor.
Diagram 13 shows the symbol of a transistor.

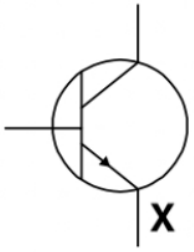


Diagram 13

Namakan jenis transistor dan terminal X.
Name the type of transistor and terminal X.

	Jenis ***Type***	**X**
A	npn	Pengumpul *Collector*
B	pnp	Tapak *Base*
C	npn	Pengeluar *Emitter*
D	pnp	Tapak *Base*

21 Rajah 14 menunjukkan nilai arus yang mengalir melalui sebuah transistor.
Diagram 14 shows the value of the current flowing through a transistor.

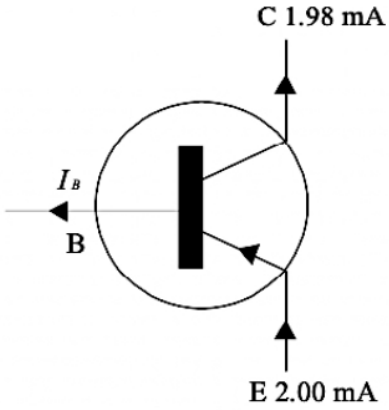


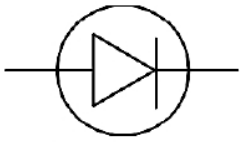
Diagram 14

Berapakah nilai untuk arus I_B?
What is the value of current I_B?

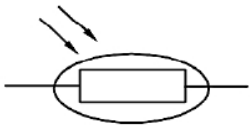
A 2.02 mA
B 2.00 mA
C 1.98 mA
D 0.02 mA

22 Yang manakah antara berikut adalah symbol bagi satu komponen peka cahaya?
Which of the following is the symbol for a light sensitive component?

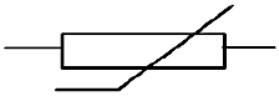
A



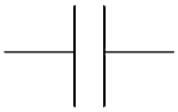
B



C

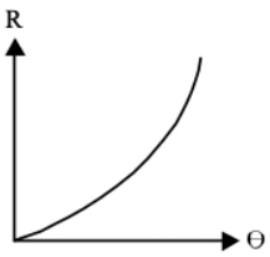


D

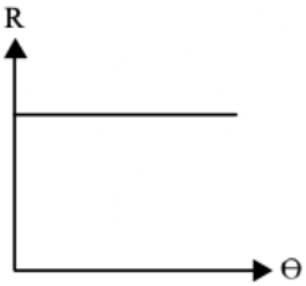


23 Graf rintangan, R melawan suhu, θ, yang manakah benar bagi satu termistor?
Which graph of resistance, R against temperature, θ, for a thermistor is true?

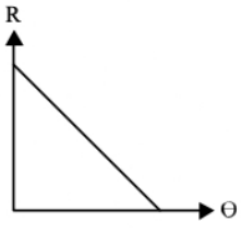
A



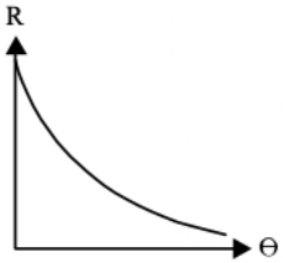
B



C



D



24 Sebuah osiloskop sinar katod (OSK) disambungkan kepada sebuah litar seperti yang ditunjukkan dalam Rajah 15.
A cathode ray oscilloscope (CRO) is connected to a circuit as shown in the Diagram 15.

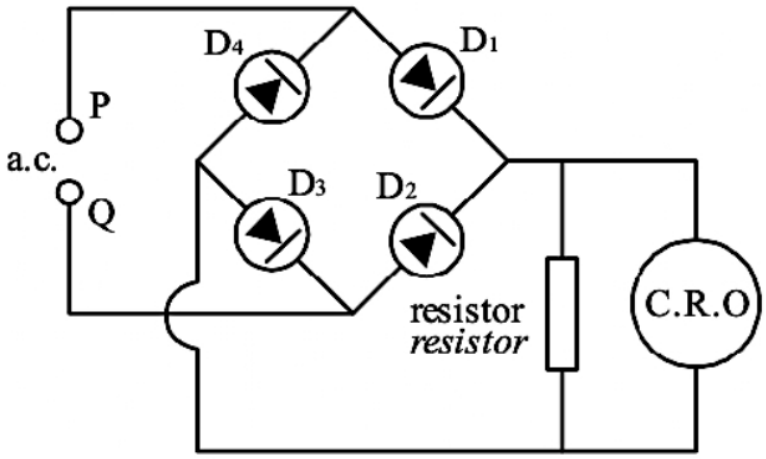
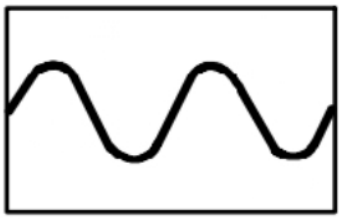


Diagram 15

Surihan yang manakah dihasilkan pada skrin Osiloskop Sinar Katod(OSK) yag ditunjukkan dalam Rajah 15?
Which trace is produced by the Cathode Ray Oscilloscope (CRO) shown in the Diagram 15?

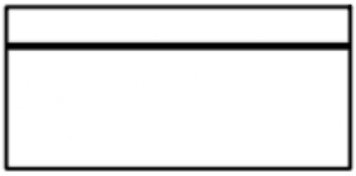
A



C

B

D



25 Rajah 16 menunjukkan satu litar transistor.
Diagram 16 shows a transistor circuit.

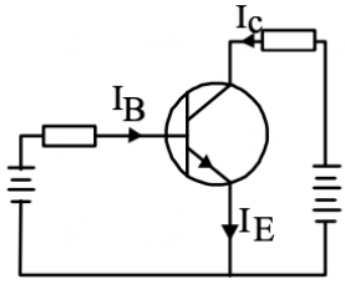


Diagram 16

Manakah yang perbandingan berikut benar bagi $\mathbf{I_B}$, $\mathbf{I_C}$, $\mathbf{I_E}$?
Which of the following is correct comparison between $\boldsymbol{I_B}$, $\boldsymbol{I_C}$, $\boldsymbol{I_E}$?

A $I_B > I_C > I_E$
B $I_B > I_C < I_E$
C $I_B < I_C < I_E$
D $I_B = I_C = I_E$

26 Rajah 17 menunjukkan litar transistor yang berfungsi sebagai satu sistem penggera.
Diagram 17 shows a transistor circuit which functions as an alarm system.

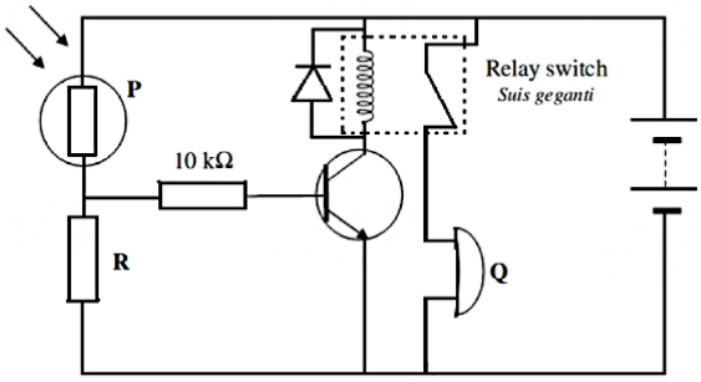


Diagram 17

Apakah yang berlaku kepada rintangan P dan keadaan Q apabila persekitarannya menjadi gelap?
What happens to the resistance of P and the state of Q when the surrounding is dark?

	Rintangan P / *Resistance of P*	**Keadaan Q / *State of Q***
A	Rendah / *Low*	Dihidupkan / *Activated*
B	Rendah / *Low*	Tidak dihidupkan / *Not activated*
C	Tinggi / *High*	Dihidupkan / *Activated*
D	Tinggi / *High*	Tidak dihidupkan / *Not activated*

27 Rajah 18 menunjukkan tiub sinar katod.
Diagram 18 shows a cathode ray tube.

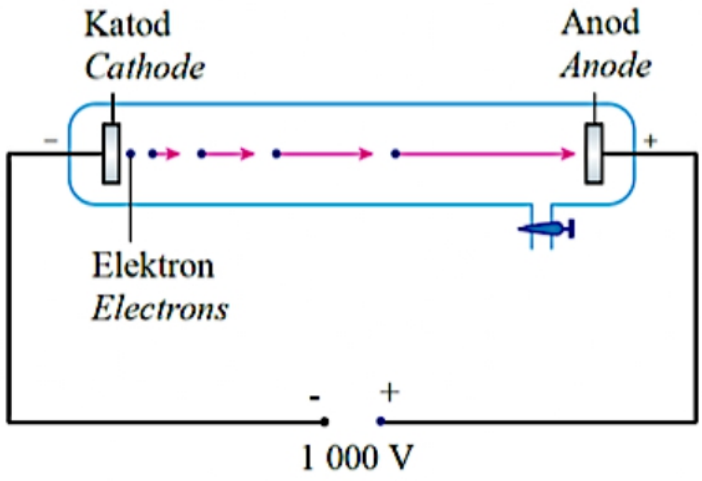


Diagram 18

Hitung halaju elektron tersebut apabila voltan lampau tinggi 1 000 V digunakan.
Calculate the velocity of electron when extra high voltage 1 000 V is used.

A $1.65 \times 10^7 \text{ m s}^{-1}$
B $1.87 \times 10^7 \text{ m s}^{-1}$
C $1.95 \times 10^7 \text{ m s}^{-1}$
C $2.52 \times 10^7 \text{ m s}^{-1}$

28 Rajah 19 menunjukkan susunan bagi rektifikasi gelombang penuh.
Diagram 19 shows the arrangement for full-wave rectification.

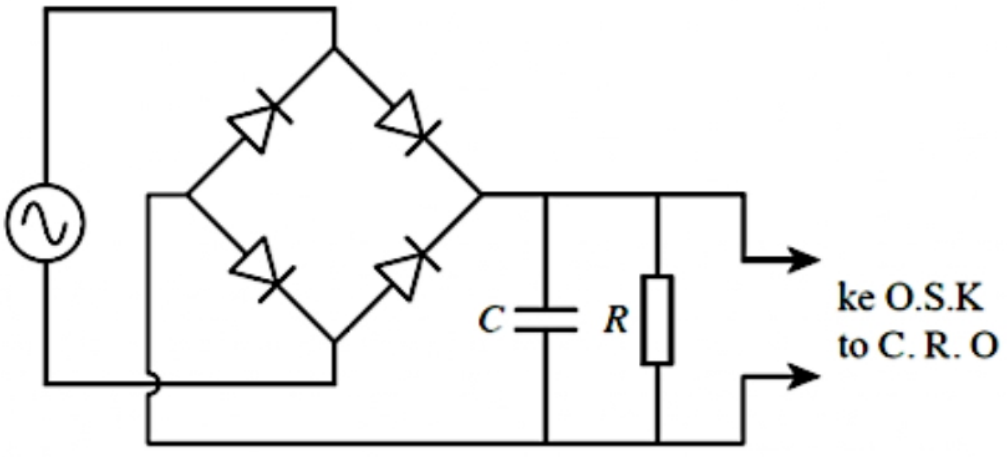
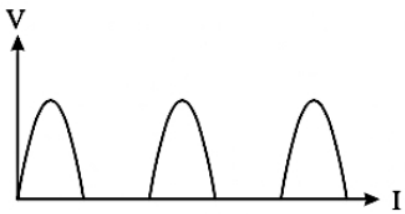


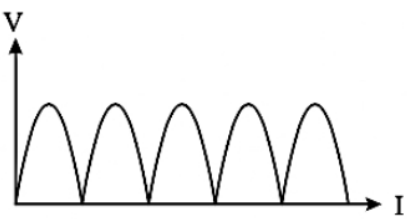
Diagram 19

Antara berikut yang manakah output yang dihasilkan?
Which of the following is the output produced?

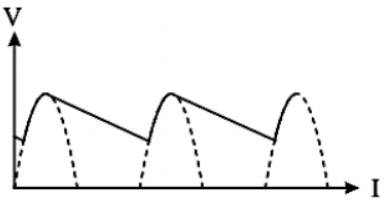
A



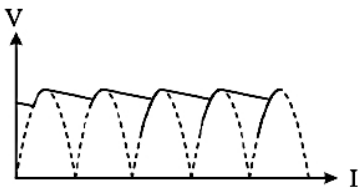
C



B



D



29 Rajah 20 menunjukkan graf arus pengumpul, I_C melawan arus tapak, I_B.
Diagram 20 shows collector current, I_C against base current, I_B.

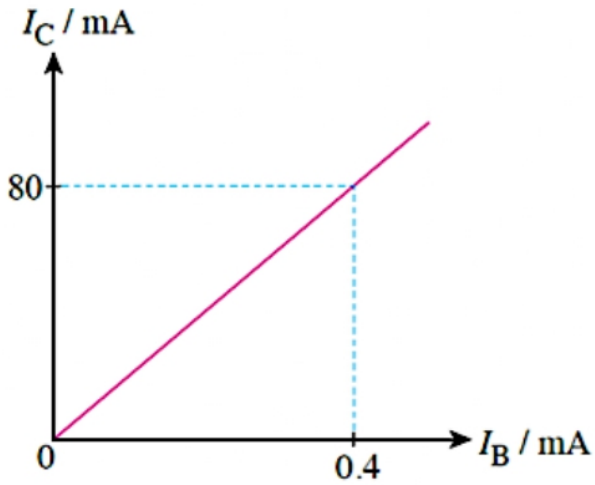


Diagram 20

Berapakah faktor penggandaan?
What is the amplification factor?

A 16
B 100
C 200
D 400

30 Pernyataan manakah yang betul tentang ciri-ciri sinar katod?
Which statement is correct about the characteristic of cathode rays?

A Sinar katod bergerak dalam halaju cahaya.
Cathode rays travel in speed of light.
B Sinar katod tidak mempunyai momentum.
Cathode rays does not possess momentum.
C Sinar katod ditarik oleh katod.
Cathode rays attracted by cathode .
D Sinar katod bergerak dalam garis lurus.
Cathode rays travel in a straight line.

31 Berapakah tenaga yang diperoleh oleh satu elektron dalam satu tiub vakum jika elektron dipecutkan dengan beza keupayaan 2.0 kV .
Diberikan bahawa cas bagi satu elektron ialah 1.6×10^{-19} C.
How much energy acquired by an electron in a vacuum tube if the electron is accelerated at a potential difference of 2.0 kV .
It is given that the charge of one electron is 1.6×10^{-19} C.

A 1.6×10^{-19} J
B 1.6×10^{-16} J
C 3.2×10^{-19} J
D 3.2×10^{-16} J

32 Rajah 21 menunjukkan satu litar yang mengandungi satu transistor n-p-n.
Diagram 21 shows a circuit which contains an n-p-n transistor.

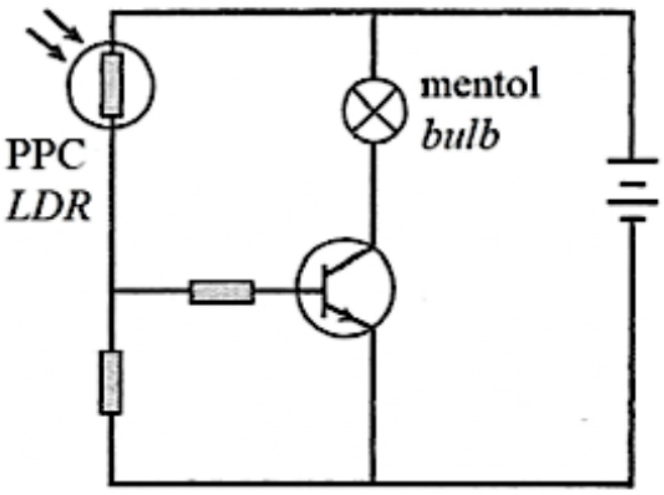


Diagram 21

Yang manakah benar tentang litar itu?
Which of the following is true about the circuit?

A Transistor itu digunakan sebagai satu suis kawalan haba
The transistor is used as a heat-operated switch
B Mentol itu menyala dalam persekitaran yang terang
The bulb lights up in bright surroundings
C Rintangan perintang peka cahaya (PPC) meningkat dalam persekitaran yang terang
The resistance of the light-dependent resistor (LDR) increases in bright surroundings
D Voltan merentasi PPC itu tinggi dalam persekitaran yang terang
The voltage across the LDR is large in bright surroundings

33 Rajah 22 menunjukkan bayang Palang Maltase yang terbentuk di skrin berpendaflour.
Diagram 22 shows the shadow of the Maltase Cross formed on a pendaflour screen.

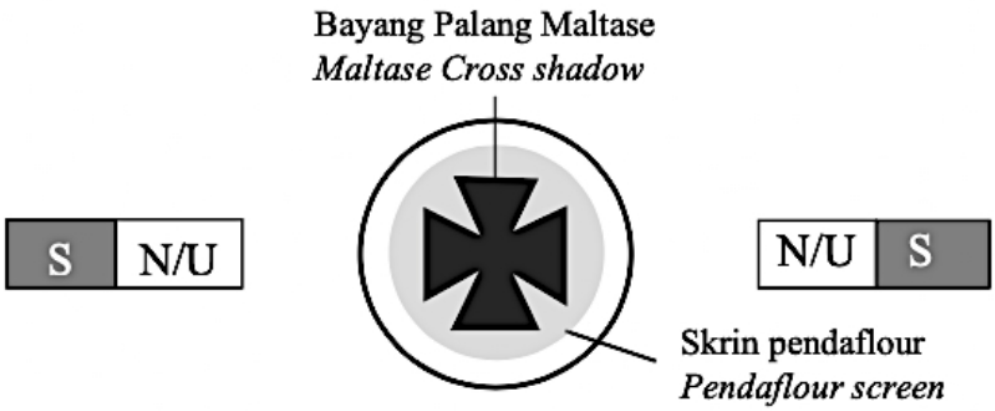


Diagram 22

Ke arah manakah bayang Palang Maltase akan terpesong?
Which direction will the shadow of the Maltase Cross be deflected?

A Ke atas / *Upward*
B Ke bawah / *Downward*
C Ke kanan / *To the right*
D Ke kiri / *To the left*

34 Rajah 23 menunjukkan satu litar bertransistor.
Diagram 23 shows a transistor circuit.

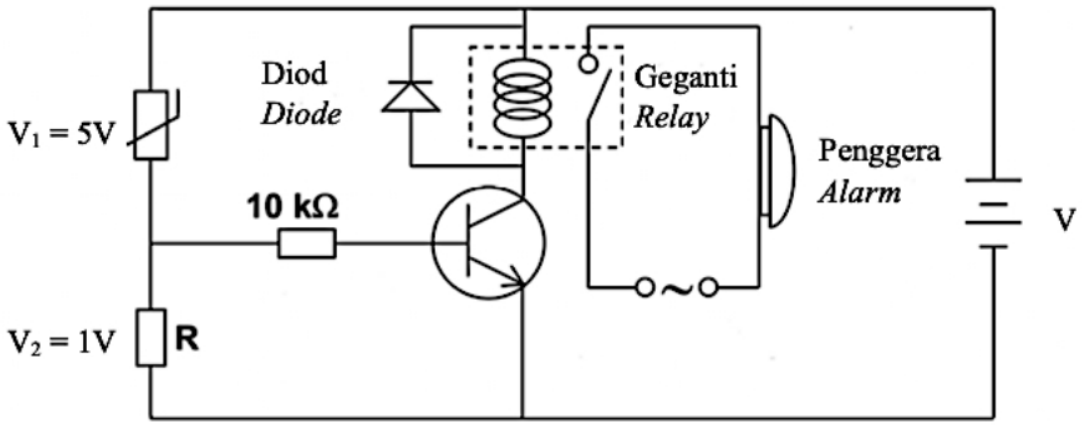


Diagram 23

Apakah nilai beza keupayaan, V apabila $V_1 = 5$ V dan $V_2 = 1$ V
What is the value of potential difference, V when $V_1 = 5$ V and $V_2 = 1$ V?

A 1 V
B 4 V
C 5 V
D 6 V

35 Rajah 24 menunjukkan litar ringkas bagi suatu sambungan diod.
Diagram 24 shows a simple circuit for a diode connection.

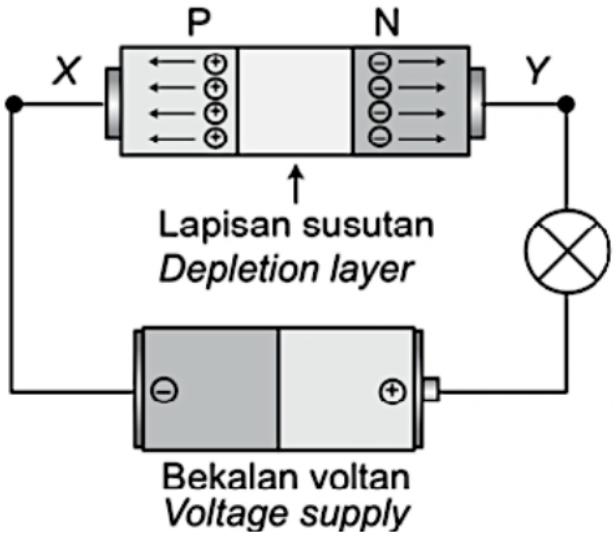


Diagram 24

Manakah yang pernyataan berikut adalah betul?
Which of the following statement is correct?

A Arus akan berhenti mengalir
The current will stop flowing
B Lapisan susutan menjadi nipis
The layer of shrinkage becomes thin
C Rintangan diod menjadi sangat kecil
The resistance of the diode becomes very small
D Voltan simpang, V merentasi lapisan susutan berkurang
The junction voltage, V *across the depletion layer decreases*

36

Pertambahan arus tapak, Ib yang kecil akan menghasilkan perubahan yang besar dalam arus pengumpul, Ic.
A small increase in base current, Ib will cause a big change in the collector current, Ic.

Pernyataan di atas menunjukkan fungsi transistor sebagai
The above statement shows the function of the transistor as

A rectifier / *rectifier*
B perata arus / *current smoother*
C amplifier arus / *current amplifier*
D pembahagi voltan / *voltage divider*

37 Rajah 25 menunjukkan proses pancaran elektron daripada permukaan katod yang panas ke anod dalam sebuah tiub sinar katod.
Diagram 28 shows the emissions process of the electrons from a hot cathode surface to the anode in a cathode ray tube.

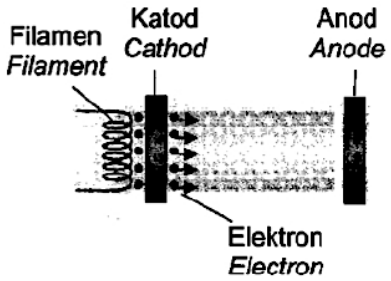


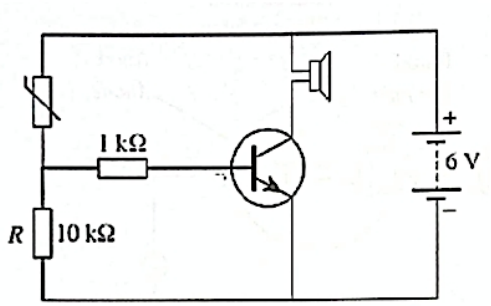
Diagram 25

Laju pancaran elektron boleh ditingkatkan dengan meningkatkan
The speed of the electrons emissions can be increased by increasing the

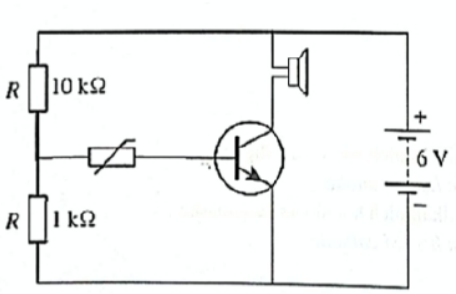
A suhu filamen
temperature of the filament
B saiz permukaan katod
size of the cathode surface
C voltan merentasi filamen
voltage across the filament
D voltan merentasi katod dan anod
voltage across the cathode and anode

38 Antara berikut, litar manakah yang akan menyebabkan siren berbunyi apabila berlakunya kebakaran.
Among the following, which circuit will trigger the sound of the siren when there is a fire.

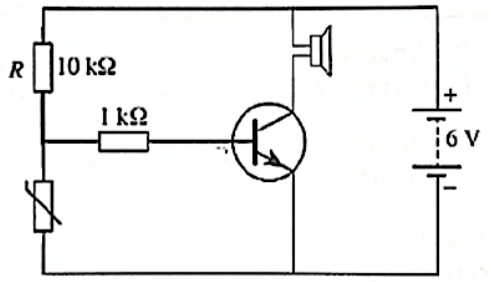
A



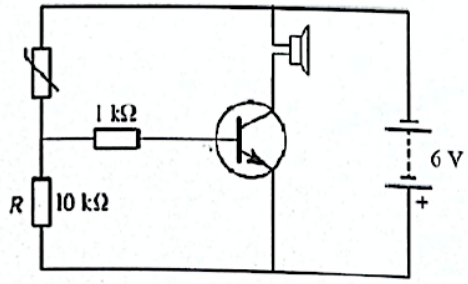
C



B



D



39 Rajah 26 menunjukkan satu litar automatik yang menggunakan transistor.
Diagram 26 shows an automatic circuit using transistor.

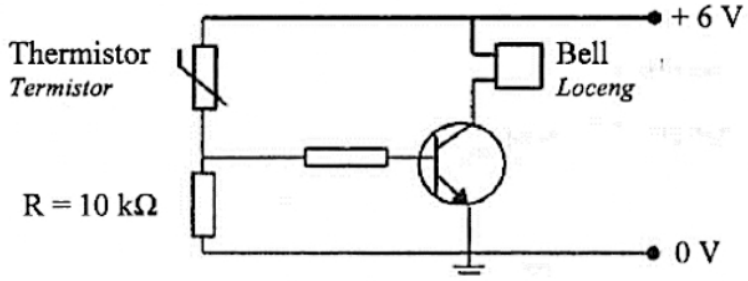


Diagram 26

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 kΩ
B 5 kΩ
C 10 kΩ
D 16 kΩ

40 Rajah 27 menunjukkan satu litar yang disambungkan kepada osiloskop sinar katod (OSK).
Diagram 27 shows a circuit connected to a cathode ray oscilloscope (CRO).

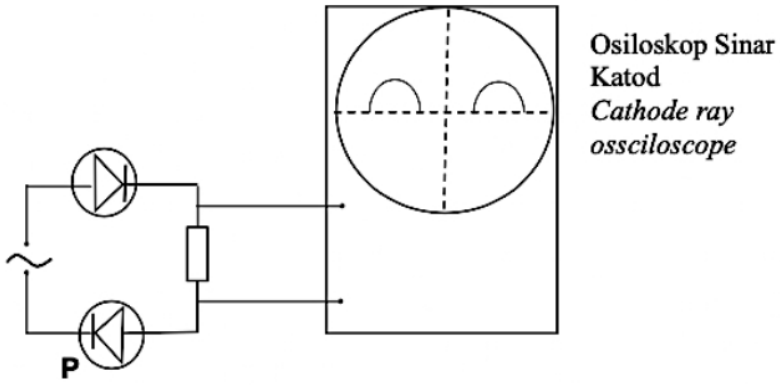
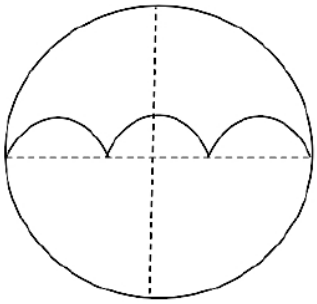


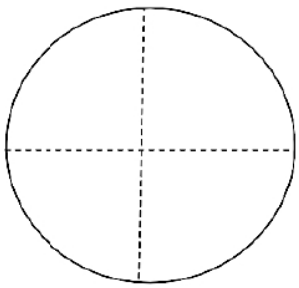
Diagram 27

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?*

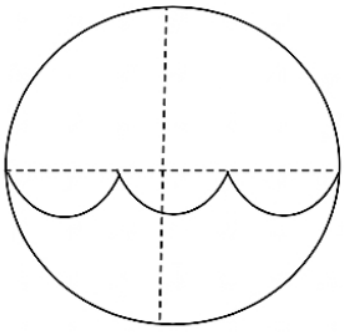
A



C



B



D