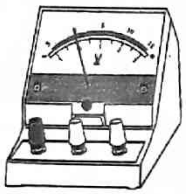
This question paper consists of **50** questions. Answer **all** questions.
Kertas soalan ini mengandungi **50** *soalan. Jawab* **semua** *soalan.*

1 Newton (N) is a unit for weight. Another unit for weight is kilogram metre per second per second (kg m s^{-2}).
Which statement is correct?
Newton (N) *ialah unit bagi berat. Unit lain bagi berat ialah kilogram meter per saat per saat* (kg ms^{-2}).
Penyataan manakah yang betul?

A 1000 N = 1 kg m s^{-2}
B 100 N = 1 kg m s^{-2}
C 10 N = 1 kg m s^{-2}
D 1 N = 1 kg m s^{-2}

2 Which measuring instrument measures vector quantity?
Alat pengukur manakah mengukur kuantiti vektor?

A



B

C

D

3 Diagram 1.1 shows the vernier calipers reading when the jaws are closed tightly.
Diagram 1.2 shows the vernier calipers is used to measure the outer diameter of a test tube.
Rajah 1.1 *menunjukkan bacaan angkup vernier pada ketika rahangnya tertutup rapat.*
Rajah 1.2 *menunjukkan angkup vernier tersebut digunakan untuk mengukur diameter luar sebuah tabung uji.*

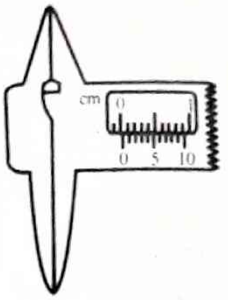


Diagram 1.1
Rajah 1.1

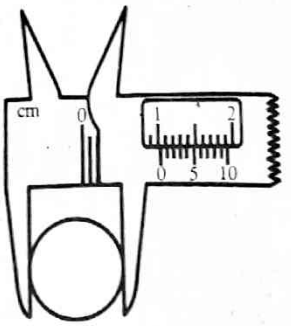


Diagram 1.2
Rajah 1.2

What is the outer diameter of the test tube?
Berapakah diameter luar tabung uji itu?

A 0·96 cm
B 1.00 cm
C 1·03 cm
D 1·06 cm

4 Diagram 2 shows a graph of relationship between pressure, P and volume, V.
Rajah 2 *menunjukkan graf hubungan antara tekanan,* P *dengan isi padu,* V.

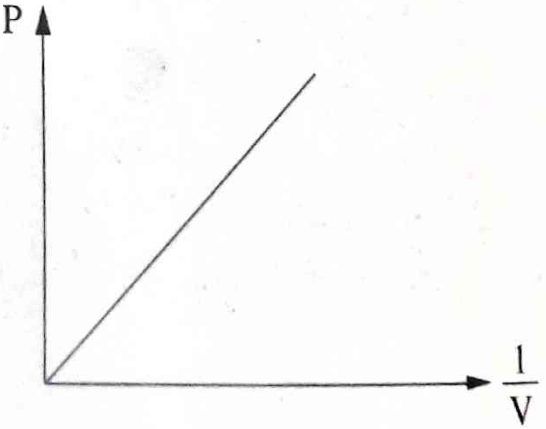
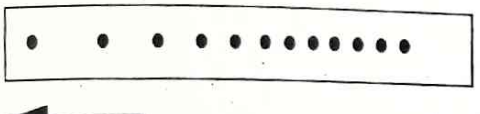


Diagram 2
Rajah 2

Which pair is correct?
Pasangan manakah yang betul?

	Responding variable *Pemboleh ubah bergerak balas*	Relationship *Hubungan*
A	$\frac{1}{V}$	P is directly proportional to $\frac{1}{V}$ P *berkadar terus dengan* $\frac{1}{V}$
B	$\frac{1}{V}$	P increases linearly to $\frac{1}{V}$ P *bertambah secara linear dengan* $\frac{1}{V}$
C	P	P is directly proportional to $\frac{1}{V}$ P *berkadar terus dengan* $\frac{1}{V}$
D	P	P increases linearly to $\frac{1}{V}$ P *bertambah secara linear dengan* $\frac{1}{V}$

5 Diagram 3 shows a ticker tape for a motion of an object.
Rajah 3 menunjukkan pita detik bagi gerakan suatu objek.



Direction of motion
Arah gerakan

Diagram 3
Rajah 3

Which statement describes the situation?
Pernyataan manakah menerangkan situasi tersebut?

A The object accelerates then constant velocity
Objek itu memecut kemudian halaju seragam

B The object decelerates then constant velocity
Objek itu menyahpecut kemudian halaju seragam

C The object moves with constant velocity then accelerates
Objek itu bergerak dengan halaju seragam kemudian memecut

D The object moves with constant velocity then decelerates
Objek itu bergerak dengan halaju seragam kemudian menyahpecut

6 Newton's First Law of Motion is also known as
Hukum Gerakan Newton Pertama juga dikenali sebagai

A inertia
inersia

B pressure
tekanan

C momentum
momentum

D impulsive force
daya impuls

7 Diagram 4 shows a velocity-time graph of a parachutist after jumping out from an aeroplane.
Rajah 4 menunjukkan suatu graf halaju-masa seorang penerjun selepas melompat keluar dari kapal terbang.

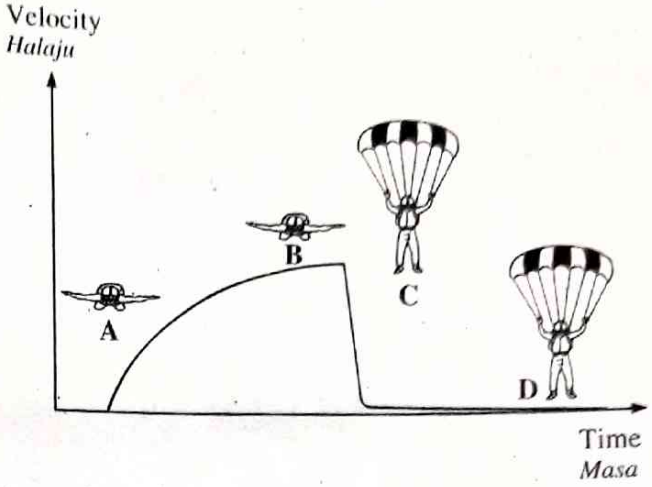


Diagram 4
Rajah 4

Which part, **A**, **B**, **C** or **D** of the graph shows the highest momentum experienced by the parachutist?
Antara bahagian **A**, **B**, **C** *dan* **D** *yang manakah pada graf menunjukkan momentum yang paling tinggi dialami oleh penerjun itu?*

8 Diagram 5 shows a tug of war activity. Ali is in a stationary state when he is pulled by his friends.
Rajah 5 menunjukkan satu aktiviti tarik tali. Ali berada dalam keadaan pegun apabila ditarik oleh rakan-rakannya yang lain.

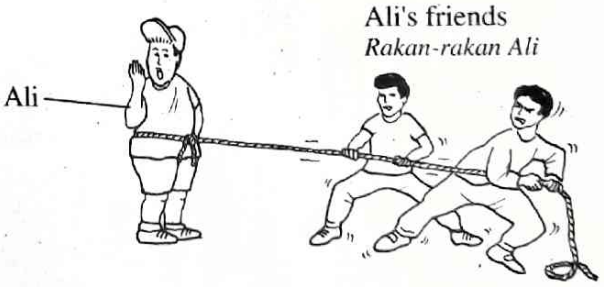


Diagram 5
Rajah 5

This situation happens because
Situasi ini berlaku kerana

A there is no weight difference
tiada perbezaan berat

B there is no normal reaction
tiada tindak balas normal

C the existence of net force
ada daya bersih

D the forces are in equilibrium
daya-daya dalam keseimbangan

9 Diagram 6 shows a landing area for a long jump event. The sand is flattened after a long jump is performed.
Rajah 6 menunjukkan satu kawasan mendarat bagi acara lompat jauh. Pasir diratakan selepas suatu lompatan dibuat.

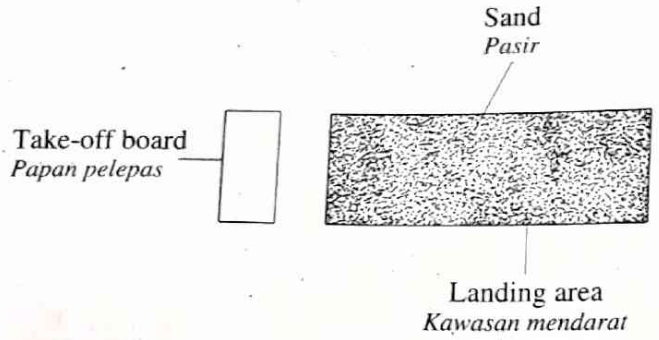


Diagram 6
Rajah 6

Sand is used to reduce
Pasir digunakan untuk mengurangkan

A impulse
impuls

B momentum
momentum

C impulsive force
daya impuls

D effect of inertia
kesan inersia

10 Diagram 7 shows a load with the mass of 20 g is dropped in a vacuum cylinder when a magnet is removed. The time for the load to fall is recorded. This experiment is repeated with the masses of the load, 40 g, 60 g , 80 g and 100 g.
Rajah 7 menunjukkan sebuah pemberat berjisim 20 g *dijatuhkan ke dalam satu silinder vakum apabila magnet dialihkan. Masa pemberat untuk jatuh dicatatkan. Eksperimen ini diulangi dengan pemberat berjisim* 40 g, 60 g, 80 g *dan* 100 g.

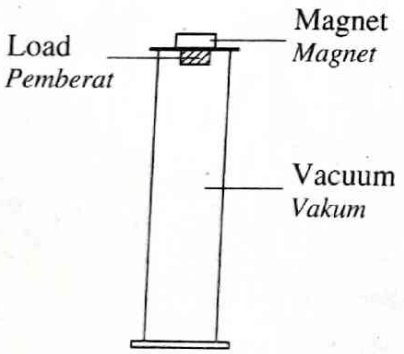
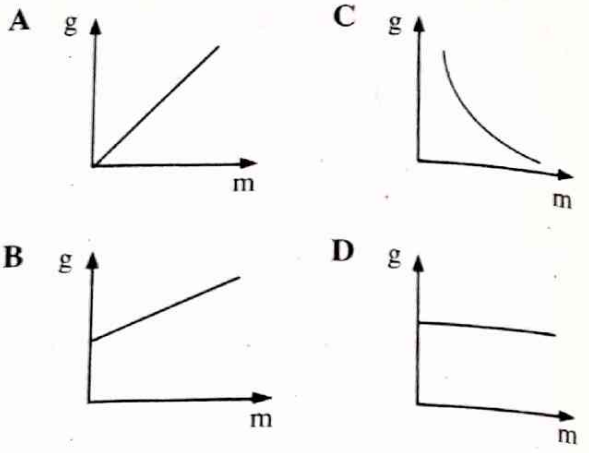


Diagram 7
Rajah 7

Which graph shows the correct relationship between gravitational acceleration, g and mass, m?
Graf manakah yang menunjukkan hubungan yang betul antara pecutan graviti, g *dengan jisim,* m?



11 Diagram 8 shows a girl on top of a slide.
Rajah 8 menunjukkan seorang budak perempuan berada di atas papan gelongsor.

Diagram 8
Rajah 8

Which statement is true?
Pernyataan manakah yang benar?

A Kinetic energy is maximum at Y
Tenaga kinetik adalah maksimum di Y

B Potential energy is minimum at X
Tenaga keupayaan adalah minimum di X

C Kinetic energy and potential energy are maximum at Y
Tenaga kinetik dan tenaga keupayaan adalah maksimum di Y

D Kinetic energy and potential energy are minimum at X
Tenaga kinetik dan tenaga keupayaan adalah minimum di X

12 Diagram 9 shows a spring. The original length of the spring is 20 cm. When a load of 400 g is hung to the spring, the length of the spring becomes 25 cm.
Rajah 9 menunjukkan sebuah spring. Panjang asal spring itu adalah 20 cm. *Apabila beban* 400 g *digantung pada spring itu, panjang spring menjadi* 25 cm.

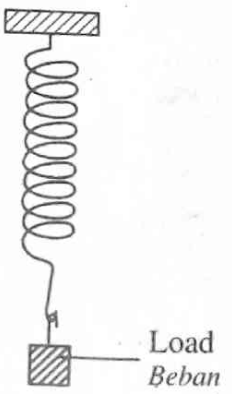


Diagram 9
Rajah 9

What is the elastic potential energy for the spring?
Berapakah tenaga keupayaan kenyal bagi spring itu?

A 0.005 N m
B 0.010 N m
C 0.100 N m
D 0.500 N m

13 Diagram 10 shows a car with a mass of 1 340 kg. Each tyre touches the ground with an area of 0.03 m^2.
Rajah 10 menunjukkan sebuah kereta berjisim 1 340 kg. Setiap tayar menyentuh tanah dengan keluasan 0.03 m^2.

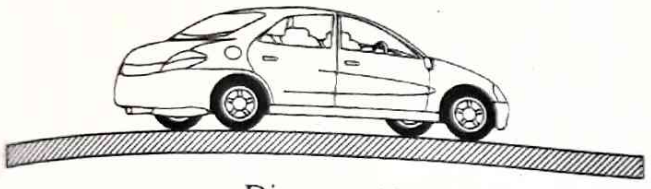


Diagram 10
Rajah 10

What is the pressure exerted by the car onto the ground?
Berapakah tekanan yang dikenakan oleh kereta ke atas permukaan tanah?

A 4.02×10^2 N m^{-2}
B 1.61×10^3 N m^{-2}
C 1.12×10^5 N m^{-2}
D 4.47×10^5 N m^{-2}

14 Diagram 11 shows a submarine in a sea.
Rajah 11 menunjukkan sebuah kapal selam yang berada dalam laut.

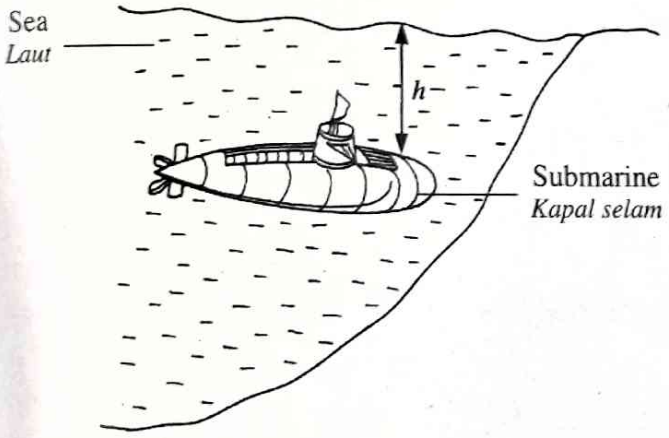


Diagram 11
Rajah 11

What is the depth, ***h***, of the submarine when the total pressure is 2.06×10^7 Pa?
[Density of sea water = 1.03×10^3 kg m^{-3}]
*Berapakah kedalaman, **h** bagi kapal selam apabila jumlah tekanan ialah 2.06×10^7 Pa?*
[Ketumpatan air laut = 1.03×10^3 kg m^{-3}]

A 2.00×10^3 m
B 2.00×10^4 m
C 2.12×10^9 m
D 2.12×10^{11} m

15 Diagram 12 shows two turtles in an aquarium.
Rajah 12 menunjukkan dua ekor penyu dalam sebuah akuarium.

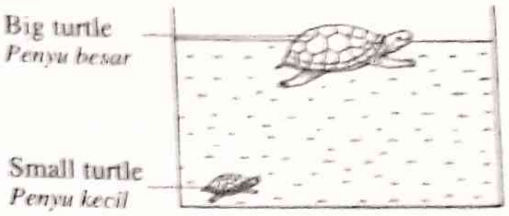


Diagram 12
Rajah 12

Compare the atmospheric pressure and water pressure for the big and small turtle.
Bandingkan tekanan atmosfera dan tekanan air untuk penyu besar dan penyu kecil itu.

	Atmospheric pressure exerted on the turtle *Tekanan atmosfera dikenakan ke atas penyu*	Water pressure exerted on the turtle *Tekanan air dikenakan ke atas penyu*
A	Both are the same *Kedua-dua sama*	Higher on the small turtle *Lebih tinggi pada penyu kecil*
B	Higher on the small turtle *Lebih tinggi pada penyu kecil*	Both are the same *Kedua-dua sama*
C	Both are the same *Kedua-dua sama*	Higher on the big turtle *Lebih tinggi pada penyu besar*
D	Higher on the big turtle *Lebih tinggi pada penyu besar*	Both are the same *Kedua-dua sama*

16 Diagram 13 shows a hydraulic brake system for a motorcycle. The motorcyclist pulls the brake handle with the pressure at X and it will produce a pressure at Y.
Rajah 13 menunjukkan suatu sistem brek hidraulik bagi sebuah motosikal. Seorang penunggang motosikal menarik pemegang brek depan dengan tekanan pada X dan ini akan menghasilkan tekanan pada Y.

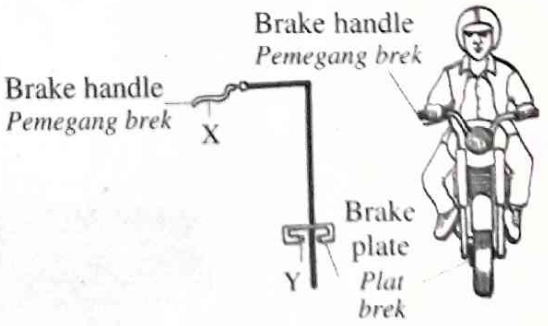


Diagram 13
Rajah 13

Which is correct about the pressure at X and Y?
Manakah yang betul tentang tekanan pada X dan Y?

A Pressure at X = Pressure at Y
Tekanan di X = Tekanan di Y

B Pressure at X > Pressure at Y
Tekanan di X > Tekanan di Y

C Pressure at X < Pressure at Y
Tekanan di X < Tekanan di Y

17 Diagram 14 shows the forces acting on a hot air balloon which is floating stationary in the air.
Rajah 14 menunjukkan daya-daya yang bertindak pada sebuah belon udara panas yang sedang terapung pegun di udara.

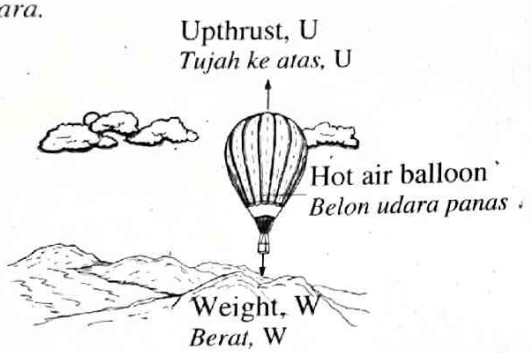


Diagram 14
Rajah 14

Which comparison is correct?
Perbandingan manakah yang betul?

A W = U
B W > U
C W < U

18 Diagram 15 shows a ping-pong ball tied to a string is attracted towards a fast flowing of tap water.
Rajah 15 menunjukkan sebiji bola pingpong yang diikat dengan benang tertarik ke arah aliran air laju yang keluar dari pili.

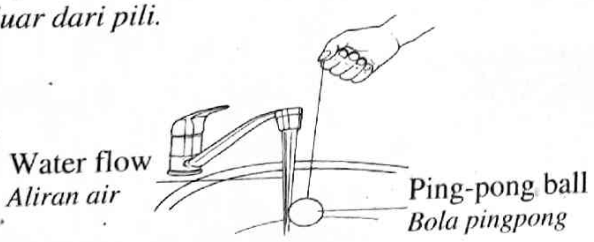


Diagram 15
Rajah 15

The above situation is due to
Situasi di atas disebabkan oleh

A high atmospheric pressure
tekanan atmosfera yang tinggi

B equal atmospheric pressure in the sink
tekanan atmosfera yang sama dalam sinki

C low pressure area between the ping-pong ball and the water flow
kawasan bertekanan rendah di antara bola pingpong dan aliran air

D high pressure area between the ping-pong ball and the water flow
kawasan bertekanan tinggi di antara bola pingpong dan aliran air

19 Diagram 16 shows a hot metal bob is immersed in water at a temperature of 30°C.
Rajah 16 menunjukkan satu ladung logam yang panas direndam ke dalam air pada suhu 30°C.

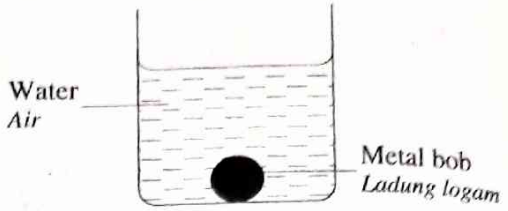


Diagram 16
Rajah 16

If the initial temperature of the metal bob is 60 °C, what is the temperature of the water when thermal equilibrium is achieved between the metal bob and the water?
Jika suhu awal ladung logam ialah 60 °C, apakah suhu air apabila keseimbangan terma tercapai antara ladung logam dan air?

A Higher than 60 °C
Lebih tinggi daripada 60°C

B Lower than 30 °C
Lebih rendah daripada 30 °C

C Between 30 °C and 60 °C
Antara 30 °C dan 60 °C

D Same as the room temperature
Sama dengan suhu bilik

20 Diagram 17 shows a pan is used to fry pancakes.
Rajah 17 menunjukkan sebuah kuali yang digunakan untuk menggoreng lempeng.

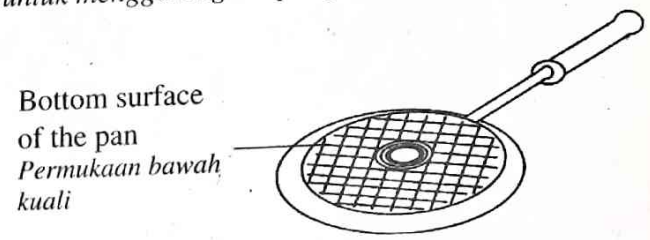


Diagram 17
Rajah 17

What is the suitable characteristic of the material used as the bottom surface of the pan?
Apakah ciri bahan yang sesuai digunakan pada permukaan bawah kuali?

A Low melting point
Takat lebur rendah

B Low boiling point
Takat didih rendah

C Low specific heat capacity
Muatan haba tentu rendah

D Low heat conductivity
Kekonduksian haba rendah

21 Diagram 18 shows the phase changes in four processes, P, Q, R and S.
Rajah 18 menunjukkan suatu perubahan fasa dalam empat proses, P, Q, R dan S.

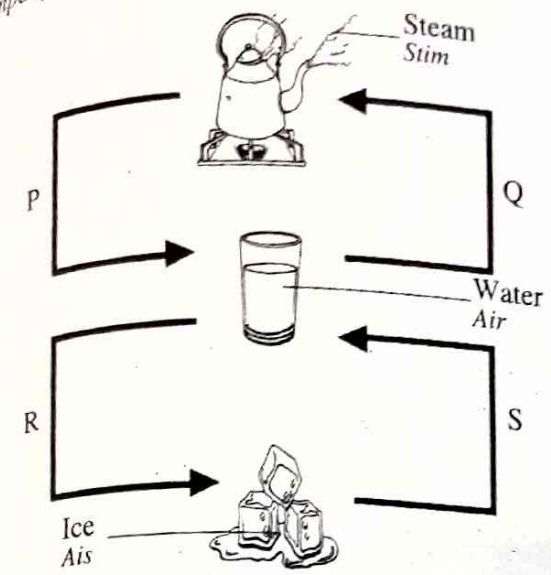


Diagram 18
Rajah 18

Which of the following is matched correctly?
Antara berikut, yang manakah padanan yang betul?

	Process *Proses*	Heat *Haba*
A	P, Q	Released *Dibebaskan*
B	R, S	Released *Dibebaskan*
C	Q, S	Absorbed *Diserap*
D	P, R	Absorbed *Diserap*

22 Diagram 19 shows a bubbles wrap which is normally used for packing fragile glassware. Air bubbles expand when the surrounding temperature increases.
Rajah 19 menunjukkan plastik bergelembung udara yang biasa digunakan untuk pembungkusan barang kaca mudah pecah. Gelembung-gelembung udara mengembang apabila suhu persekitaran meningkat.

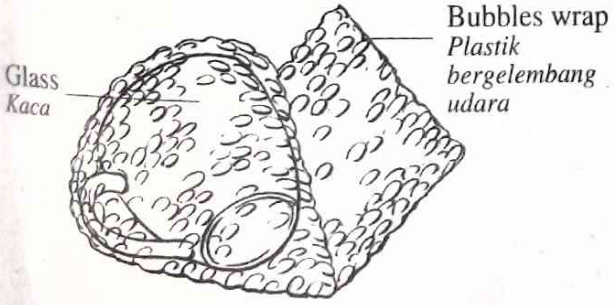


Diagram 19
Rajah 19

This situation can be explained by
Keadaan ini boleh dijelaskan oleh

A Boyle's Law
Hukum Boyle

B Charles's Law
Hukum Charles

C Pressure Law
Hukum Tekanan

23 Diagram 20 shows two plane mirrors arranged in 60°. A beam of light is directed towards a tilted plane mirror.
Rajah 20 menunjukkan dua cermin satah yang disusun pada sudut 60°. Satu alur cahaya ditujukan pada suatu cermin satah yang condong.

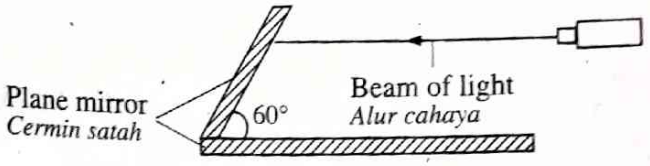
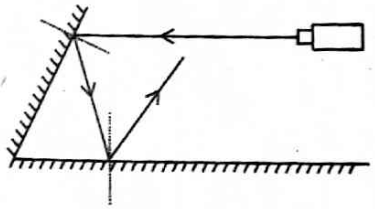
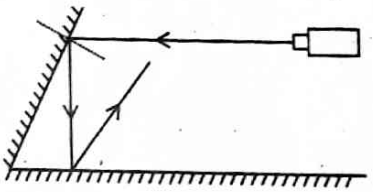
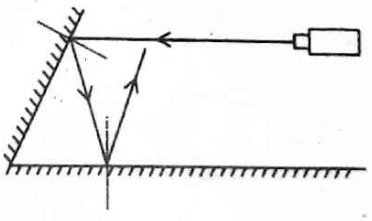


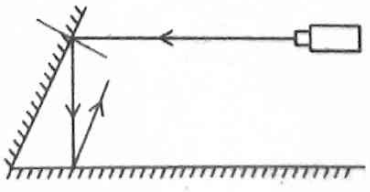
Diagram 20
Rajah 20

Which ray diagram is correct to show the light path after the light is reflected by the two plane mirrors?
Rajah sinar manakah yang betul untuk menunjukkan lintasan cahaya selepas cahaya itu terpantul oleh dua cermin satah itu?

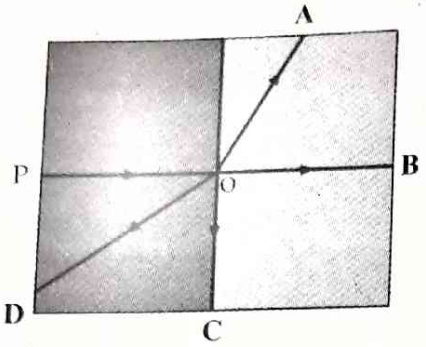
A


B


C


D


24 Diagram 21 shows two glass blocks, K and L are touching each other. The refractive index of glass block K is greater than glass block L.
Rajah 21 menunjukkan dua bongkah kaca, K dan L yang bersentuhan antara satu sama lain. Indeks biasan bongkah kaca K lebih besar daripada bongkah kaca L.



Glass block K *Bongkah kaca K* | Glass block L *Bongkah kaca L*

Diagram 21
Rajah 21

Which path **A**, **B**, **C** or **D** shows the correct propagation of light ray P after passing through point O?
Lintasan manakah **A**, **B**, **C** *dan* **D** *menunjukkan perambatan yang betul bagi sinar cahaya* P *selepas melalui titik* O?

25 Mirage is seen on a road on a hot day.
Which phenomena cause the appearance of mirages?
Logamaya dilihat di atas jalan raya pada suatu hari yang panas.
Fenomena manakah menyebabkan kemunculan logamaya?

A Refraction and reflection
Pembiasan dan pantulan

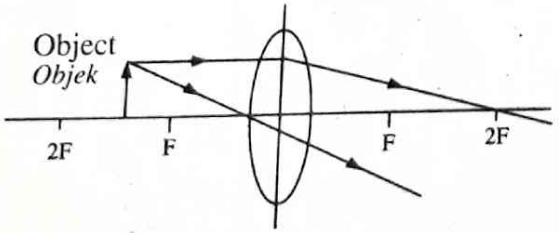
B Refraction and total internal reflection
Pembiasan dan pantulan dalam penuh

C Reflection and total internal reflection
Pantulan dan pantulan dalam penuh

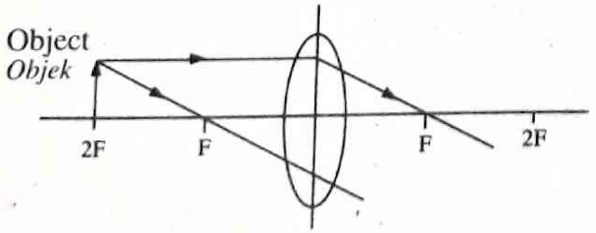
D Reflection, refraction and total internal reflection
Pantulan, pembiasan dan pantulan dalam penuh

26 Which ray diagram is correct for convex lens?
Rajah sinar manakah yang betul bagi kanta cembung?

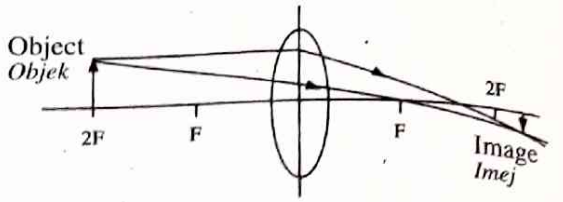
A



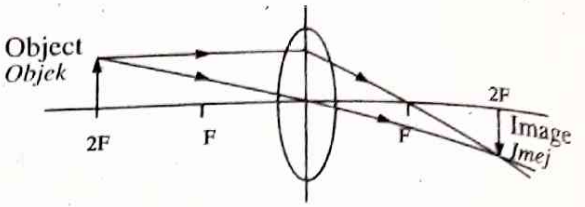
B



C



D



27 A red light of wave length 7.0×10^{-7} m passes through a glass with a speed of 2.0×10^{8} m s^{-1}.
What is the frequency of the red light?
Cahaya merah dengan panjang gelombang 7.0×10^{-7} m *melalui kaca dengan laju* 2.0×10^{8} m s^{-1}.
Berapakah frekuensi cahaya merah itu?

A 3.5×10^{-15} Hz
B 3.5×10^{1} Hz
C 2.9×10^{1} Hz
D 2.9×10^{14} Hz

28 Which quantity will change when water wave is reflected?
Kuantiti manakah yang akan berubah apabila gelombang air dipantulkan?

A Speed
Laju

B Frequency
Frekuensi

C Wave length
Panjang gelombang

D Direction of propagation
Arah perambatan

29 Diagram 22 shows a ripple tank with a perspex plate and a plane vibrator.
Rajah 22 menunjukkan suatu tangki riak dengan plat perspeks dan penggetar lurus.

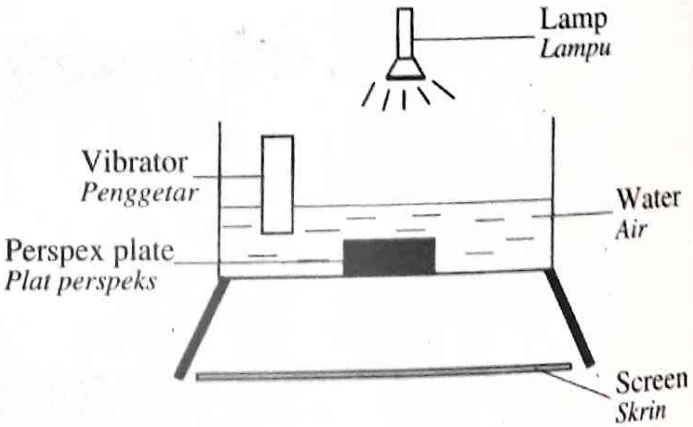
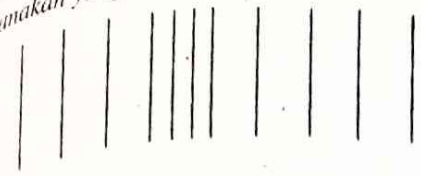


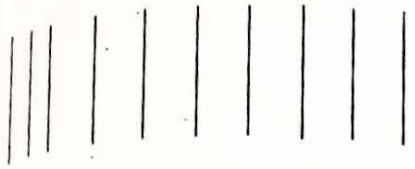
Diagram 22
Rajah 22

When the vibrator is turned on, which wave pattern is seen on the screen?
Apabila penggetar itu dihidupkan, corak gelombang manakah yang dilihat pada skrin?

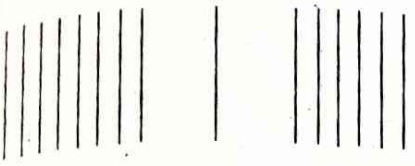
A



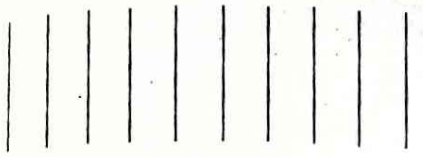
B



C



D



30 Diagram 23 shows the position of a radio station and a receiver.
Rajah 23 menunjukkan kedudukan sebuah stesen radio dan suatu penerima.

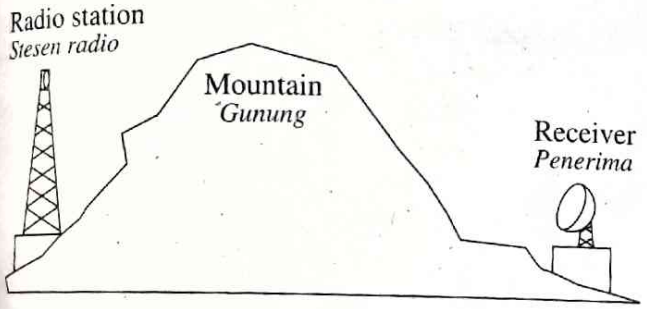


Diagram 23
Rajah 23

The receiver can receive wave from the radio station because
Penerima boleh menerima gelombang dari stesen radio kerana

A wave can be reflected
gelombang boleh dipantulkan

B wave can be refracted
gelombang boleh dibiaskan

C wave can be diffracted
gelombang boleh dibelaukan

D wave experiences interference
gelombang mengalami interferens

31 Diagram 24 shows an interference pattern formed by the Young's double slit experiment. Given, $a = 2.0 \times 10^{-2}$ m, D = 3.0 m, $\lambda = 6.8 \times 10^{-7}$ m.
Rajah 24 menunjukkan corak interferens terbentuk dalam eksperimen dwicelah Young. Diberi $a = 2.0 \times 10^{-2}$ m, D = 3.0 m, $\lambda = 6.8 \times 10^{-7}$ m.

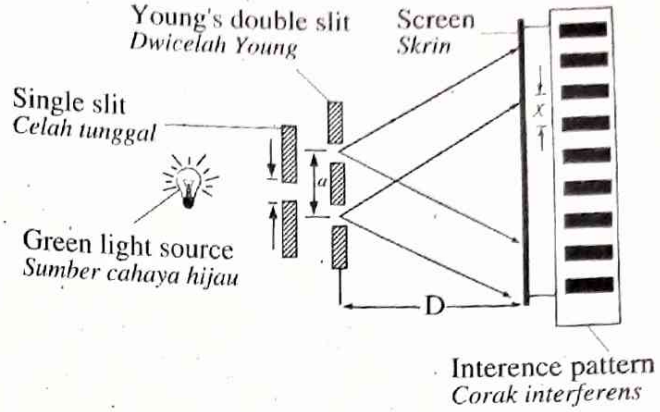


Diagram 24
Rajah 24

What is the value of x?
Berapakah nilai x?

A 4.5×10^{-9} m
B 1.1×10^{-5} m
C 1.0×10^{-4} m
D 6.0×10^{-2} m

32 Diagram 25 shows a rarefaction, R and compression, C region of a sound wave.
Rajah 25 menunjukkan kawasan regangan, R dan mampatan, C bagi gelombang bunyi.

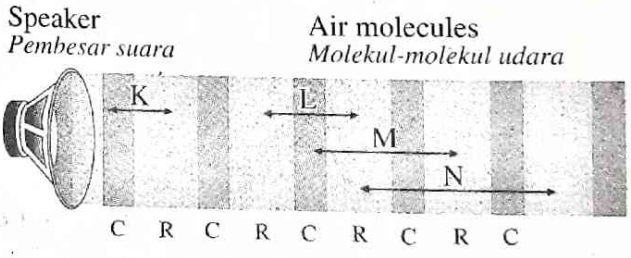


Diagram 25
Rajah 25

The wave length is represented by
Panjang gelombang diwakili oleh

A K
B L
C M
D N

33 Which electromagnetic wave has the lowest frequency and the longest wave length?
Gelombang elektromagnet manakah mempunyai frekuensi paling rendah dan panjang gelombang paling besar?

A Radio wave
Gelombang radio

B Microwave
Gelombang mikro

C Gamma ray
Sinar gama

D Ultraviolet ray
Sinar ultra ungu

34 An electric current of 600 mA flows through a resistor in 3 seconds.
What is the number of electrons that pass through the resistor?
(Charge per electron = 1.60×10^{-19} C)
Arus elektrik sebanyak 600 mA *mengalir melalui satu perintang dalam* 3 saat.
Berapakah bilangan elekron yang melalui perintang itu?
(*Cas satu elektron* = 1.60×10^{-19} C)

A 3.750×10^{18} **C** 3.750×10^{21}
B 1.125×10^{19} **D** 1.125×10^{22}

35 Diagram 26 shows two dry cells, 1.5 V each and two resistors, 2 Ω each are connected in an electric circuit.
Rajah 26 *menunjukkan dua sel kering bernilai* 1·5 V *setiap satu dan dua perintang bernilai* 2 Ω *setiap satu disambung dalam satu litar elektrik.*

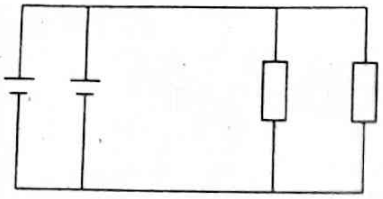


Diagram 26
Rajah 26

What are the total potential difference and resistance in the circuit?
Berapakah jumlah beza keupayaan dan rintangan dalam litar itu?

	Potential difference *Beza keupayaan*	**Resistance** *Rintangan*
A	1·5 V	2 Ω
B	1·5 V	1 Ω
C	3.0 V	4 Ω
D	3.0 V	2 Ω

36 Diagram 27 shows a dry cell connected to a bulb and the current flows through it is 0.5 A.
Rajah 27 *menunjukkan suatu sel kering disambung kepada sebiji mentol dan arus mengalir melaluinya ialah* 0.5 A.

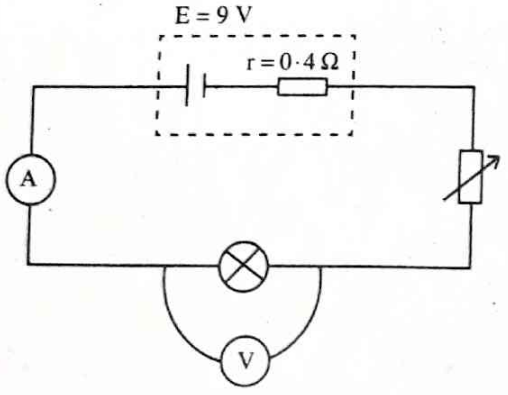


Diagram 27
Rajah 27

What is the potential difference across the bulb?
Berapakah beza keupayaan merentasi mentol?

A 4·1 V **C** 9·0 V
B 8·8 V **D** 9·2 V

37 Diagram 28.1 and 28.2 show bulb P and bulb Q are connected to 12 V power supply.
Rajah 28.1 *dan Rajah* 28.2 *menunjukkan mentol* P *dan mentol* Q *disambungkan ke bekalan kuasa,* 12 V.

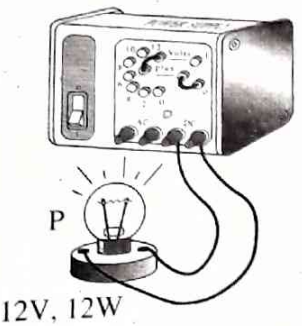


Diagram 28.1
Rajah 28.1

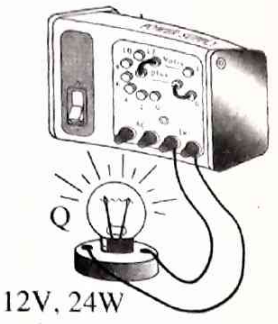


Diagram 28.2
Rajah 28.2

Bulb Q is brighter than bulb P because
Mentol Q lebih terang daripada mentol P *kerana*

A bulb P produces more waste of energy
mentol P *menghasilkan lebih pembaziran tenaga*
B bulb Q produces less waste of energy
mentol Q menghasilkan kurang pembaziran tenaga
C bulb Q consumes more energy in 1 second
mentol Q menggunakan lebih tenaga dalam 1 *saat*
D bulb P consumes more energy in 1 second
mentol P *menggunakan lebih tenaga dalam* 1 *saat*

38 Diagram 29 shows an apparatus set-up to observe the magnetic field lines produced when the current flows through a nichrome conductor.
Rajah 29 *menunjukkan suatu susunan radas untuk memerhati garisan medan magnet yang terhasil apabila arus mengalir melalui konduktor nikrom.*

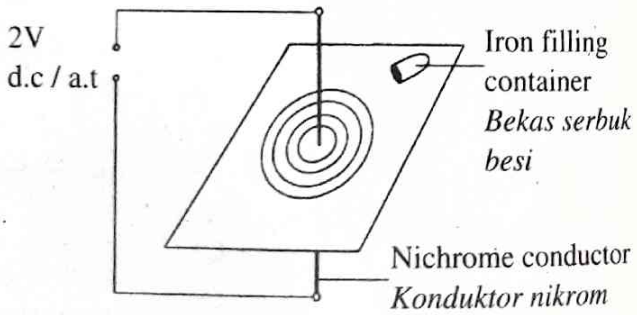
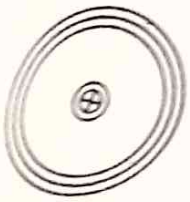


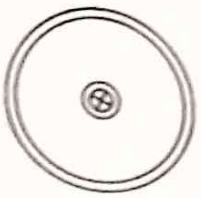
Diagram 29
Rajah 29

Which magnetic field pattern is correct when nichrome is replaced with copper?
Corak medan magnet manakah yang betul apabila nikrom digantikan dengan kuprum?

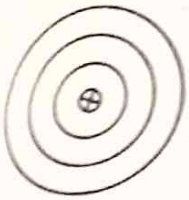
A



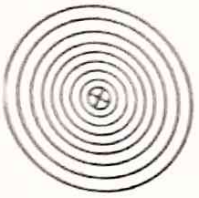
C



B



D



39 Diagram 30 shows a coil wire in a magnetic field.
Rajah 30 menunjukkan suatu gelung dawai dalam suatu medan magnet.

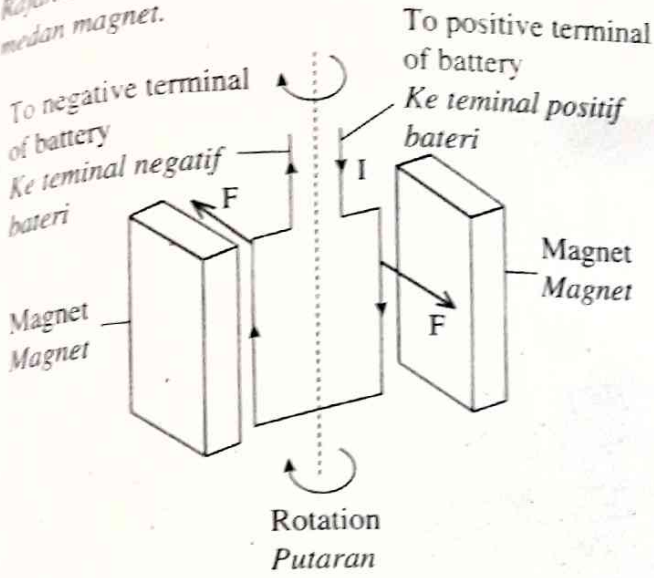


Diagram 30
Rajah 30

The rate of rotation of the coil increases when the
Kadar putaran gelung bertambah apabila

A current is increased
arus ditambah

B vertical length of coil is increased
panjang tegak gelung ditambah

C distance between magnets is increased
jarak antara magnet ditambah

D thickness of both magnets is increased
ketebalan kedua-dua magnet ditambah

40 Diagram 31 shows an apparatus set-up of electromagnetic induction.
Rajah 31 menunjukkan susunan radas bagi aruhan elektromagnet.

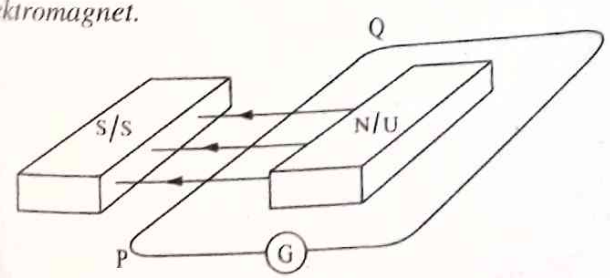


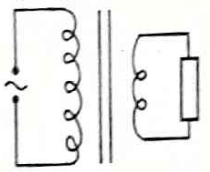
Diagram 31
Rajah 31

Which of the following combinations is correct?
Antara gabungan berikut, manakah yang betul?

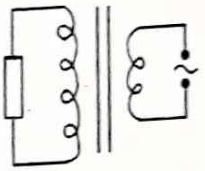
	Direction of motion of wire PQ *Arah gerakan dawai PQ*	Direction of current *Arah arus*
A	To the right *Ke kanan* →	P → Q
B	Downward *Ke bawah* ↓	Q → P
C	To the left *Ke kiri* ←	P → Q
D	Upward *Ke atas* ↑	Q → P

41 Which diagram shows the correct step-down transformer?
Rajah manakah yang menunjukkan transformer injak turun yang betul?

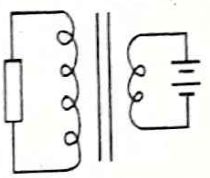
A



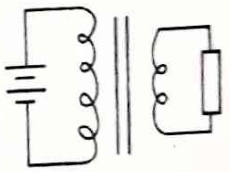
C



B



D



42 Diagram 32 shows National Grid Network System.
Rajah 32 menunjukkan Sistem Rangkaian Grid Nasional.

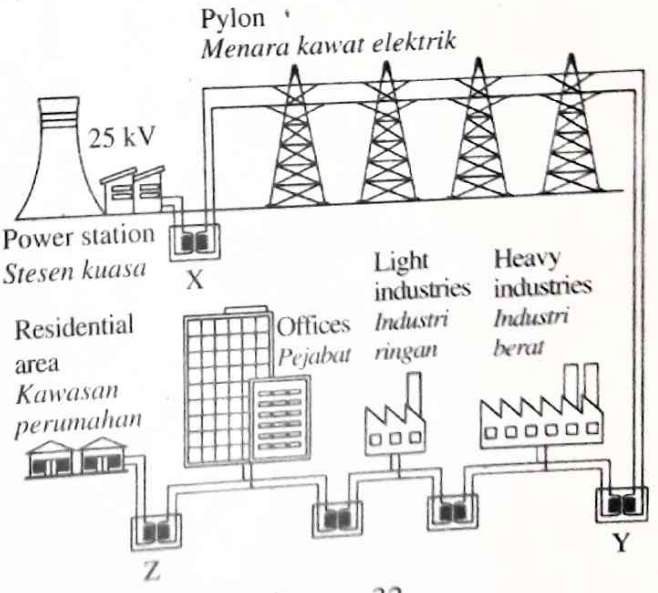


Diagram 32
Rajah 32

What type of transformers are used at X, Y and Z?
Apakah jenis transformer yang digunakan di X, Y dan Z?

	X	Y	Z
A	Step-up *Injak naik*	Step-up *Injak naik*	Step-down *Injak turun*
B	Step-down *Injak turun*	Step-down *Injak turun*	Step-up *Injak naik*
C	Step-down *Injak turun*	Step-up *Injak naik*	Step-up *Injak naik*
D	Step-up *Injak naik*	Step-down *Injak turun*	Step-down *Injak turun*

43 Diagram 33 shows a Maltese cross tube.
Rajah 33 menunjukkan suatu tiub palang Maltese.

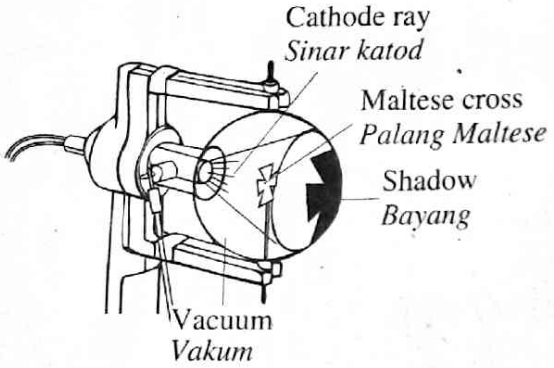


Diagram 33
Rajah 33

A shadow formed on the screen indicates that cathode rays
Bayang terbentuk atas skrin menunjukkan bahawa sinar katod

A move from cathode to anode
bergerak dari katod ke anod

B can be stopped by a piece of metal
boleh dihentikan oleh sekeping logam

C move at a high speed
bergerak dengan laju tinggi

D are negatively charged
bercas negatif

44 Diagram 34 shows an electric circuit.
Rajah 34 menunjukkan satu litar elektrik.

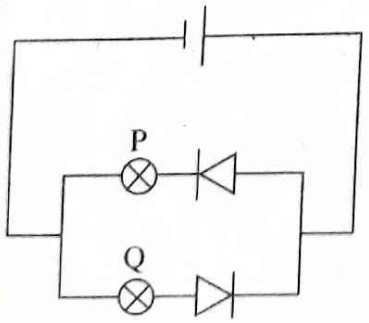


Diagram 34
Rajah 34

Which statement is correct?
Penyataan manakah yang betul?

A Only bulb P lights up
Hanya mentol P menyala

B Only bulb Q lights up
Hanya mentol Q menyala

C Both bulbs P and Q light up
Kedua-dua mentol P dan Q menyala

D Both bulbs P and Q do not light up
Kedua-dua mentol P dan Q tidak menyala

45 Diagram 35 shows a transistor used as a curren amplifier.
Rajah 35 menunjukkan suatu transistor digunaka sebagai penguat arus.

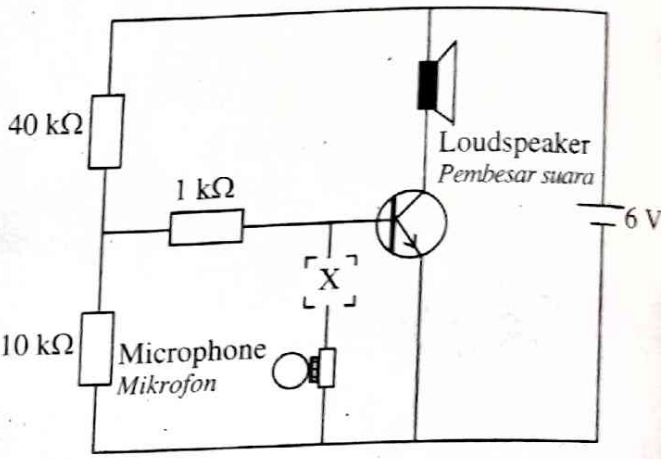


Diagram 35
Rajah 35

Which symbol represents X?
Simbol manakah mewakili X?

A

C

B

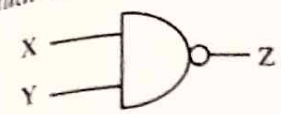
D

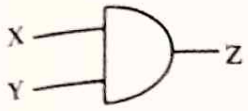
46 Diagram 36 shows a truth table of a logic gate.
Rajah 36 menunjukkan jadual kebenaran bagi suatu get logik.

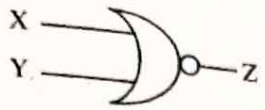
INPUT *INPUT*		**OUTPUT** *OUTPUT*
X	Y	Z
0	0	1
1	0	1
0	1	1
1	1	0

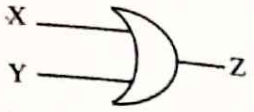
Diagram 36
Rajah 36

Which logic gate symbol is correct to represent the truth table?
Simbol get logik manakah yang betul untuk mewakili jadual kebenaran itu?

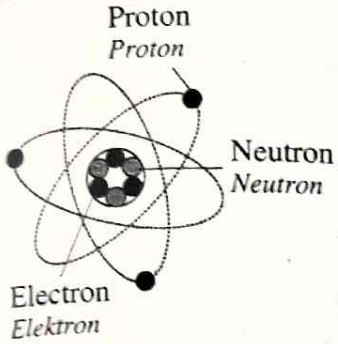
A 

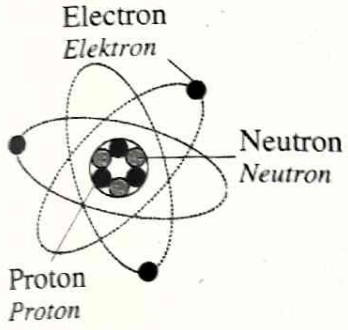
B 

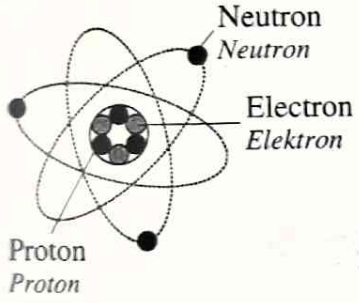
C 

D 

47 Which atom structure is correct?
Struktur atom manakah yang betul?

A 

B 

C 

48 Diagram 37 shows a decay process of Plumbum-214.
Rajah 37 menunjukkan proses pereputan bagi Plumbum-214.

$$^{214}_{82}Pb \xrightarrow{X} {}^{214}_{83}Bi \xrightarrow{Y} {}^{214}_{84}Po$$

Diagram 37
Rajah 37

Which **X** and **Y** particles are correct?
Zarah **X** *dan zarah* **Y** *manakah yang betul?*

	X	Y
A	γ	γ
B	β	γ
C	γ	β
D	β	β

49 Which tracer element is used to detect thyroid?
Unsur surih manakah yang digunakan untuk mengesan tiroid?

A Thorium-234
Torium-234
B Iodine-131
Iodin-131
C Cobalt-60
Kobalt-60
D Sodium-24
Natrium-24

50 Diagram 38 shows a nuclear reactor. Material X is used to slow down the neutrons during the chain reaction in a nuclear reactor.
Rajah 38 menunjukkan sebuah reaktor nuklear. Bahan X digunakan untuk memperlahankan neutron semasa tindak balas rantai dalam sebuah reaktor nuklear.

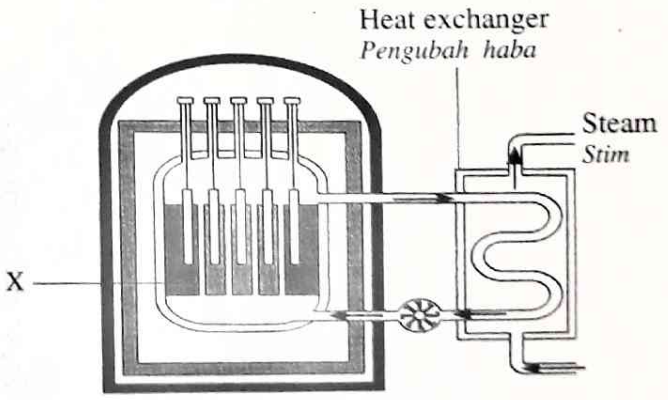


Diagram 38
Rajah 38

What is material X?
Apakah bahan X?

A Boron
Boron
B Graphite
Grafit
C Uranium
Uranium
D Cold gas
Gas sejuk

END OF QUESTION PAPER
KERTAS PEPERIKSAAN TAMAT