SEKOLAH-SEKOLAH MENENGAH DAERAH JASIN, MELAKA

PEPERIKSAAN PERCUBAAN SPM 2019

PHYSICS **4531/1**
Kertas 1
Ogos
1 ¼ jam **Satu jam lima belas minit**

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIBERITAHU

Arahan:

1. *Kertas soalan ini adalah dalam dwibahasa*
2. *Soalan dalam bahasa Inggeris mendahului soalan yang sepadan dalam bahasa Melayu.*
3. *Kertas soalan ini mengandungi **50** soalan.*
4. *Jawab **semua** soalan.*
5. *Tiap-tiap soalan diikuti oleh **empat** pilihan jawapan. Pilih satu jawapan yang terbaik bagi setiap soalan dan hitamkan ruangan yang betul pada kertas jawapan objektif.*
6. *Rajah yang mengiringi soalan tidak dilukis mengikut skala kecuali dinyatakan.*
7. *Anda dibenarkan menggunakan kalkulator saintifik.*
8. *Satu senarai formula disediakan di halaman 2*

Kertas peperiksaan ini mengandungi **33** halaman bercetak

The following information may be useful. The symbols have their usual meaning.
Maklumat berikut mungkin berfaedah. Simbol-simbol mempunyai makna yang biasa.

1. $a = \frac{v-u}{t}$

2. $s = ut + \frac{1}{2}at^2$

3. $v^2 = u^2 + 2as$

4. Momentum = mv

5. $\lambda = \frac{ax}{D}$

6. Kinetic energy/*Tenaga Kinetik* $= \frac{1}{2}mv^2$

7. Gravitational potential energy /
Tenaga Keupayaan graviti $= mgh$

8. Elastic potential energy /
Tenaga keupayaan kenyal $= \frac{1}{2}Fx$

9. $\rho = \frac{m}{V}$

10. Pressure / *Tekanan*, $P = h\rho g$

11. Pressure / *Tekanan*, $P = \frac{F}{A}$

12. Heat / *Haba*, $Q = mc\theta$

13. Heat / *Haba*, $Q = ml$

14. $\frac{pV}{T}$ = constant / *pemalar*

15. $E = mc^2$

16. $v = f\lambda$

17. Power, $P = \frac{\text{energy}}{\text{time}}$

Kuasa, $P = \frac{tenaga}{masa}$

18. $\frac{1}{f} = \frac{1}{u} + \frac{1}{v}$

19. $F = ma$

20. $n = \frac{\sin i}{\sin r}$

21. $n = \frac{\text{real depth}}{\text{apparent depth}}$

$= \frac{dalam\ nyata}{dalam\ ketara}$

22. Linear magnification /
Pembesaran linear, $m = \frac{v}{u}$

23. $Q = It$

24. $V = IR$

25. $E = VQ$

26. Power / *Kuasa*, $P = IV$

27. $\frac{N_p}{N_s} = \frac{V_p}{V_s}$

28. Efficiency / *Kecekapan*
$= \frac{I_S V_S}{I_P V_P} \times 100\%$

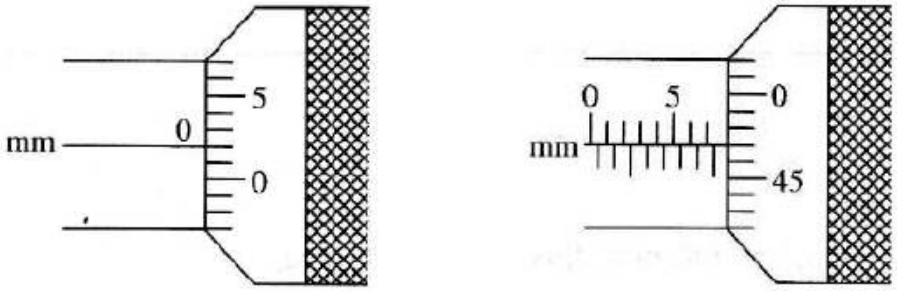
29. g = 10 ms^{-2}

30. c = 3.0 x $10^8 ms^{-1}$

1. Which of the following physical quantities consists of base quantities?
Manakah di antara kuantiti fizik berikut terdiri daripada kuantiti asas ?
   A Temperature, force, mass
   Suhu, daya, jisim
   B Energy, electric current, length
   Tenaga, arus elektrik, panjang.
   C Velocity, force, length
   Halaju, daya, jarak
   D Time, electric current, length
   Masa, arus elektrik, panjang.

2. Half life for Boron-16 is 190 ps. The expression of the half life in second is
Separuh hayat bagi Boron-16 ialah 190 ps. Pernyataan bagi separuh hayat dalam unit saat ialah
   A 190×10^{-12} s
   B 190×10^{-10} s
   C 190×10^{10} s
   D 190×10^{12} s

3 Diagram 1 shows the scale of a micrometer screw gauge used to measure the external diameter of a test tube.
Rajah 1 menunjukkan skala pada satu tolok skru mikrometer yang digunakan untuk mengukur diameter luar sebuah tabung uji.



Without object
Tanpa objek

With object
Dengan objek

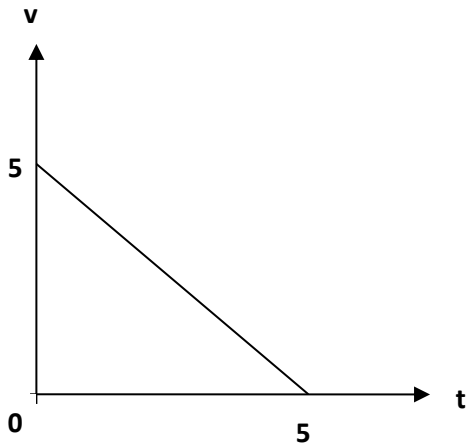
Diagram 1 / Rajah 1

What is the actual reading of the external diameter of the test tube?
Apakah bacaan sebenar diameter luar tabung uji tersebut?

A	7.51 mm	B	7.53 mm
C	7.95 mm	D	7.97 mm

4 Diagram 2 shows a graph of the relationship between v and t.
Rajah 2 menunjukkan graf hubungan antara v dan t

Diagram 2
Rajah 2



The relationship between v and t can be represented by the equation
Hubungan v dan t diwakili oleh persamaan

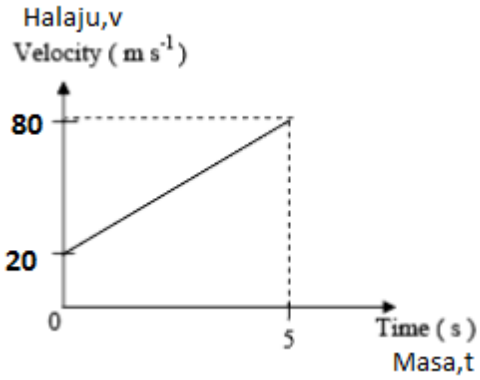
A V = t + 5
B V = t + 1

C V = - t + 5

D V = - t + 1

5 The graph below representing the motion of a vehicle.
Graf di bawah mewakili pergerakan sebuah kenderaan.

Diagram 3
Rajah 3



What is the acceleration of the vehicle?
Apakah pecutan kenderaan tersebut?

A -12 ms^{-2}
B 40 ms^{-2}
C 12 ms^{-2}
D 10 ms^{-2}

6 Which of the following has the greatest inertia?
Manakah antara berikut mempunyai inersia terbesar?

A. Mass / Jisim : 5kg
B. Mass / *Jisim : 3000kg*
C. Mass/ *Jisim : 10 g*
D. Mass/ *Jisim : 1 kg*

7 Diagram 4 shows a metal ball is trown verticall upwards
Rajah 4 menunjukkan sebiji bola logam dilontar tegak ke atas..

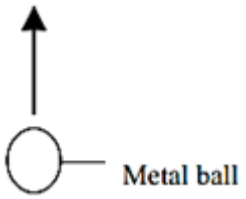


Diagram 4/ *Rajah 4*

What happens to the momentum of the metal ball?
Apakah yang terjadi kepada momentum bola itu?

A Reduce
Berkurang
B Increases
Bertambah
C Constant
Tetap
D Increases and decreases
Bertambah dan berkurang

8 Diagram 5 shows when there is a car accident and stops suddenly , the driver impulsively move towards the steering. Airbag is installed in the steering as shown below.What is the use of the airbag
Rajah 5 menunjukkan apabila sebuah kereta yang terlibat dalam suatu perlanggaran berhenti secara tiba-tiba, pemandu akan terhumban ke hadapan ke arah stereng kereta. Beg udara digunakan di stereng seperti rajah di bawah. Apakah kegunaan beg udara?

Diagram 5
Rajah 5

A Increase the impulsive force
Menambah daya impuls
B Decrease the time of impact
Mengurangkan masa perlanggaran
C Menambah masa perlanggaran
Increase the time impact
D Mengurangkan momentum
Decrease the momentum

9 A force is applied to an object.
Which of the following cannot occur?
Daya dikenakan ke atas suatu objek.
Antara yang berikut, yang manakah tidak akan berlaku?
A The object speeds up
Jasad semakin laju
B The shape of the object changes
Bentuk jasad berubah
C The mass of the object decreases
Jisim jasad berkurang
D The object changes its direction of motion
Arah gerakan jasad berubah

10 Diagram 6 shows a stone is thrown from the edge of a cliff.
Rajah 6 menunjukkan sebiji batu dilontar dari pinggir sebuah tebing.

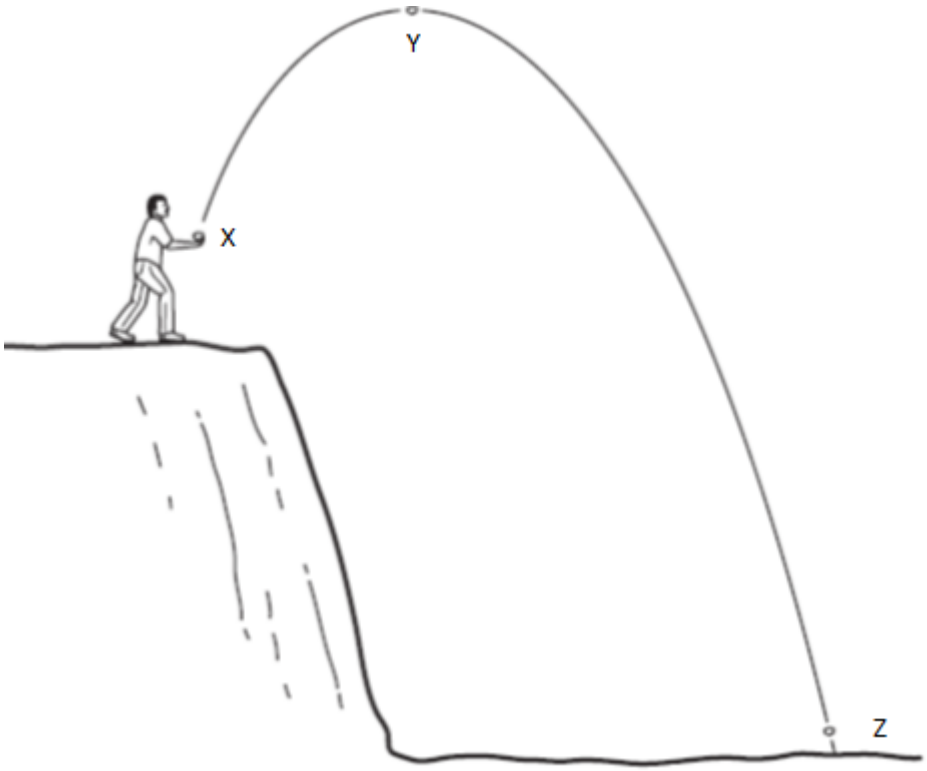


Diagram 6
Rajah 6

In which position does the stone has maximum kinetic energy and maximum gravitational potential energy?
Pada kedudukan manakah batu itu mempunyai tenaga kinetik maksimum dan tenaga keupayaan gravity maksimum?

	Maximum Kinetic Energy *Tenaga Kinetik Maksimum*	Maximum Gravitational Potential Energy *Tenaga Keupayaan Graviti Maksimum*
A	X	Y
B	Z	Y
C	Y	Y
D	Z	Z

11 Diagram 7.1 shows two points W and X in water.
Diagram 7.2 shows two points Y and Z in cooking oil.
Rajah 7.1 *menunjukkan dua titik* W *dan* X *dalam air.*
Rajah 7.2 *menunjukkan dua titik* Y *dan* Z *dalam minyak masak.*

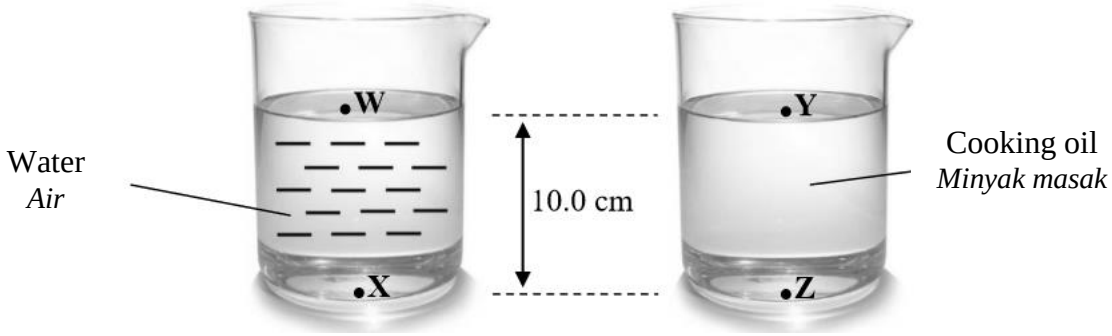


Diagram 7.1
Rajah 7.1

Diagram 7.2
Rajah 7.2

Which comparison is correct about the liquid pressure, P?
Perbandingan manakah yang betul tentang tekanan cecair, P*?*

A PX > PW > PZ > PY
B PX > PZ > PW > PY
C PX > PZ ; PW = PY
D PX = PZ ; PW = PY

12 Diagram 8 shows a water manometer is used to measure the pressure of a gas supply to a house. It gives a reading of h cm of water.
Rajah 8 menunjukkan sebuah manometer air digunakan untuk mengukur tekanan bekalan gas ke rumah. Ia memberikan bacaan h cm air.

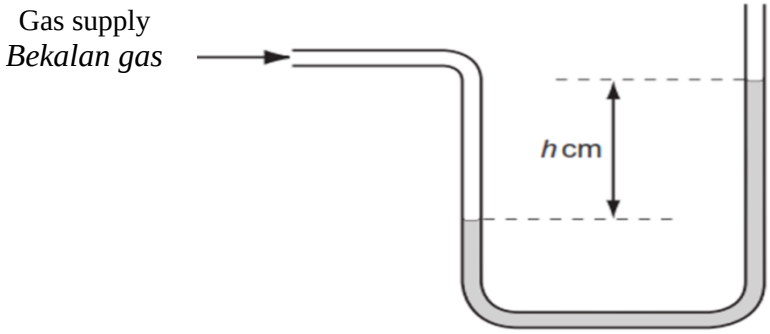


Diagram 8
Rajah 8

A *h* would be too large if mercury were used.
h akan menjadi terlalu besar jika merkuri telah digunakan.

B *h* would be too small if mercury were used.
h akan menjadi terlalu kecil jika merkuri telah digunakan.

C The tube would need to be narrower if mercury were used.
Tiub perlu menjadi lebih sempit jika merkuri telah digunakan.

D The tube would need to be wider if mercury were used.
Tiub perlu menjadi lebih luas jika merkuri telah digunakan.

13 Diagram 9 shows a hydraulic jack.
Rajah 9 menunjukkan jek hidraulik

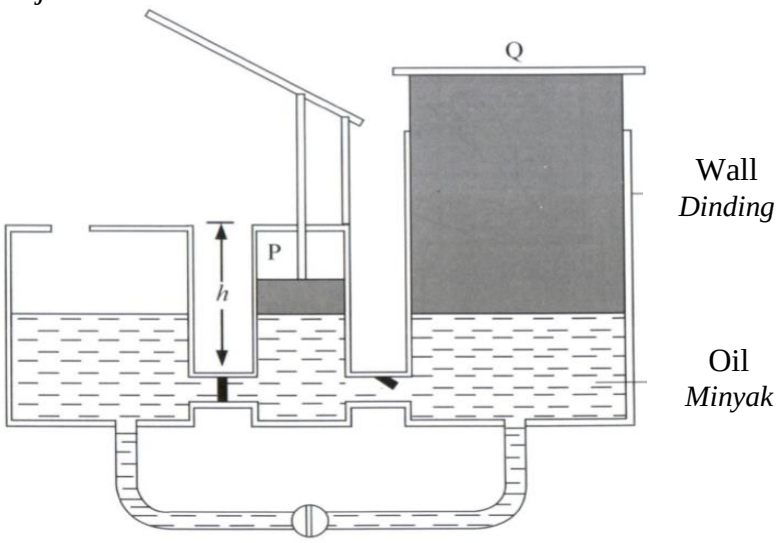


Diagram 9
Rajah 9

Which modification on piston P will increase the pressure in piston Q?
Pengubahsuaian manakah pada omboh P yang akan menambah tekanan pada omboh Q?

A Decrease the height, h
Kurangkan ketinggian, h

B Decrease the volume of oil
Kurangkan isipadu minyak

C Decrease the cross-sectional area
Kurangkan luas keratan rentas

D Decrease the thickness of the wall
Kurangkan ketebalan dinding

14 Diagram 10 shows a wooden block with height of 4.0 cm is pushed into water.
Rajah 10 menunjukkan sebuah bongkah kayu dengan ketinggian 4.0 cm ditekan ke dalam air.

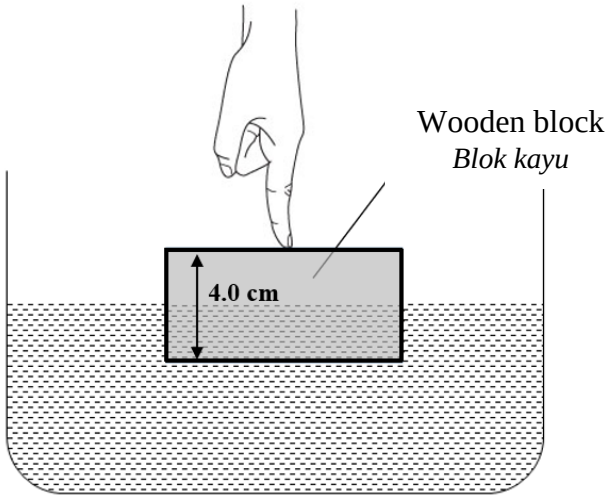
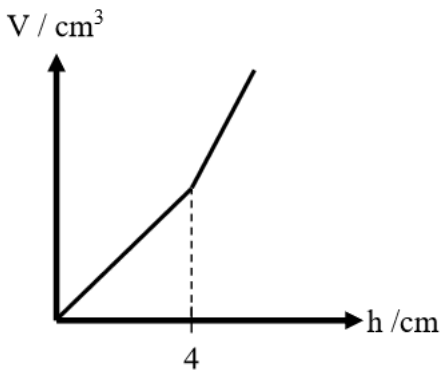


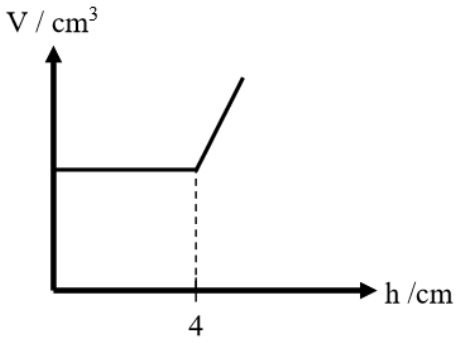
Diagram 10
Rajah 10

Which of the graph shows the relationship between volume of water displaced, V and depth of sinking, h?
Graf manakah yang menunjukkan hubungan antara isipadu air tersesar, V dan kedalaman bahagian yang tenggelam, h?

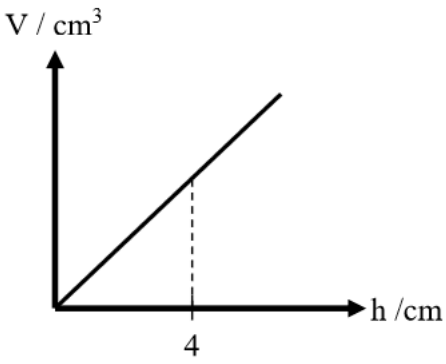
A



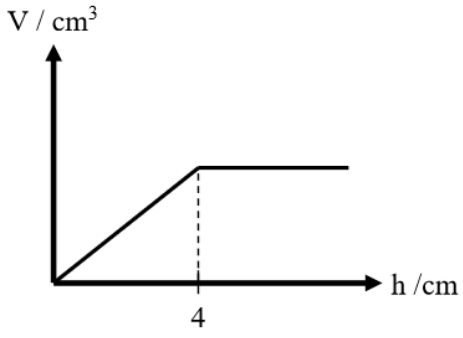
B



C



D



15 Diagram 11 shows the umbrella being flipped up by a strong wind.
Rajah 11 *menunjukkan payung terangkat ke atas oleh angin yang kuat.*

Diagram 11
Rajah 11

Which statement is correct?
Pernyataan manakah yang betul?

A Speed of air is lower above the umbrella
Laju udara rendah pada bahagian atas payung

B More air is trapped below the umbrella
Lebih banyak udara terperangkap di bawah payung

C Pressure above the umbrella is lower than under the umbrella
Tekanan pada bahagian atas payung lebih rendah daripada bahagian bawah payung

D Buoyant force increases as the air move faster above the umbrella
Daya apungan bertambah kerana udara bergerak dengan laju tinggi di atas paying

16 Diagram 12 shows a spoon is placed in a bowl of soup at 95^{o}C
Rajah 12 menunjukkan sebatang sudu diletakkan dalam semangkuk sup pada suhu 95^{o}C

Diagram 12
Rajah 12

Which statement is correct when thermal equilibrium is reached?
Penyataan manakah yang betul apabila keseimbangan terma dicapai?

A Temperature of soup is unchanged
Suhu sup tidak berubah

B Temperature of spoon is unchanged
Suhu sudu tidak berubah

C No flow of heat between soup and spoon
Tiada pengaliran haba antara sup dan sudu

D Soup and spoon has the same temperature
Sup dan sudu mempunyai suhu yang sama

17 Diagram 13.1 shows that 100 g metal X immersed in 200 g boiling water for 10 minutes.
Rajah 13.1 menunjukkan 100 g logam X direndam dalam 200 g air mendidih selama 10 minit.

Diagram 13.2 shows metal X transferred into 200 g oil with initial temperature 30°C.
Rajah 13.2 menunjukkan logam X itu dipindahkan ke dalam 200 g minyak dengan suhu awal 30°C.

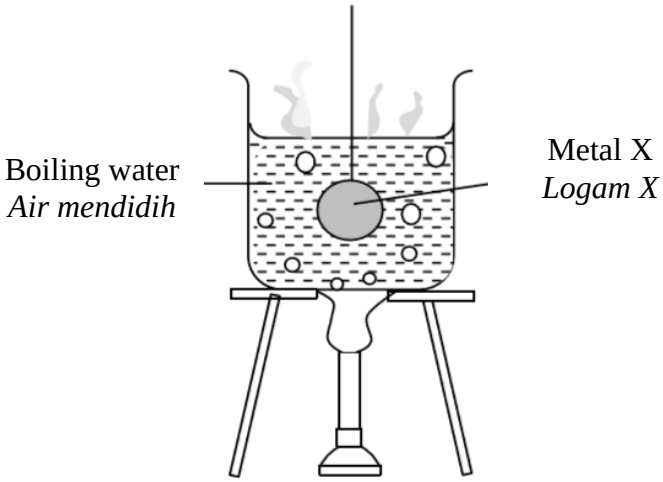


Diagram 13.1
Rajah 13.1

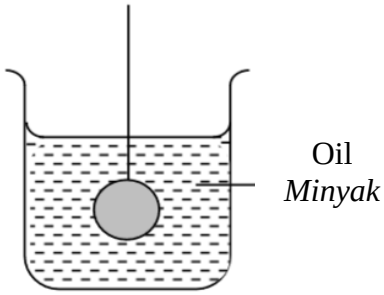


Diagram 13.2
Rajah 13.2

What is the final temperature of oil?
Apakah suhu akhir minyak itu

A Less than 30°C
Kurang daripada 30°C

B More than 30°C
Lebih daripada 30°C

C Greater than 100°C
Lebih besar daripada 100°C

D Between 30°C and 100°C
Di antara 30°C dan 100°C

18 Diagram 14 shows 0.32 kg of water at temperature of 30 °C being poured into a glass filled with ice at 0 °C.
Rajah 14 menunjukkan 0.32 kg air pada suhu 30 °C dituangkan ke dalam gelas yang mengandungi ais pada suhu 0 °C.

Diagram 14
Rajah 14

What is the mass of the ice that melts?
Berapakah jisim ais yang melebur?
[Specific latent heat of vaporisation of ice / Haba pendam tentu pelakuran ais = 3.36×10^5 J kg^{-1}]
[Specific heat capacity of water / Muatan haba tentu air = 4200 J kg^{-1} $°C^{-1}$]

A 0.04 kg **B** 0.08 kg
C 0.12 kg **D** 0.16 kg

19 Diagram 15 shows a heating curve of a solid substance
Rajah 15 menunjukkan lengkung pemanasan suatu bahan pepejal.

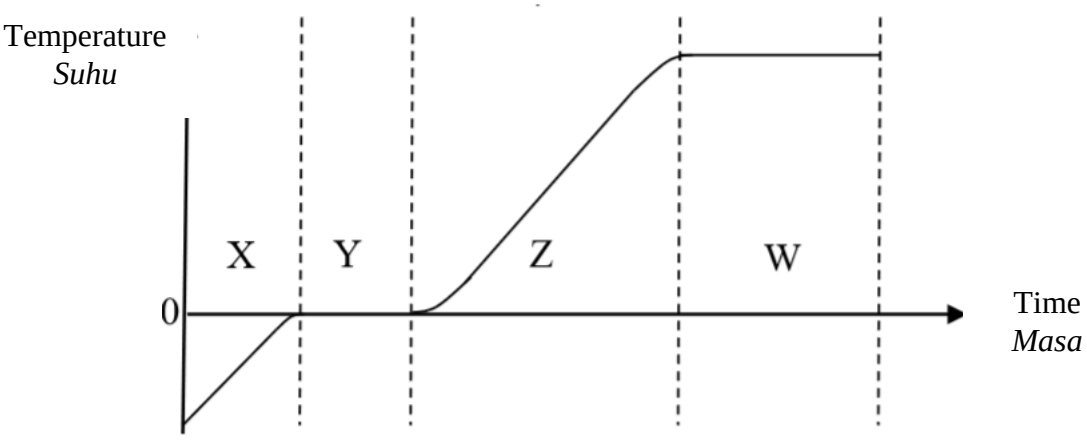


Diagram 15
Rajah 15

At stage Y, the heat absorb by the object is
Pada peringkat Y, haba yang diserap oleh objek ialah

A zero
sifar

B latent heat of vaporization
haba pendam pengewapan

C latent heat of fusion
haba pendam pelakuran

D specific heat capacity
muatan haba tentu

20 A fixed mass of a gas at constant pressure has a volume of V at 27 ^{o}C. The gas will expand to a volume of 2V if the temperature is change to
Suatu gas berjisim tetap pada tekanan malar mempunyai isipadu V pada 27 ^{o}C. Gas itu akan mengembang ke isipadu 2V jika suhunya bertukar ke

A 327.0 ^{o}C
B 13.5 ^{o}C
C 54.0 ^{o}C
D −123.0 ^{o}C

21 Diagram 16 shows a boy looking at the image of a letter 'R' in a mirror.
Rajah 16 menunjukkan seorang budak lelaki melihat imej huruf 'R' *di dalam cermin.*

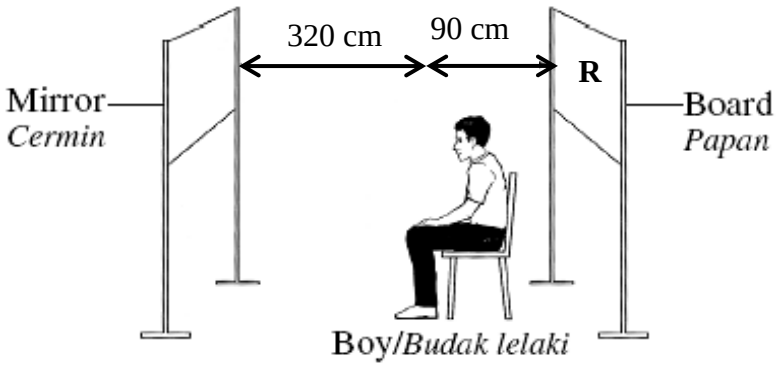


Diagram 16
Rajah 16

What is the distance between the image of a letter 'R' and the boy?
Berapakah jarak di antara imej huruf 'R' *dengan budak lelaki itu?*

A 90 cm
B 320 cm
C 410 cm
D 730 cm

22 Diagram 17 shows a boy observing a fish in a pond. The fish appears to be closer to the surface of the water.
Rajah 17 menunjukkan seorang budak lelaki sedang memerhati seekor ikan dalam sebuah kolam. Ikan itu kelihatan lebih dekat dengan permukaan air.

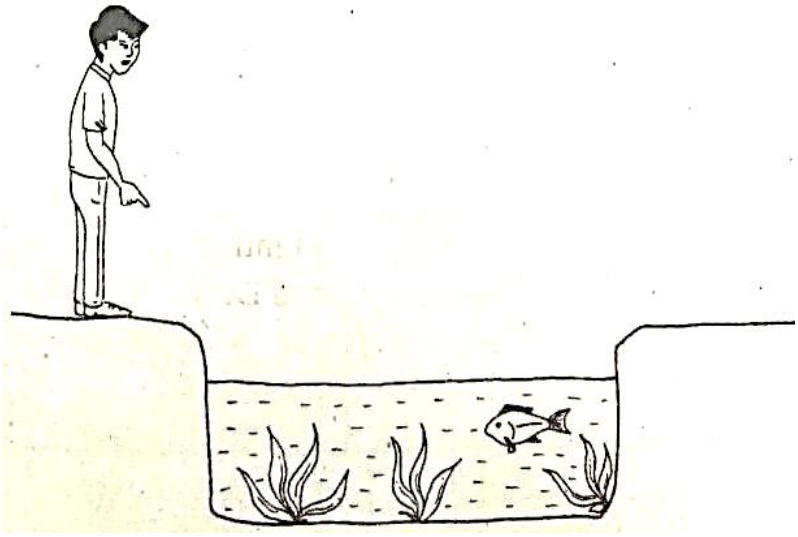


Diagram 17
Rajah 17

Which reason is correct to explain this situation?
Alasan manakah yang betul untuk menerangkan situasi tersebut?

A The refractive index of air > the refractive index of water
Indeks biasan udara > indeks biasan air

B The speed of light in air > the speed of light in water
Laju cahaya dalam udara > laju cahaya dalam air

C The density of air > the density of water
Ketumpatan udara > ketumpatan air

D The frequency of light in air > the frequency of light in water
Frekuensi cahaya dalam udara > frekuensi cahaya dalam air

23 Diagram 18 shows a light ray, P, directed into a glass block.
The critical angle of the glass is 41°.
In which direction does the light move from point Q?
Rajah 18 menunjukkan satu sinar cahaya, P, *ditujukan kepada satu bongkah kaca.*
Sudut genting kaca itu ialah 41°.
Ke arah manakah sinar itu bergerak dari titik Q?

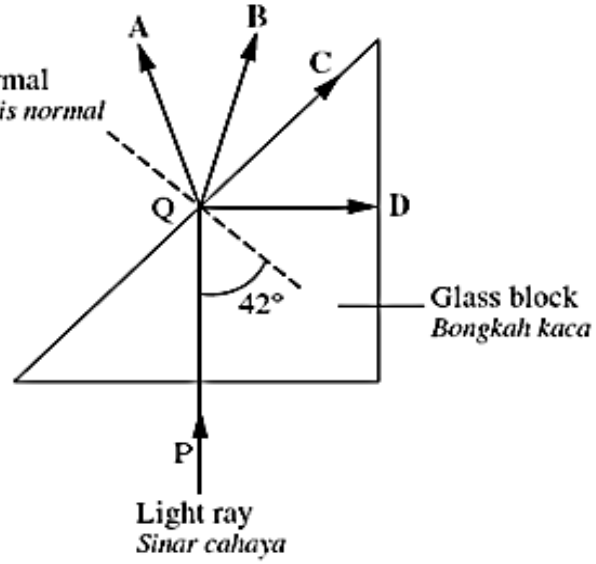


Diagram 18
Rajah 18

24 Diagram 19 shows the formation of an image from an object by a convex lens
Rajah 19 menunjukkan pembentukan imej daripada objek oleh kanta cembung.

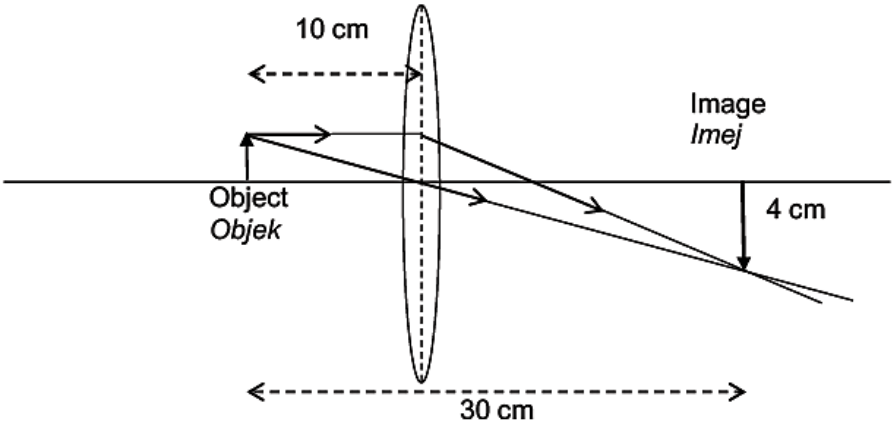


Diagram 19
Rajah 19

What is the height of the object if the height of its image is 4 cm?
Berapakah tinggi objek itu jika tinggi imejnya adalah 4 cm?

A 0.5 cm
B 1.0 cm
C 2.0 cm
D 3.0 cm

25 Which of the following statement is **true** about the telescope?
Antara pernyataan berikut, yang manakah **betul** *mengenai teleskop astronomi?*

A The objective lens and eyepiece are concave lens
Kanta objektif dan kanta mata adalah kanta cekung

B Power of objective lens < power of eyepiece
Kuasa kanta objektif < kuasa kanta mata

C Normal adjustment > focal length of eyepiece + focal length of objective lens
Pelarasan normal > jarak fokus kanta mata + jarak fokus kanta objektif

D Normal adjustment < focal length of eyepiece + focal length of objective lens
Pelarasan normal < jarak fokus kanta mata + jarak fokus kanta objektif

26 Diagram 20 shows a water wave propagating through a small gap.
Rajah 20 menunjukkan gelombang air merambat melalui suatu celah yang kecil.

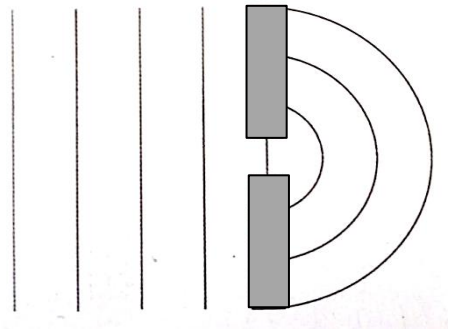


Diagram 20
Rajah 20

Which property of the diffracted wave is correct?
Ciri gelombang terbelau manakah yang betul?

A The wavelength is decreased
Panjang gelombang berkurang

B The frequency is increased
Frekuensi bertambah

C The amplitude is decreased
Amplitud berkurang

D The speed is decreased
Kelajuan berkurang

27 Which device is used to show that light is transverse wave?
Alat manakah yang digunakan untuk menunjukkan bahawa cahaya adalah gelombang melintang?

A Diffraction grating
Parutan belauan

B Polaroid block
Blok polaroid

C Double slit
Sisip dwicelah

D Glass prism
Prisma kaca

28 Diagram 21 shows water waves propagating through a Perspex block in a ripple tank.
Rajah 21 menunjukkan gelombang air merambat melalui satu blok perspeks di dalam tangki riak

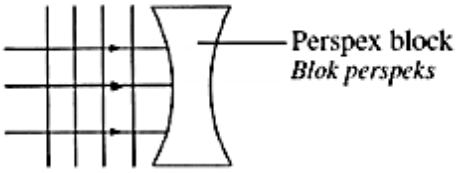
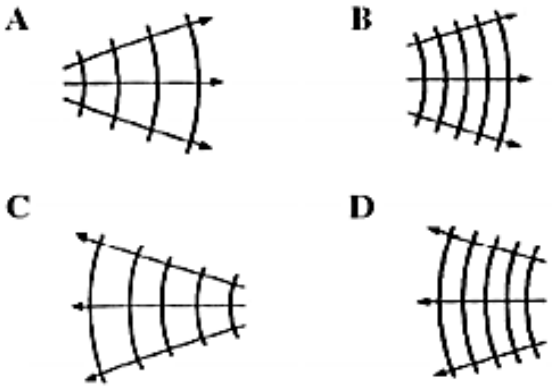


Diagram 21
Rajah 21

Which wave pattern is observed when the waves pass through the Perspex block?
Corak gelombang manakah yang dilihat semasa gelombang melalui blok perspeks itu?



29 Diagram 22 shows two waves moving at the opposite direction and meet at point R.
Rajah 22 menunjukkan dua gelombang bergerak pada arah yang bertentangan dan bertemu pada titik R.

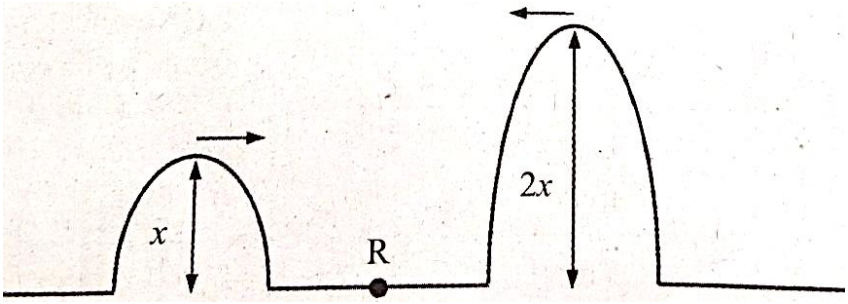


Diagram 22
Rajah 22

Which is the resultant amplitude of the wave at point R?
Apakah amplitud paduan gelombang pada titik R?

A 0
B x
C $2x$
D $3x$

30 Diagram 23 shows a submarine transmitting ultrasonic waves directed at a big rock on the sea bed.
After 15 seconds, the submarine detects the reflected wave.
Rajah 23 menunjukkan sebuah kapal selam memancarkan gelombang ultrasonik ke arah batu besar di dasar laut.
Selepas 15 *saat, kapal selam itu mengesan gelombang yang dipantulkan.*

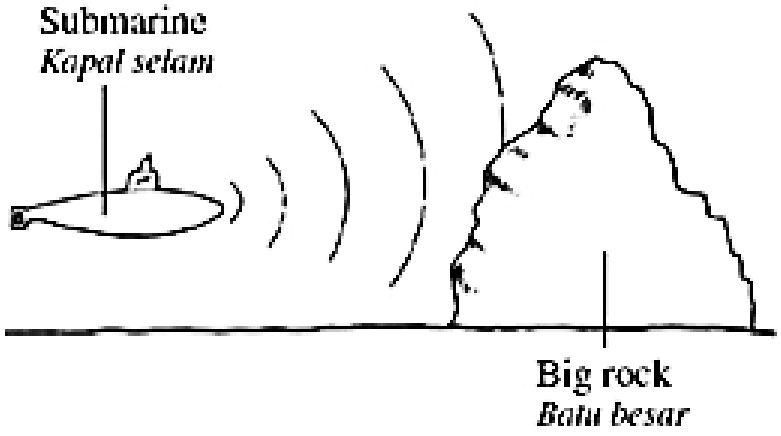


Diagram 23
Rajah 23

Calculate the distance of the submarine from the big rock.
[Velocity of ultrasonic wave = 1560 m s^{-1}]
Hitung jarak kapal selam dari batu besar itu.
[*Halaju gelombang ultrasonik* = 1560 m s^{-1}]

A 5.85 km
B 11.70 km
C 23.40 km
D 46.80 km

31 Diagram 24 shows a satellite disk on the roof top of a house.
Rajah 24 *menunjukkan sebuah cakera satelit di atas bumbung sebuah rumah*

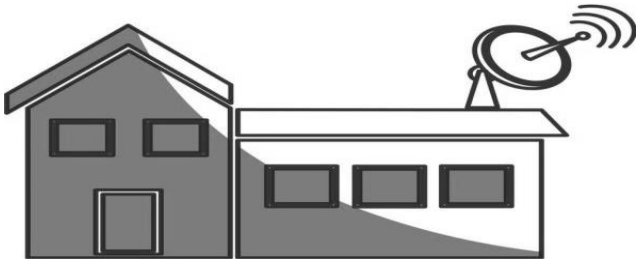


Diagram 24
Rajah 24

Which of the following electromagnetic waves is used by the satellite disk?
Yang manakah antara gelombang elektromagnet berikut digunakan oleh cakera satelit itu ?

A Radio wave
Gelombang radio

B Infra red rays
Sinar infra merah

C Gamma rays
Sinar gama

D Micro wave
Gelombang mikro

32 Diagram 25 shows a graph of potential difference against current flow through a conductor.
Rajah 25 menunjukkan graf beza keupayaan melawan arus yang mengalir melalui suatu konduktor.

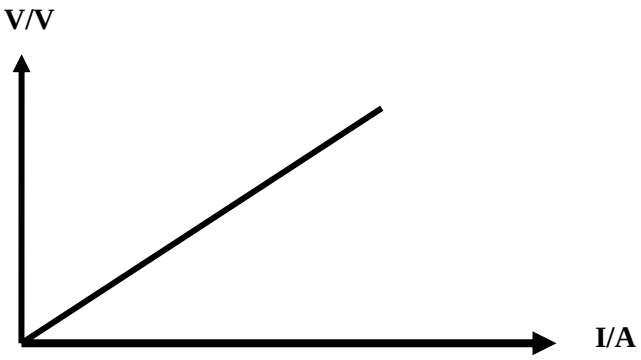


Diagram 25
Rajah 25

Gradient of graph to represent a
Kecerunan graf mewakili

A Electromotive force
Daya gerak elektrik

B Resistance
Rintangan

C Energy
Tenaga

D Power
Kuasa

33 Diagram 26.1 and 26.2 shows a series and a parallel circuits.
Rajah 26.1 dan 26.2 *menunjukkan sebuah litar sesiri dan selari.*

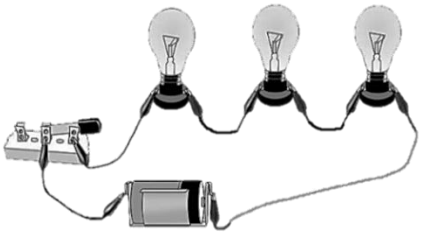


Diagram 26.1
Rajah 26.1

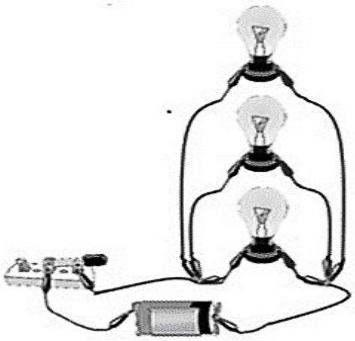


Diagram 26.2
Rajah 26.2

Which statement is correct about the circuits?
Pernyataan manakah yang betul mengenai litar-litar itu?

A The total voltage in the series circuit is greater than the total voltage in the parallel circuit.
Jumlah voltan dalam litar sesiri adalah lebih besar daripada jumlah voltan dalam litar selari

B The total current flow in the series circuit is higher than the total current flow in the parallel circuit.
Jumlah arus yang mengalir dalam litar sesiri adalah lebih tinggi daripada jumlah arus yang mengalir dalam litar selari

C The effective resistance of the series circuit is bigger than the effective resistance of the parallel circuit.
Rintangan berkesan bagi litar sesiri adalah lebih besar daripada rintangan berkesan bagi litar selari

D The brightness of the bulbs in the series circuit is larger than the brightness of the bulbs in the parallel circuit
Kecerahan mentol-mentol dalam litar sesiri adalah lebih besar daripada kecerahan mentol-mentol dalam litar selari.

34 Diagram 27 shows a graph of current, I against potential difference, V for four different conductors.
Rajah 27 menunjukkan graf arus, I melawan beza keupayaan, V untuk empat konduktor yang berlainan

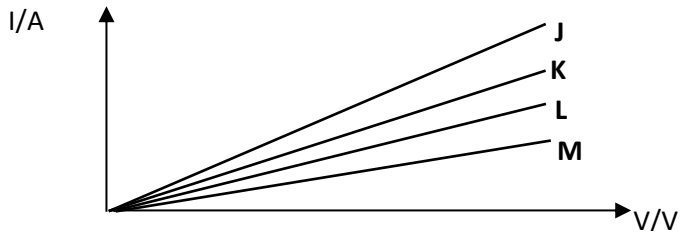


Diagram 27
Rajah 27

Which of the conductor has the greatest resistance?
Konduktor manakah yang mempunyai rintangan paling tinggi?

A J
B K
C L
D M

35 Diagram 28 shows the electric field lines for a pair of charged particles, Q_1 and Q_2.
Rajah 28 menunjukkan garis medan elektrik untuk sepasang zarah bercas, Q_1 dan Q_2.

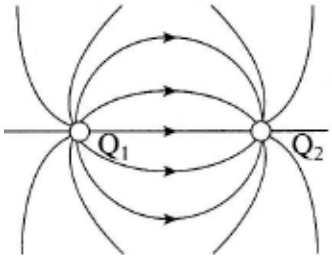


Diagram 28 / *Rajah 28*

What are the charges of Q_1 and Q_2?
Apakah cas bagi Q_1 dan Q_2?

	Q_1	Q_2
A	Positive / *Positif*	Negative / *Negatif*
B	Positive / *Positif*	Positive / *Positif*
C	Negative / *Negatif*	Positive / *Positif*
D	Negative / *Negatif*	Negative / *Negatif*

36 Diagram 29 shows an electric circuit.
Rajah 29 *menunjukkan sebuah litar elektrik.*

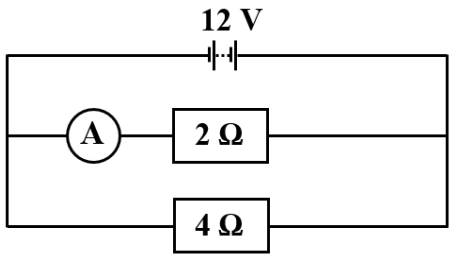


Diagram 29
Rajah 29

What is the reading of the ammeter?
Apakah bacaan ammeter itu?

A 3.0 A
B 4.5 A
C 6.0 A
D 9.0 A

37 Diagram 30 shows 9 identical resistors are connected in 3 different circuit P,Q and R respectively.
Which of the following is correct for I_p, I_q and I_r.
Rajah 30 menunjukkan 9 perintang yang serupa disambungkan dalam 3 litar yang berbeza P,Q dan R masing-masing.
Antara berikut, yang manakah betul untuk I_p, I_q dan I_r.

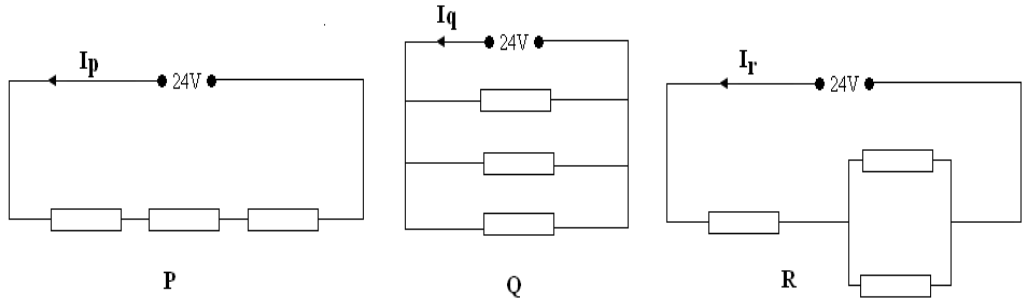


Diagram 30
Raiah 30

A $I_p < I_q < I_r$
B $I_p < I_r < I_q$
C $I_q < I_p < I_r$
D $I_q < I_r < I_p$

38 Diagram 31 shows a circuit consist of dry cell and resistant, R. The dry cell has internal resistance, r.
Rajah 31 menunjukkan sebuah litar elektrik terdiri dari sel kering dan perintang, R. Sel kering itu mempunyai rintangan dalam, r.

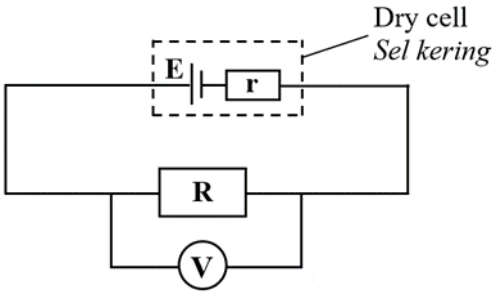


Diagram 31
Rajah 31

What will happen to the voltmeter reading and internal resistance when the resistance of R increases?
Apakah yang akan berlaku kepada bacaan voltmeter dan rintangan dalam apabila rintangan R bertambah?

	voltmeter reading,V *bacaan voltmeter,*V	internal resistance,r *rintangan dalam,*r
A	increases *bertambah*	increases *bertambah*
B	increases *bertambah*	unchanged *tidak berubah*
C	unchanged *tidak berubah*	increases *bertambah*
D	unchanged *tidak berubah*	unchanged *tidak berubah*

39 Diagram 32 shows an electric kettle labeled '240 V, 2200 W'.

Rajah 32 menunjukkan sebuah cerek elektrik berlabel '240 V, 2200 W'.

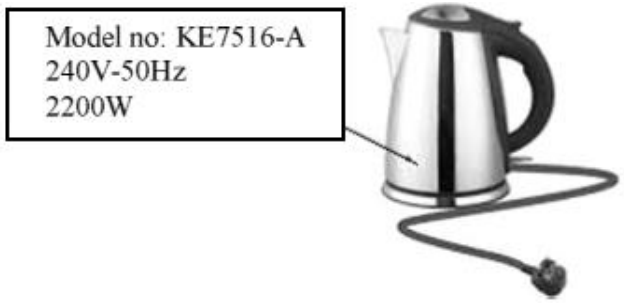


Diagram 32 / *Rajah 32*

What is the heat energy produced in the kettle in 2 minutes?

Berapakah tenaga haba yang terhasil dalam cerek dalam 2 minit?

A 4.4 kJ
B 264 kJ
C 528 kJ
D 1056 kJ

40 Diagram 33 shows an electric motor.
Rajah 33 *menunjukkan sebuah motor elektrik.*

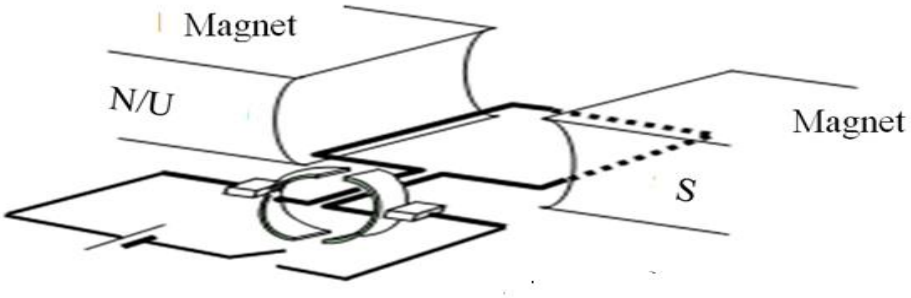
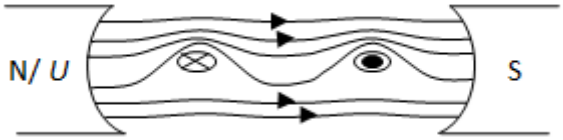


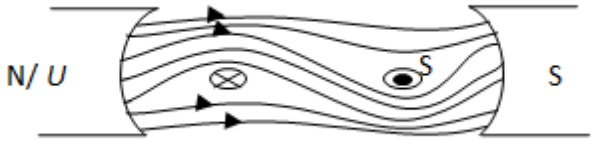
Diagram 33
Rajah 33

Which magnetic field pattern is correct when the switch is closed?
Corak medan magnet yang manakah adalah betul apabila suis ditutup?

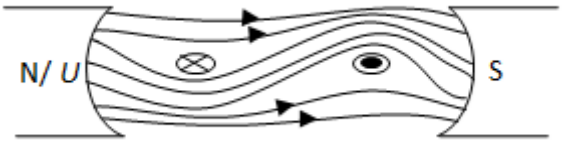
A



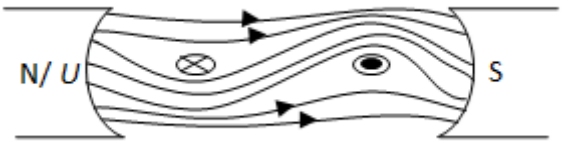
B



C



D



41. The diagram 34 below shows a wire QR hangs freely between two strong magnets.
Rajah 34 di bawah menunjukkan satu wayar QR *digantung bebas di antara dua magnet kuat.*

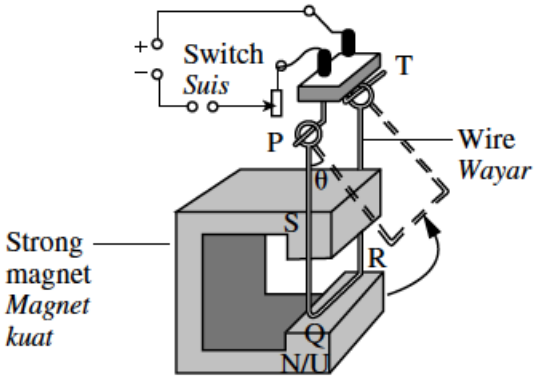


Diagram 34
Rajah 34

The angle of deflection, θ is increased by
Sudut pesongan, θ, *bertambah dengan*

A increasing the current
menambah arus

B changing the polarity of the magnet
mengubah kekutuban magnet

C increasing the resistance of the wire QR
menambah rintangan wayar QR

D increasing the distance between the poles of the magnet
menambah jarak antara kutub magnet

42. The diagram 35 below shows an electric generator.
Rajah 35 di bawah menunjukkan satu penjana elektrik.

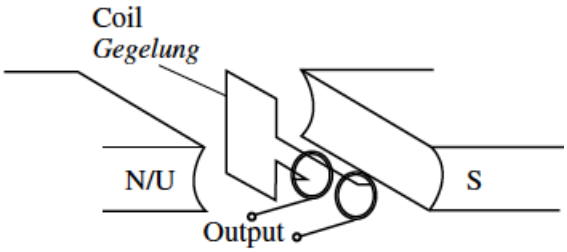
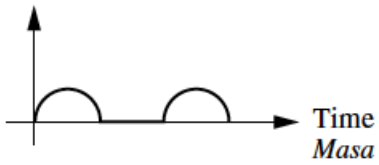


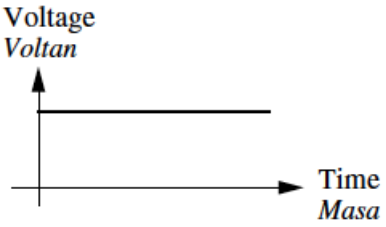
Diagram 35
Rajah 35

Which graph shows the correct output between voltage and time when the coil starts to rotate?
Graf manakah yang menunjukkan output yang betul antara voltan dengan masa apabila gegelung itu mula berputar?

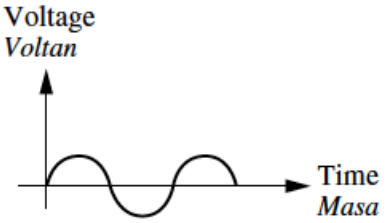
A



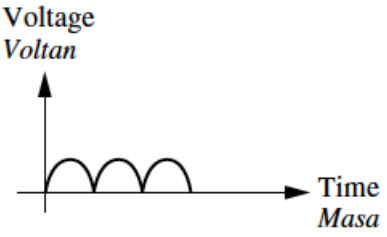
B



C



D



43 Diagram 36 below shows the primary coil of a transformer is connected to a 240 V a.c. supply and an output voltage of 12 V is produced.
Rajah 36 di bawah menunjukkan gegelung primer sebuah transformer disambung ke bekalan 240 V a.c. dan voltan output 12 V dihasilkan.

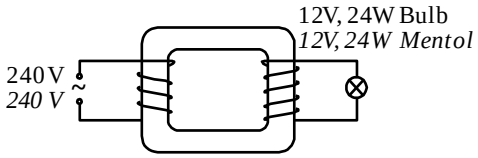


Diagram 36
Rajah 36

What is the ratio of the number of turns in the secondary coil. N_S to the number of turns in the primary coil, N_P?
Apakah nisbah bilangan lilitan gegelung sekunder N_S kepada bilangan lilitan gegelung primer N_P?

A 40 : 2
B 4 : 24
C 1 : 20
D 2 : 40

44. Diagram 37 below shows a system for the transmission of electricity.
Rajah 37 di bawah menunjukkan satu sistem penghantaran elektrik.

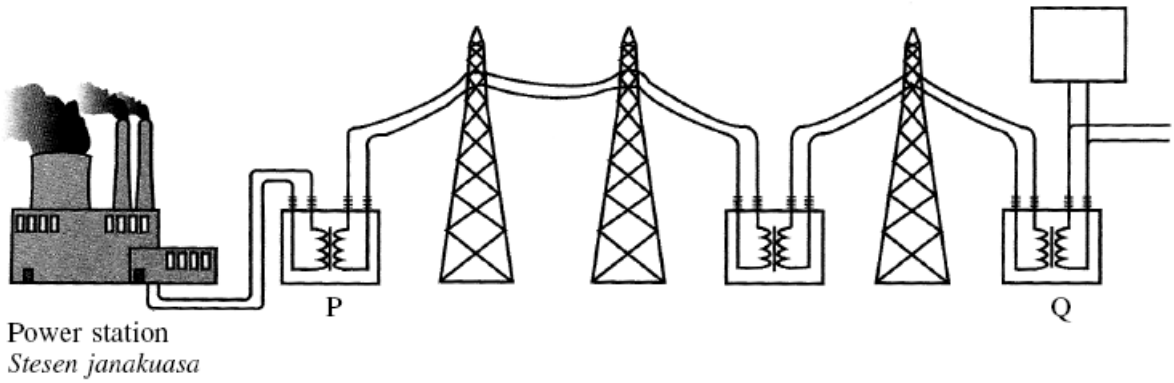


Diagram 37
Rajah 37

Which combination of the primary and secondary coils of trnasformers P and Q is correct?
Kombinasi gegelung primer dan sekunder yang manakah betul bagi transformer P *dan* Q?

	Transfomer P		Transformer Q	
	Primary coil (turns) *Gegelung primer (lilitan)*	**Secondary coil (turns)** *Gegelung sekunder (lilitan)*	**Primary coil (turns)** *Gegelung primer (lilitan)*	**Secondary coil (turns)** *Gegelung sekunder (lilitan)*
A	120	2 400	120	2 400
B	120	2 400	2 400	120
C	2 400	120	120	2400
D	2 400	120	2 400	120

45 Diagram 38 below shows a cathode ray tube.
Rajah 38 di bawah menunjukkan sebuah tiub sinar katod.

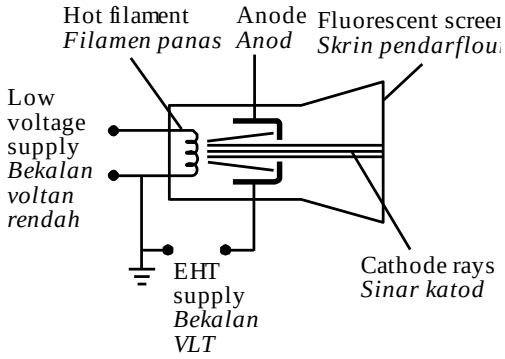


Diagram 38
Rajah 38

What particle is found in the cathode rays?
Apakah zarah yang terdapat dalam sinar katod?

A Proton
Proton
B Neutron
Neutron
C Electron
Elektron
D Alpha
Alfa

46. Diagram 39 below shows a transistor circuit.
Rajah 39 di bawah menunjukkan suatu litar transistor.

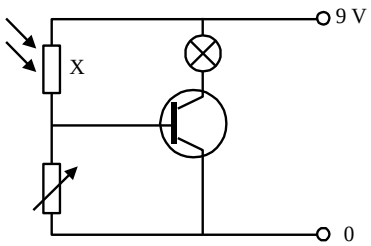


Diagram 39
Rajah 39

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

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

47. Diagram 40 below shows a logic gate circuit which has two inputs, X and Y.
Rajah 40 di bawah menunjukkan satu litar get logik yang mempunyai dua input, X dan Y.

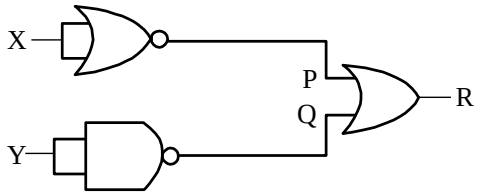


Diagram 40
Rajah 40

If the logic state of X is 0 and the logic state of Y is 1, what are the logic states at P, Q and R?
Jika keadaan logik x ialah 0 dan keadaan logik Y ialah 1, apakah keadaan logik bagi P, Q dan R?

	P	Q	R
A	0	0	1
B	0	1	1
C	1	1	0
D	1	0	1

48. Which radioactive detector device is not suitable to detect gamma ray?
Alat pengesan radioaktif manakah yang tidak sesuai untuk mengesan sinar gama?
A Spark counter
Pembilang bunga api
B Geiger-Muller tube
Tiub Geiger-Muller
C Photographic film
Filem fotografi
D Cloud chamber
Kebuk awan

49. The activity of sample X becomes 6.25% of its original value after 120 minutes.
Aktiviti sampel X *menjadi* 6.25% *daripada nilai asal selepas* 120 *minit*.

$$100\% \xrightarrow{T_{1/2}} 50\% \xrightarrow{T_{1/2}} 25\% \xrightarrow{T_{1/2}} 12.5\% \xrightarrow{T_{1/2}} 6.25\%$$

What is its half-life?
Berapakah separuh hayatnya?

A 30 minutes
30 *minit*
B 40 minutes
40 *minit*
C 60 minutes
60 *minit*
D 120 minutes
120 *minit*

50. When a sample of Radium-226 decays, the energy released is 7.81×10^{-13} J.
What is the mass defect?
Apabila satu sampel Radium-226 *mereput, tenaga yang dibebaskan ialah* 7.81×10^{-13} J.
Berapakah cacat jisim?

A 8.68×10^{-30} kg
B 2.60×10^{-21} kg
C 3.84×10^{20} kg
D 1.15×10^{29} kg

END OF QUESTION
KERTAS SOALAN TAMAT

JAWAPAN KERTAS 1 PEPERIKSAAN PERCUBAAN FIZIK DAERAH JASIN 2019

1	D	11	**C**	21	**D**	31	**A**	41	**A**
2	A	12	**B**	22	**B**	32	**B**	42	**C**
3	C	13	**C**	23	**D**	33	**C**	43	**C**
4	C	14	**D**	24	**C**	34	**D**	44	**B**
5	C	15	**C**	25	**B**	35	**A**	45	**C**
6	B	16	**D**	26	**C**	36	**C**	46	**B**
7	A	17	**D**	27	**B**	37	**B**	47	**D**
8	C	18	**C**	28	**B**	38	**B**	48	**A**
9	C	19	**C**	29	**D**	39	**B**	49	**A**
10	B	20	**C**	30	**B**	40	**B**	50	**A**