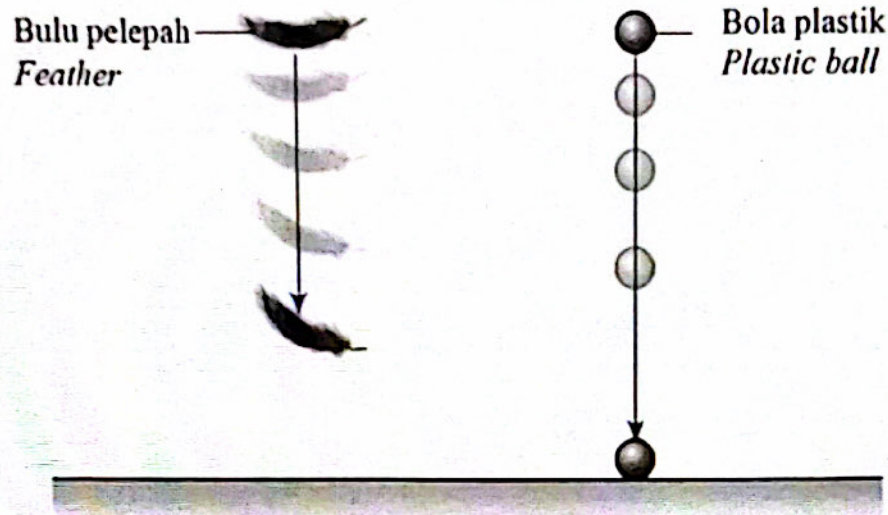


Bahagian A / Section A

[60 markah / marks]

Jawab semua soalan / Answer all questions.

- 1 Rajah 1 menunjukkan suatu eksperimen yang dijalankan oleh seorang murid. Bulu pelepah dan
(R) bola plastik itu dilepaskan secara serentak dan dari ketinggian yang sama.
Diagram 1 shows an experiment conducted by a student. The feather and plastic ball are released at the same height simultaneously.



Rajah 1 / Diagram 1

- (a) Nyatakan jenis gerakan yang ditunjukkan oleh bola plastik.
State the type of motion shown by the plastic ball.

.....
[1 markah / 1 mark]

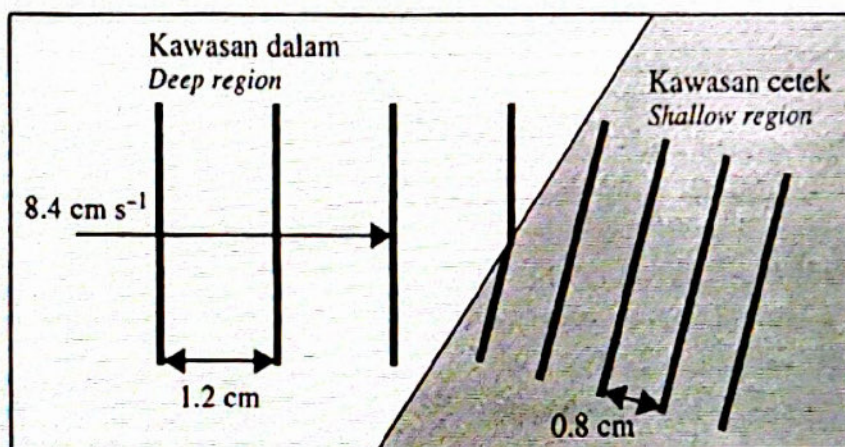
- (b) Apakah yang berlaku kepada masa yang diambil oleh bulu pelepah dan bola plastik untuk sampai ke lantai apabila eksperimen ini diulangi dalam bilik vakum?
What happens to the time taken by the feather and the plastic ball to reach the ground when the experiment is repeated in vacuum room?

.....
[1 markah / 1 mark]

- (c) Bola plastik dilepaskan dari ketinggian 3 m. Hitung halaju akhir bola plastik sebelum mencecah lantai.
The plastic ball is released from a height of 3 m. Calculate the final velocity of the plastic ball before reaching the floor.

[2 markah / 2 marks]

- 2 Rajah 2 menunjukkan corak gelombang air yang merambat dari kawasan dalam ke kawasan cetek dalam sebuah tangka riak.
(R) *Diagram 2 shows the pattern of water waves that propagate from deep region to shallow region in a ripple tank.*



Rajah 2 / Diagram 2

- (a) Namakan fenomena gelombang yang ditunjukkan di Rajah 2.
Name the wave phenomena shown in Diagram 2.
-
- (b) (i) Nyatakan kuantiti fizik yang berubah di kawasan cetek.
State the physical quantity that changes in the shallow region.
-

[1 markah / 1 mark]

[1 markah / 1 mark]



- (ii) Nyatakan kuantiti fizik yang tidak berubah dalam kawasan cetek.
State the physical quantity that remain unchanged in the shallow region.

[1 markah / 1 mark]

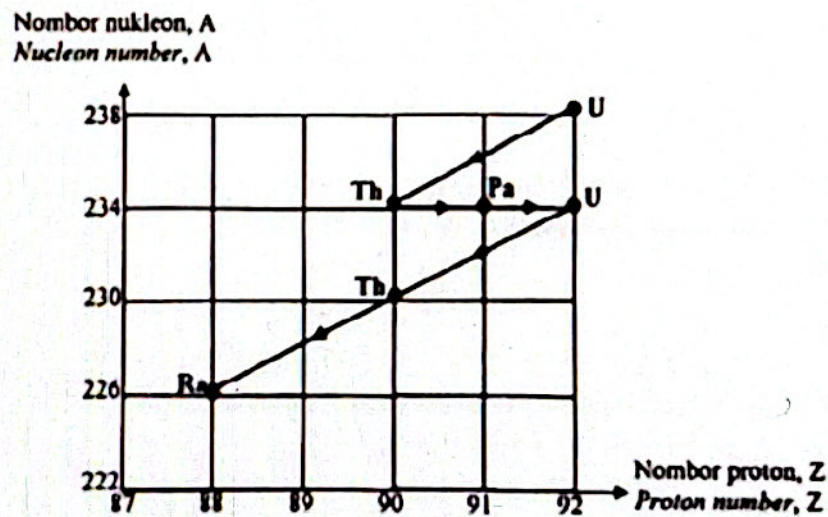
- (c) Gelombang air di kawasan dalam mempunyai laju 8.4 cm s^{-1} dan panjang gelombang 1.2 cm . Panjang gelombang di kawasan cetek ialah 0.8 cm . Hitung laju gelombang di kawasan cetek.

The water waves in deep region have a speed of 8.4 cm s^{-1} and wavelength of 1.2 cm . The wavelength in shallow region is 0.8 cm . Calculate the speed of the waves in shallow region.

[2 markah / 2 marks]

- 3 Rajah 3 menunjukkan sebahagian daripada siri reputan radioaktif bagi nukleus Uranium-238 (R) hingga Radium-226.

Diagram 3 shows part of the series of radioactive decays for the nucleus of Uranium-238 to the Radium-226.



Rajah 3 / Diagram 3

- (a) Mengapakah reputan nukleus U-238 berlaku?

Why does U-238 nucleus decayed?

.....

[1 markah / 1 mark]

- (b) Berapakah bilangan zarah beta yang dipancarkan sepanjang siri reputan ini?

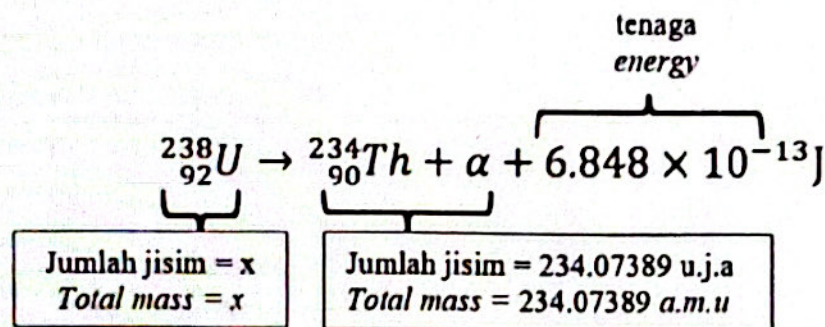
How many beta particles emitted during the decay series?

.....

[1 markah / 1 mark]

- (c) Reputan alfa yang berlaku apabila Uranium-238 mereput menjadi Thorium-234 adalah seperti berikut:

The alpha decay that occurs when Uranium-238 decays to Thorium-234 is as follows:



- (i) Hitung cacat jisim yang terlibat.
Calculate the mass defect involved.

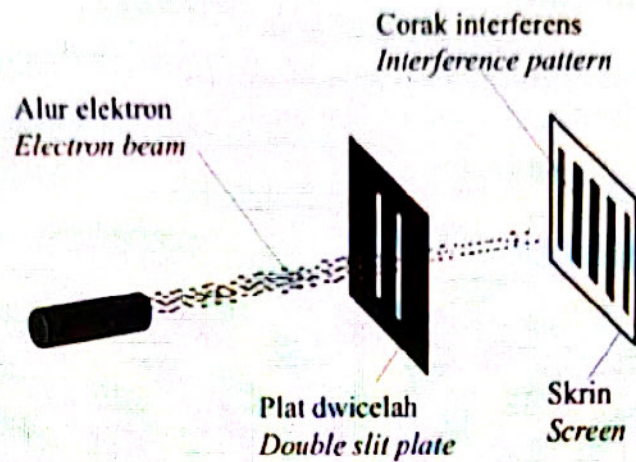
[2 markah / 2 marks]

- (ii) Tentukan jisim x dalam unit kg.
Determine the mass x in kg.

[2 markah / 2 marks]

- 4 Rajah 4.1 menunjukkan suatu corak interferens yang terbentuk di skrin selepas alur elektron melalui plat dwicelah.
(R)

Diagram 4.1 shows an interference pattern formed on the screen after an electron beam passed through a double slit plate.



Rajah 4.1 / Diagram 4.1

- (a) Apakah sifat corak interferens yang terbentuk pada skrin dalam Rajah 4.1?
Tandakan (✓) pada petak untuk jawapan yang betul.
What is the characteristic of the interference pattern formed on the screen in Diagram 4.1?

Tick (✓) in the box for the correct answer.

☐

Zarah
Particle

☐

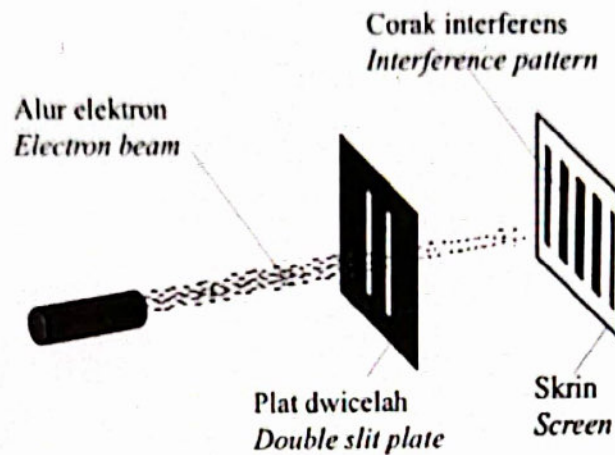
Gelombang
Waves

[1 markah / 1 mark]

- (b) Diberi ;
Panjang gelombang de Broglie bagi satu elektron ialah 0.45 nm.
Jisim satu elektron adalah 9.11×10^{-31} kg.
[Pemalar Planck, $h = 6.63 \times 10^{-34}$ J s]
Given ;
The de Broglie wavelength of an electron is 0.45 nm.
The mass of an electron is 9.11×10^{-31} kg.
[Planck's constant, $h = 6.63 \times 10^{-34}$ J s]

- 4 Rajah 4.1 menunjukkan suatu corak interferens yang terbentuk di skrin selepas alur elektron melalui plat dwicelah.

Diagram 4.1 shows an interference pattern formed on the screen after an electron beam passed through a double slit plate.



Rajah 4.1 / Diagram 4.1

- (a) Apakah sifat corak interferens yang terbentuk pada skrin dalam Rajah 4.1? Tandakan (✓) pada petak untuk jawapan yang betul.
What is the characteristic of the interference pattern formed on the screen in Diagram 4.1?

Tick (✓) in the box for the correct answer.

☐

Zarah
Particle

☐

Gelombang
Waves

[1 markah / 1 mark]

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Given ;
The de Broglie wavelength of an electron is 0.45 nm.
The mass of an electron is 9.11×10^{-31} kg.
[Planck's constant, $h = 6.63 \times 10^{-34}$ J s]



- (i) Hitungkan halaju elektron itu.
Calculate the velocity of the electron.

[3 markah / 3 marks]

- (ii) Tentukan tenaga kinetik elektron itu.
Determine the kinetic energy of the electron.

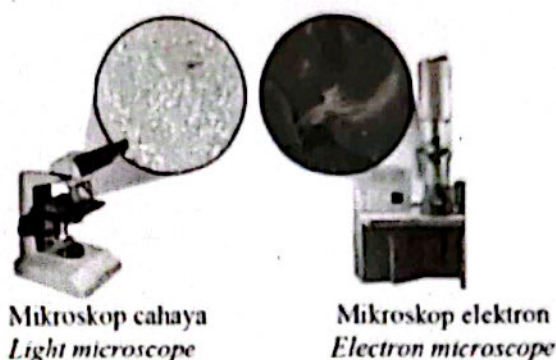
[2 markah / 2 marks]

- (c) Alur elektron dalam Rajah 4.1 digantikan dengan alur atom. Adakah interferens boleh terjadi? Terangkan jawapan anda.
The electron beam in Diagram 4.1 is replaced with an atomic beam. Can interference occur? Explain your answer.

.....
.....

[2 markah / 2 marks]

- (d) Rajah 4.2 menunjukkan imej sel darah merah yang dihasilkan oleh mikroskop cahaya dan mikroskop elektron.
Diagram 4.2 shows the images of red blood cells produced by a light microscope and an electron microscope.



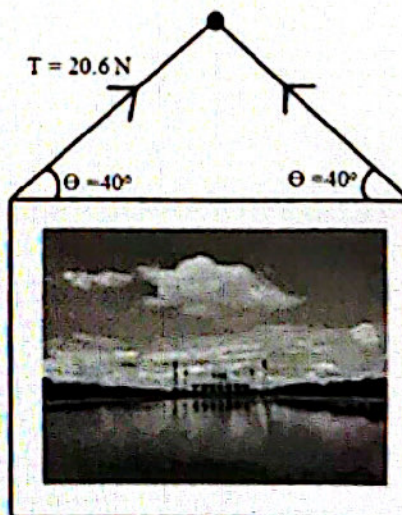
Rajah 4.2 / Diagram 4.2

Mengapa mikroskop elektron berupaya menghasilkan imej yang beresolusi tinggi bagi spesimen kecil berbanding dengan mikroskop cahaya?

Why are electron microscope able to produce higher resolution of small specimens compared to light microscope?

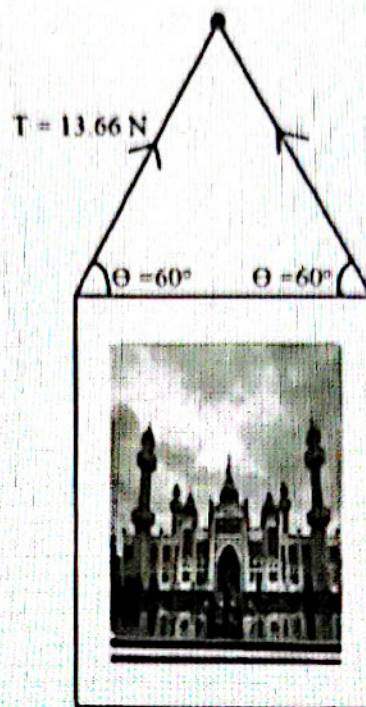
[1 markah / 1 mark]

- 5 (S) Rajah 5.1 dan Rajah 5.2 menunjukkan bingkai gambar digantung pada sebuah dinding dengan menggunakan tali yang serupa. Setiap tali dapat menampung daya maksimum sebanyak 22 N.
Diagram 5.1 and Diagram 5.2 show picture frames hung on a wall with identical strings. Each string can withstand a maximum force of 22 N.



Berat / Weight, $W = 26.5 \text{ N}$

Rajah 5.1 / Diagram 5.1



Berat / Weight, $W = 23.7 \text{ N}$

Rajah 5.2 / Diagram 5.2

- (a) Nyatakan maksud keseimbangan daya
State the meaning of forces in equilibrium.

[1 markah / 1 mark]

- (b) Berdasarkan Rajah 5.1 dan Rajah 5.2, bandingkan
Based on Diagram 5.1 and Diagram 5.2, compare the

- (i) sudut di antara tali dan bingkai gambar, θ
angle between the string and the picture frame, θ

[1 markah / 1 mark]

- (ii) berat bingkai gambar, W
weight of picture frame, W

[1 markah / 1 mark]

- (iii) tegangan tali, T
tension of string, T

.....
[1 markah / 1 mark]

- (c) (i) Hubungkan sudut di antara tali dan bingkai gambar, θ dengan tegangan tali, T .

Relate the angle between the string and picture frame, θ with the tension of string, T .

.....
[1 markah / 1 mark]

- (ii) Hubungkan berat bingkai gambar, W dengan tegangan tali, T
Relate the weight of picture frame, W with the tension of string, T .

.....
[1 markah / 1 mark]

- (d) Bingkai gambar dalam Rajah 5.1 digantikan dengan bingkai gambar yang baharu. Dalam beberapa saat selepas digantung, didapati tali bingkai gambar telah putus.

The picture frame in Diagram 5.1 is replaced by a new picture frame. A few seconds after the frame is hung, it is found that the string of the picture frame snapped.

- (i) Jika berat bingkai gambar ialah 30 N, hitung tegangan tali yang baharu.
If the weight of the new picture frame is 30 N, calculate the new tension of the string.

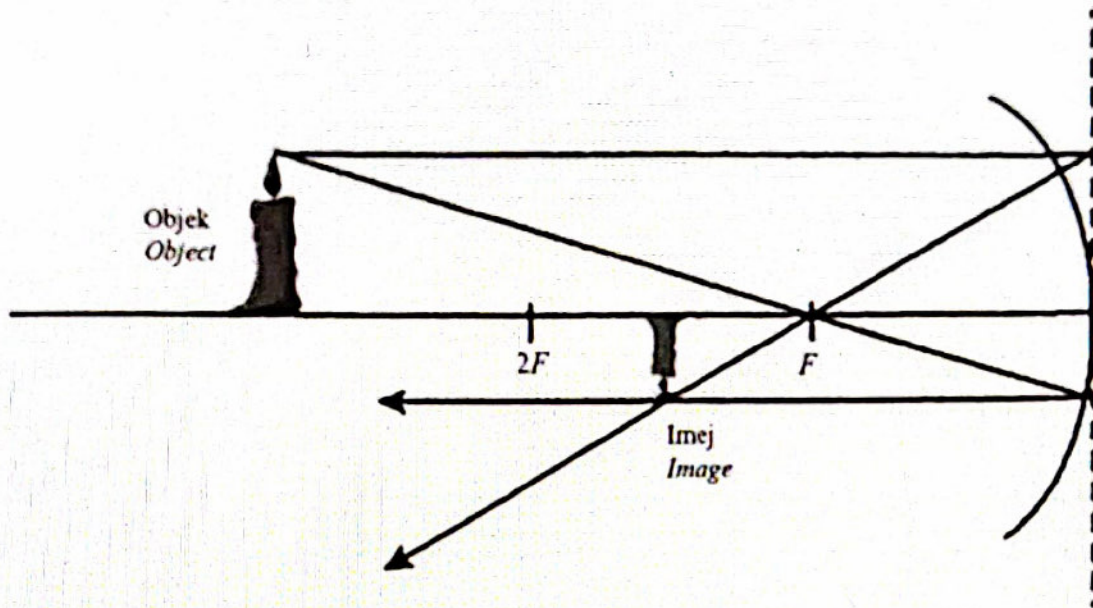
.....
[2 markah / 2 marks]

- (ii) Berdasarkan jawapan dalam 5(d)(i), terangkan mengapa tali bingkai gambar putus.
Based on the answer in 5(d)(i), explain why the string of the picture frame snaps.

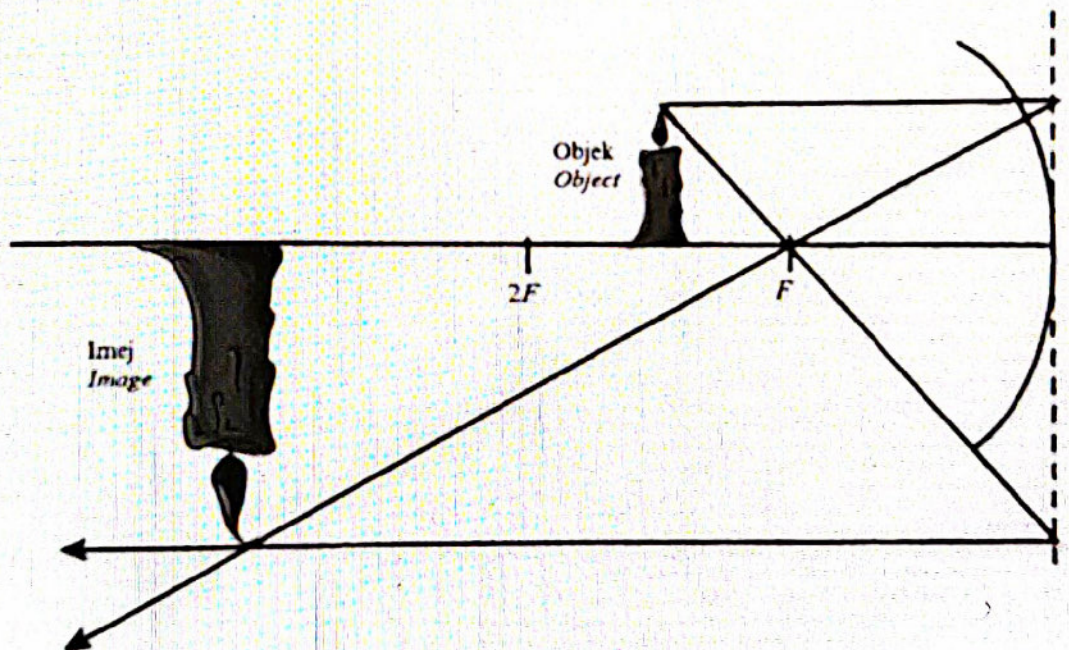
.....
[1 markah / 1 mark]

- 6 Rajah 6.1 dan Rajah 6.2 menunjukkan menunjukkan gambar rajah sinar bagi imej yang terbentuk oleh dua cermin cekung yang serupa.

Diagram 6.1 and Diagram 6.2 show the ray diagram for images formed by two identical concave mirrors.



Rajah 6.1 / Diagram 6.1



Rajah 6.2 / Diagram 6.2

- (a) Apakah yang dimaksudkan dengan panjang fokus cermin sfera?
What is meant by focal length of the sphere mirror?

.....
[1 markah / 1 mark]

- (b) Berdasarkan Rajah 6.1 dan Rajah 6.2, bandingkan
Based on Diagram 6.1 and Diagram 6.2, compare

- (i) panjang fokus bagi cermin
the focal length of the mirror

.....
[1 markah / 1 mark]

- (ii) jarak objek
object distance

.....
[1 markah / 1 mark]

- (iii) jarak imej
image distance

.....
[1 markah / 1 mark]

- (iv) saiz imej
size of image

.....
[1 markah / 1 mark]

- (c) Berdasarkan jawapan anda dalam soalan 6(b), nyatakan hubungan antara jarak objek dengan :

Based on your answers in questions 6(b), state the relationship between the object distance and:

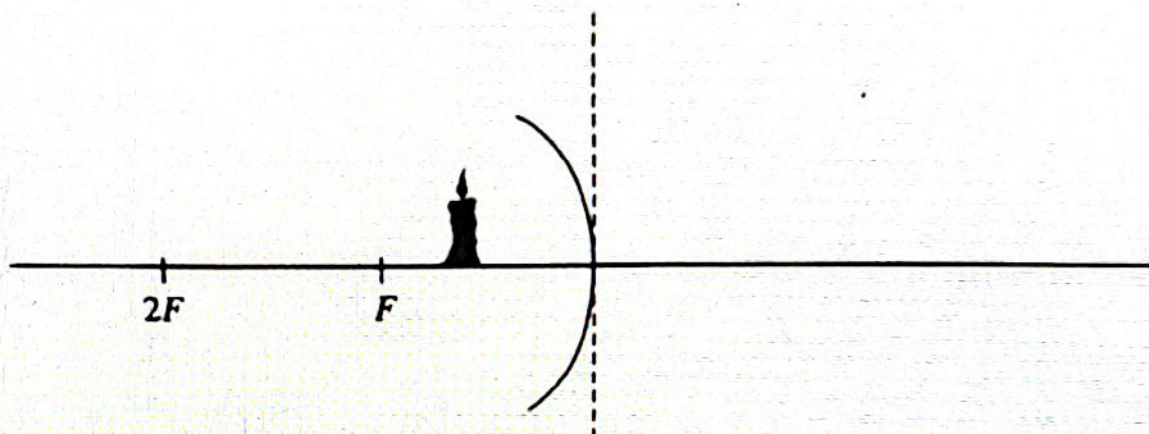
- (i) Jarak imej
Image distance

.....
[1 markah / 1 mark]

- (ii) Saiz imej
Size of image

[1 markah / 1 mark]

- (d) Lengkapkan rajah sinar dalam Rajah 6.3
Complete the ray diagram in Diagram 6.3

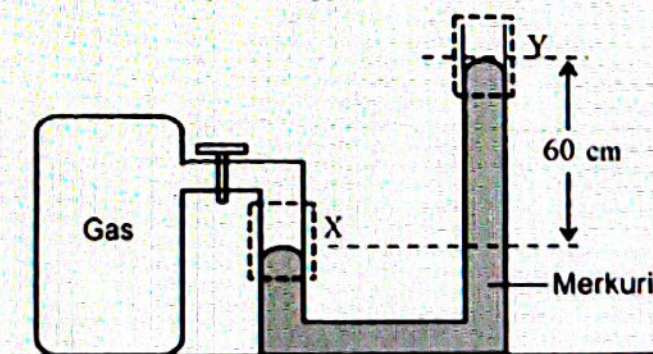


Rajah 6.3 / Diagram 6.3

[3 markah / 3 marks]

- 7 (S) Rajah 7.1 menunjukkan satu manometer yang digunakan untuk mengukur tekanan gas dalam sebuah tong gas.
Diagram 7.1 shows a manometer used to measure the gas pressure in the gas tong.

Diagram 7.1 shows a manometer used to measure the gas pressure in the gas tong.



Rajah 7.1 / Diagram 7.1

- (a) Nyatakan satu sebab mengapa merkuri sesuai digunakan dalam manometer itu.
State one reason why mercury is suitable to be use in the manometer.

.....
[1 markah / 1 mark]

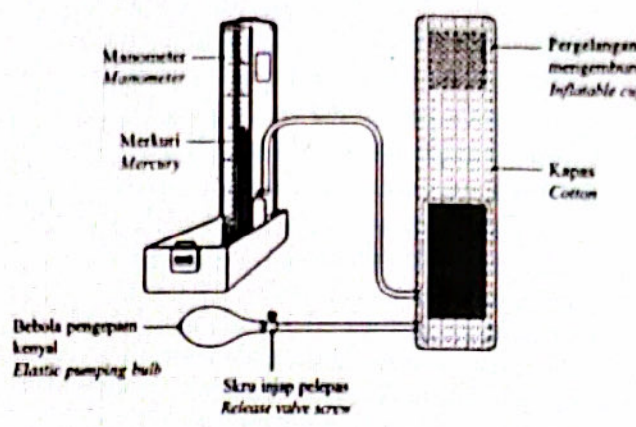
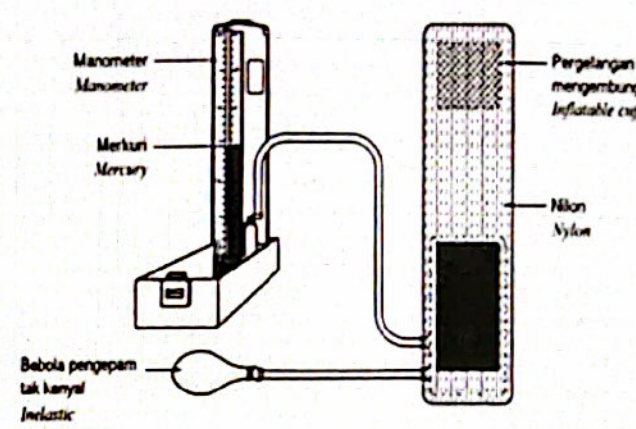
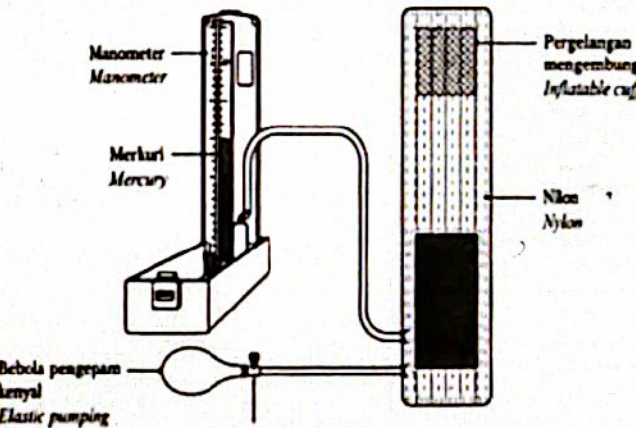
- (b) Tandakan dengan simbol P_{atm} dan P_{g} dalam petak X dan Y untuk menunjukkan tekanan atmosfera dan tekanan gas.
Mark with the symbol P_{atm} and P_{g} in the boxes X and Y to show atmospheric pressure and gas pressure.

[2 markah / 2 marks]

- (c) Hitung tekanan gas dalam Rajah 7.1
Calculate the gas pressure in Diagram 7.1.
[Tekanan atmosfera / *atmospheric pressure* = 76 cm Hg]

[1 markah / 1 mark]

- (d) Jadual 1 menunjukkan tiga Sphygmomanometer A, B dan C yang digunakan untuk mengukur tekanan darah seorang pesakit.
Table 1 shows three Sphygmomanometer A, B and C is used to measure the blood pressure of a patient.

Sphygmomanometer A	 The diagram shows a sphygmomanometer with a vertical glass tube containing mercury. A rubber bulb is connected to the cuff via a tube. A release valve screw is located on the tube between the bulb and the cuff. The cuff is shown wrapped around a limb. Manometer Manometer Merkuri Mercury Debola pengepam kenyal Elastic pumping bulb Skrul injap pelepas Release valve screw Pergelangan mengembung Inflatable cuff Kapas Cotton
Sphygmomanometer B	 The diagram shows a sphygmomanometer with a vertical glass tube containing mercury. A rubber bulb is connected to the cuff via a tube. The cuff is shown wrapped around a limb. Manometer Manometer Merkuri Mercury Bebola pengepam tak kenyal Inelastic pumping bulb Pergelangan mengembung Inflatable cuff Nilon Nylon
Sphygmomanometer C	 The diagram shows a sphygmomanometer with a vertical glass tube containing mercury. A rubber bulb is connected to the cuff via a tube. A release valve screw is located on the tube between the bulb and the cuff. The cuff is shown wrapped around a limb. Manometer Manometer Merkuri Mercury Bebola pengepam kenyal Elastic pumping bulb Skrul injap pelepas Release valve screw Pergelangan mengembung Inflatable cuff Nilon Nylon

Jadual 1 / Table 1

Berdasarkan Jadual 1, nyatakan ciri-ciri bagi Sphygmomanometer yang boleh mengukur tekanan darah dengan berkesan.

Based on Table 1, state the characteristics of the Sphygmomanometer which can be used to measure the blood pressure efficiently.

Beri sebab untuk kesesuaian ciri-ciri itu:

Give reasons according to the suitability of the characteristics:

- (i) **Bebola pengepam / Pumping bulb**

.....

Sebab / Reason:

.....

[2 markah / 2 marks]

- (ii) **Bahan yang digunakan untuk pergelangan mengembung**
Materials used for inflatable cuff

.....

Sebab / Reason:

.....

[2 markah / 2 marks]

- (iii) **Apakah reka bentuk Sphygmomanometer yang paling sesuai untuk digunakan bagi mengukur tekanan darah pesakit?**
What is the most suitable design of a Sphygmomanometer for measuring a patients's blood pressure?

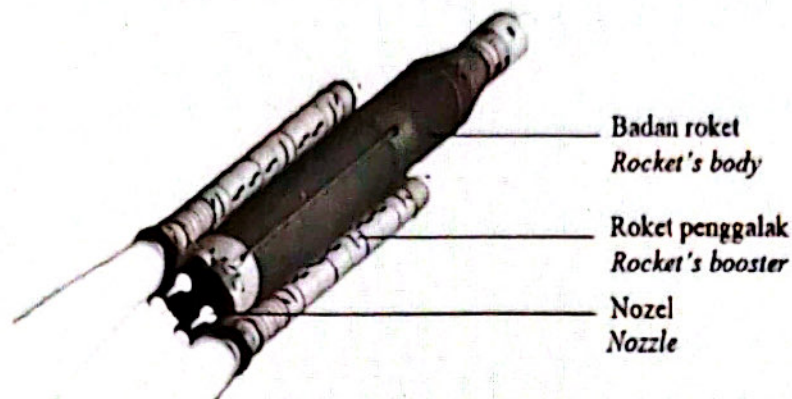
.....

[1 markah / 1 mark]



- 8 Rajah 8.1 menunjukkan struktur sebuah roket yang berjisim 78 000 kg yang bergerak dengan momentum yang tinggi.
(S)

Diagram 8.1 shows the structure of rocket with a mass of 78 000 kg that moves with high momentum.



Rajah 8.1 / Diagram 8.1

- (a) Apakah yang dimaksudkan dengan momentum?
What is the meaning of momentum?

.....
[1 markah / 1 mark]

- (b) (i) Jika roket tersebut bergerak dengan halaju $4\,600\text{ m s}^{-1}$, hitung momentum roket tersebut.
If the rocket is travelling at $4\,600\text{ m s}^{-1}$, calculate the momentum of the rocket.

[1 markah / 1 mark]

- (ii) Apakah yang berlaku kepada halaju roket tersebut jika jisimnya bertambah?
What happen to the velocity of rocket if its mass increases?

.....
[1 markah / 1 mark]

- (c) Nyatakan ciri-ciri yang sesuai untuk membolehkan roket menghasilkan pecutan yang tinggi dan dapat sampai di Stesen Angkasa Antarabangsa mengikut masa yang ditetapkan. Berikan sebab bagi ciri yang dinyatakan.
State the suitable characteristics to enable the rocket to produce high acceleration and be able to reach the International Space Station on time. Give reasons for characteristics.

(i) Bilangan roket penggalak / *Number of booster rockets*

.....

Sebab / *Reason:*

.....

[2 markah / 2 marks]

(ii) Ketumpatan roket / *Density of rocket*

.....

Sebab / *Reason:*

.....

[2 markah / 2 marks]

(iii) Bentuk roket / *Shape of rocket*

.....

Sebab / *Reason:*

.....

[2 markah / 2 marks]

SULIT

[Lihat halaman sebelah]

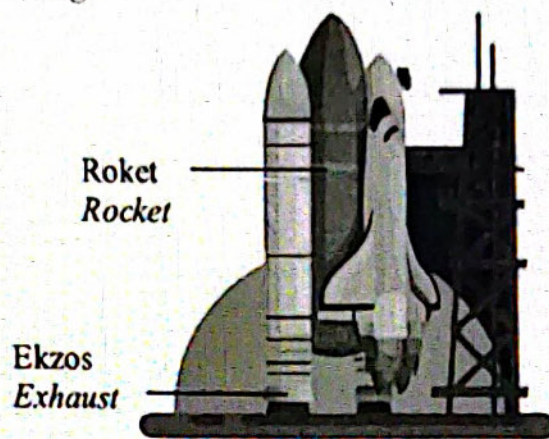
Bahagian ini mengandungi dua soalan. Jawab satu soalan sahaja.

This section has two questions. Answer only one question.

- 9 Rajah 9 menunjukkan pelancaran sebuah roket ke angkasa lepas. Roket harus mencapai halaju lepas yang tinggi semasa dilancarkan.

(T)

Diagram 9 shows the launching of a rocket to outer space. The rocket must achieve high escape velocity during launching



Rajah 9 / Diagram 9

- (a) Beri definisi bagi halaju lepas.
Define escape velocity.
- [1 markah / 1 mark]
- (b) Nyatakan implikasi halaju lepas yang tinggi semasa pelancaran roket.
State the implication of high escape velocity during the launching of the rocket.
- [4 markah / 4 marks]
- (c) (i) Hitung pecutan graviti yang dialami oleh roket semasa pelancaran.
Calculate the gravitational acceleration experienced by the rocket during launching.
- [2 markah / 2 marks]
- (ii) Apakah yang berlaku kepada magnitud pecutan graviti apabila altitud roket semakin bertambah?
What happens to the magnitude of gravitational acceleration when the altitude of the rocket increases?
- [1 markah / 1 mark]

(iii) Hitung halaju lepas yang harus dicapai oleh roket.

Calculate the escape velocity that must be achieved by the rocket.

[2 markah / 2 marks]

(d) Jadual 2 menunjukkan ciri-ciri bagi empat jenis roket P, Q, R dan S yang akan dilancarkan.

Table 2 shows the characteristics of four rocket P, Q, R and S types that will be launched.

Rocket	Jisim roket <i>Mass of rocket</i>	Bentuk roket <i>Shape of rocket</i>	Saiz ekzos <i>Size of exhaust</i>	Bilangan ekzos <i>Number of exhausts</i>
P	Besar <i>Large</i>	Aerofil <i>Aerofoil</i>	Besar <i>Large</i>	2
Q	Kecil <i>Small</i>	Aerofil <i>Aerofoil</i>	Kecil <i>Small</i>	3
R	Kecil <i>Small</i>	Aerodinamik <i>Aerodynamic</i>	Besar <i>Large</i>	3
S	Besar <i>Large</i>	Aerodinamik <i>Aerodynamic</i>	Kecil <i>Small</i>	2

Jadual 2 / Table 2

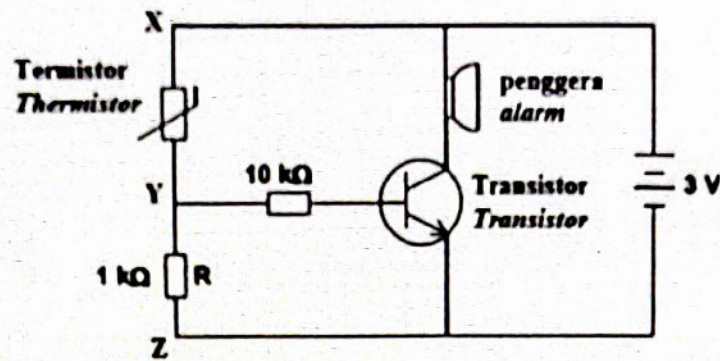
Anda dikehendaki untuk mengkaji ciri-ciri roket yang boleh menghasilkan halaju lepas yang tinggi semasa pelancaran. Terangkan kesesuaian bagi setiap ciri dan beri sebab bagi pilihan anda.

You are required to study the characteristics of a rocket that can produce a high escape velocity during launch. Explain the suitability of each characteristic and give reasons for your choice.

[10 markah / 10 marks]

- 10 Rajah 10.1 menunjukkan sebuah litar ringkas sebuah penggera kebakaran. Apabila berlaku (T) kebakaran, penggera akan berbunyi.

Diagram 10.1 shows a simple circuit of a fire alarm. When there is a fire, the alarm will be activated.



Rajah 10.1 / Diagram 10.1

- (a) Apakah fungsi transistor dalam Rajah 10.1?
What is the function of the transistor in Diagram 10.1?
[1 markah / 1 mark]
- (b) Terangkan bagaimana penggera akan berbunyi apabila berlaku kebakaran.
Explain how the alarm will sound when there is a fire.
[4 markah / 4 marks]
- (c) Berdasarkan Rajah 10.1, penggera akan berbunyi jika beza keupayaan antara YZ ialah 0.5 V.
Based on Diagram 10.1, the alarm will sound, if the potential difference between YZ is 0.5 V.
Hitung / Calculate ;
- (i) beza keupayaan merentasi XY
potential different across XY
[1 markah / 1 mark]
 - (ii) arus yang melalui XZ.
current flow through XZ
[2 markah / 2 marks]
 - (iii) rintangan termistor
resistance of thermistor
[2 markah / 2 marks]
- (d) Rajah 10.2 menunjukkan sebuah rumah di pinggir hutan. Tuan rumah ingin memasang semua lampu limpah di sekeliling rumahnya. Lampu limpah tersebut perlu menyala pada waktu malam dan terpadam sendiri pada waktu siang.



Diagram 10.2 shows a house on the edge of the forest. The owner wants to install all spotlights around his house. The spotlight should be lit at night and turn off by itself during the day.



lampu limpah
spotlight

Rajah 10.2 / Diagram 10.2

Jadual 3 menunjukkan empat litar elektronik W, X, Y dan Z dengan spesifikasi yang berbeza.

Table 3 shows four electronic circuits W, X, Y and Z with different specifications.

Anda dikehendaki menentukan litar elektronik yang paling sesuai untuk menyalakan ketiga-tiga lampu limpah 100 W, 240 V dengan kecerahan normal apabila keadaan persekitaran gelap daripada aspek berikut :

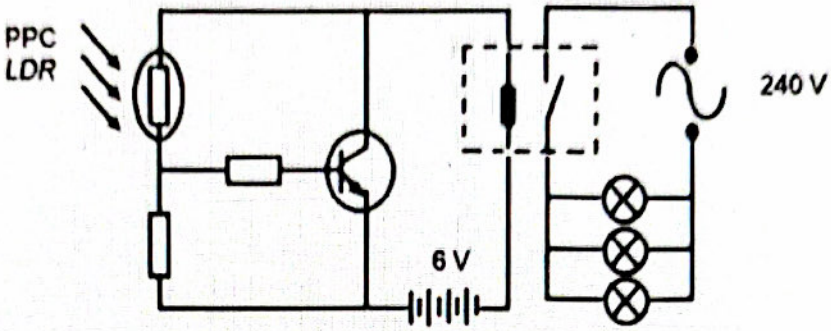
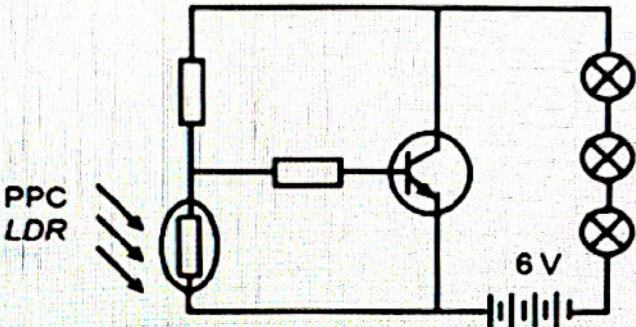
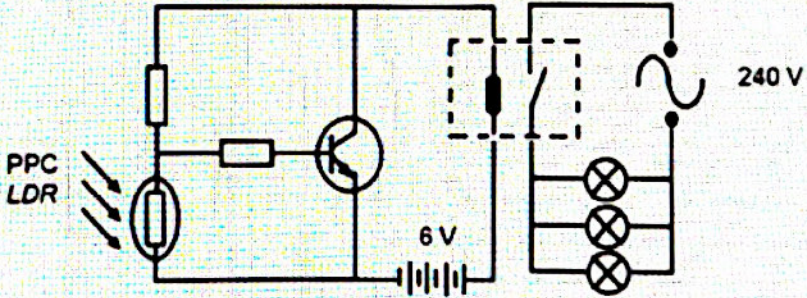
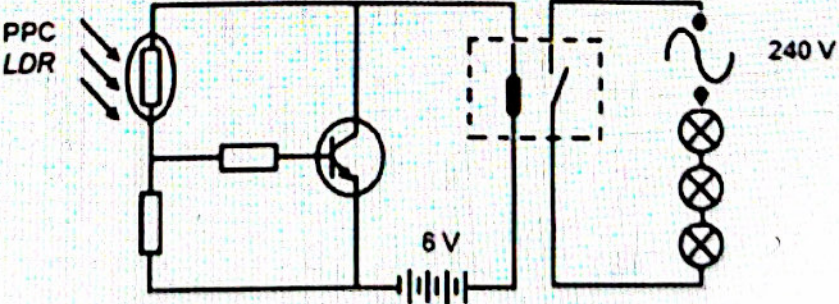
You are required to determine the most suitable electronic circuit to light up three 100 W, 240 V spotlights, with normal brightness when the surrounding is dark from the following aspects:

- (i) Kedudukan perintang peka cahaya (PPC)
The position of the light dependent resistor (LDR)
- (ii) Penyambungan terminal bateri
The connection of the batteries terminal
- (iii) Susunan litar lampu limpah.
The arrangement of the spotlights circuit
- (iv) Penggunaan suis geganti dalam litar.
The use of a relay switch in the circuit

Terangkan kesesuaian aspek-aspek itu dan tentukan litar elektronik yang paling sesuai. Berikan sebab bagi pilihan anda.

Explain the suitability of the aspects and determine the most suitable electronic circuit. Give reasons for your choice.

[10 markah / 10 marks]

Jenis litar Type of circuit	Rajah litar Circuit diagram
Litar W Circuit W	
Litar X Circuit X	
Litar Y Circuit Y	
Litar Z Circuit Z	

Jadual 3 / Table 3

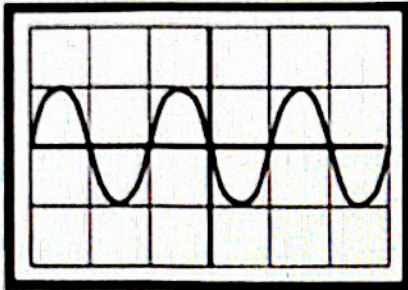
Bahagian C / Section C

[20 markah / marks]

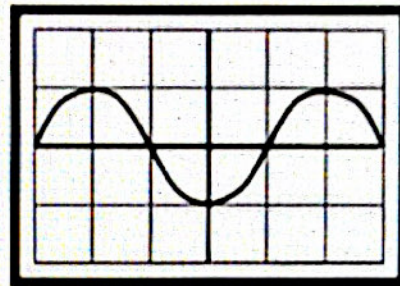
Soalan ini mesti dijawab. / This question **must** be answered.

- 11 Rajah 11.1 dan Rajah 11.2 menunjukkan surihan pada skrin sebuah Osiloskop Sinar Katod (OSK) apabila disambung kepada output sebuah penjana audio yang berbeza frekuensi.

Diagram 11.1 and Diagram 11.2 show traces on the screen of a Cathode Ray Oscilloscope (CRO) when connected to two outputs of an audio generator with different frequency.



Rajah 11.1/ Diagram 11.1



Rajah 11.2/ Diagram 11.2

- (a) Apakah maksud frekuensi?
What is meaning of frequency?

[1 markah / 1 mark]

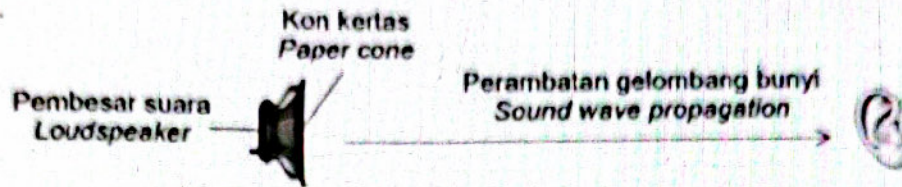
- (b) Berdasarkan Rajah 11.1 dan Rajah 11.2, bandingkan amplitud gelombang, bilangan gelombang lengkap, dan tempoh ayunan gelombang. Seterusnya, hubungkait bilangan gelombang lengkap dengan tempoh gelombang untuk membuat satu deduksi berkaitan dengan hubungan antara bilangan gelombang lengkap dengan frekuensi gelombang.

Based on Diagram 11.1 and Diagram 11.2, compare the amplitude of wave, the number of complete waves and the period of oscillation of wave. Hence, relate the number of complete waves with the period of oscillation of wave to make a deduction regarding the relationship between the number of complete waves and the frequency of wave.

[5 markah / 5 marks]

- (c) Rajah 11.3 menunjukkan satu pembesar suara yang menghasilkan gelombang bunyi di udara.

Diagram 11.3 shows a loudspeaker that produces sound waves in air.



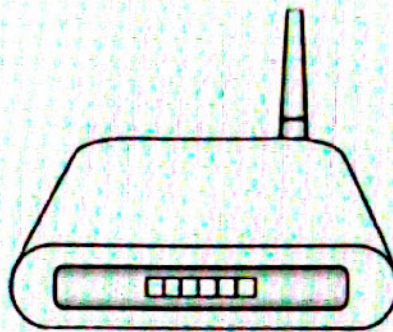
Rajah 11.3 / Diagram 11.3

Terangkan bagaimana gelombang bunyi dipindahkan dari pembesar suara ke gegendang telinga.

Explain how a sound wave is transmitted from the loudspeaker to the eardrum.

[4 markah / 4 marks]

- (d) Rajah 11.4 menunjukkan satu penghala tanpa wayar.
Diagram 11.4 shows a wireless router.



Rajah 11.4 / Diagram 11.4

Anda dikehendaki merekacipta sebuah penghala tanpa wayar dan kaedah pemasangan yang dapat memindahkan data dengan lebih laju dan boleh dicapai oleh peranti tanpa wayar dari jarak yang jauh.

You are required to design a wireless router and installation method that can transfer data faster and can be reached by wireless devices from a long distance.

Cadangan anda mestilah merangkumi lokasi penghala tanpa wayar dipasang, jenis gelombang elektromagnet yang digunakan, frekuensi gelombang, ketumpatan bahan yang digunakan dan bilangan antena yang digunakan. Beri sebab bagi pilihan anda.

Your proposal must include the location of the wireless router installed, the type of electromagnetic wave used, frequency of the wave, the density of the material used, and the number of antennas used. Give reasons for your choice.

[10 markah / 10 marks]