

4531/1
PHYSICS
Kertas 1
Ogos 2011
1¼ jam



MAJLIS PENGETUA SEKOLAH MENENGAH MALAYSIA
CAWANGAN NEGERI SEMBILAN

PEPERIKSAAN PERCUBAAN BERSAMA
SIJIL PELAJARAN MALAYSIA 2011

PHYSICS (FIZIK)

Paper1 (Kertas 1)

One hour and fifteen minutes (Satu jam lima belas minit)

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIBERITAHU

1. *Kertas soalan ini adalah dalam dwibahasa.*
2. *Soalan dalam Bahasa Inggeris mendahului soalan yang sepadan dalam Bahasa Melayu.*
3. *Calon dikehendaki membaca maklumat di halaman 2 atau halaman 3.*

Kertas soalan ini mengandungi 38 halaman bercetak

INFORMATION FOR CANDIDATES
MAKLUMAT UNTUK CALON

1. This question paper consists of 50 questions.
Kertas soalan ini mengandungi 50 soalan.
2. Answer **all** questions.
Jawab semua soalan.
3. Answer each question by blackening the correct space on the answer sheet.
Jawab dengan menghitamkan ruangan yang betul pada kertas jawapan.
4. Blacken only **one** space for each question.
Hitamkan satu ruangan sahaja bagi setiap soalan.
5. If you wish to change your answer, erase the blackened mark that you have made. Then blacken the space for the new answer.
Sekiranya anda hendak menukar jawapan, padamkan tanda yang telah dibuat. Kemudian hitamkan jawapan yang baru.
6. The diagrams in the questions provided are not drawn to scale unless stated.
Rajah yang mengiringi soalan tidak dilukis mengikut skala kecuali dinyatakan.
7. You may use a non-programmable scientific calculator.
Anda dibenarkan menggunakan kalkulator saintifik yang tidak boleh diprogram.

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

1.	$a = \frac{v-u}{t}$	15.	Power, $P = \frac{\text{energy}}{\text{time}}$
2.	$v^2 = u^2 + 2as$	16.	$\frac{1}{f} = \frac{1}{u} + \frac{1}{v}$
3.	$s = ut + \frac{1}{2}at^2$	17.	$\lambda = \frac{ax}{D}$
4.	Momentum = mv	18.	$n = \frac{\sin i}{\sin r}$
5.	$F = ma$	19.	$n = \frac{\text{real depth}}{\text{apparent depth}}$
6.	Kinetic energy = $\frac{1}{2}mv^2$	20.	$Q = It$
7.	Gravitational potential energy = mgh	21.	$V = IR$
8.	Elastic potential energy = $\frac{1}{2}Fx$	22.	Power, $P = VI$
9.	$\rho = \frac{m}{V}$	23.	$\frac{N_p}{N_s} = \frac{V_p}{V_s}$
10.	Pressure, $P = h\rho g$	24.	Efficiency = $\frac{V_s I_s}{V_p I_P} \times 100\%$
11.	Pressure, $P = \frac{F}{A}$	25.	$g = 10 \text{ m s}^{-2}$
12.	Heat, $Q = mc\theta$	26.	$E = mc^2$
13.	$\frac{PV}{T} = \text{constant}$	27.	Linear magnification, $m = \frac{v}{u}$
14.	$v = f\lambda$	28.	$P = \frac{1}{f}$

Each question is followed by **three** or **four** options. Choose the best option for each question then blacken the correct space on the answer sheet.

Setiap soalan diikuti dengan tiga atau empat pilihan jawapan. Pilih jawapan terbaik untuk setiap soalan dan hitamkan ruang yang betul pada kertas jawapan.

1. All derived quantities can be derived by using based quantities. Which of the combination of base quantities are **correct** for the following physical quantity?

Semua kuantiti terbitan boleh diterbitkan dengan menggunakan kuantiti asas. Yang manakah gabungan kuantiti asas adalah benar bagi kuantiti fizik yang berikut ?

	Physical Quantities <i>Kuantiti Fizik</i>	Base Quantities <i>Kuantiti asas</i>
A	Heat <i>Haba</i>	Mass , time , temperature <i>Jisim, masa, suhu</i>
B	Power <i>Kuasa</i>	Mass, current, time <i>Jisim, arus, masa</i>
C	Energy <i>Tenaga</i>	Mass, length, time <i>Jisim, panjang, masa</i>
D	Charge <i>Cas</i>	Length, current, time <i>Panjang, arus, masa</i>

2. Diagram 1 shows a micrometer screw gauge .
Rajah 1 menunjukkan sebuah tolok skru mikrometer.

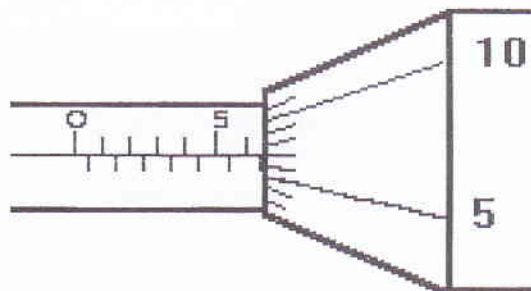


Diagram 1
Rajah 1

What is the reading of the micrometer screw gauge ?
Apakah bacaan tolok skru mikrometer itu?

6.7

- A 5.57 mm
- B 6.07 mm
- C 6.12 mm
- D 6.57 mm

3. A wooden block has measurement of 20 mm x 12.5 cm x 0.3 m.
The volume of the wooden block in SI unit is
*Sebuah buah blok kayu mempunyai ukuran 20 mm x 12.5 cm x 0.3 m.
Isipadu blok kayu itu dalam unit SI adalah*

- A $7.5 \times 10^{-6} \text{ m}$
B $7.5 \times 10^{-4} \text{ m}$
C $7.5 \times 10^2 \text{ m}$
D $7.5 \times 10^4 \text{ m}$

4. Diagram 2 shows a velocity-time graph of a uniformly accelerated a particle.
Rajah 2 menunjukkan graf halaju-masa bagi satu zarah dengan pecutan seragam.

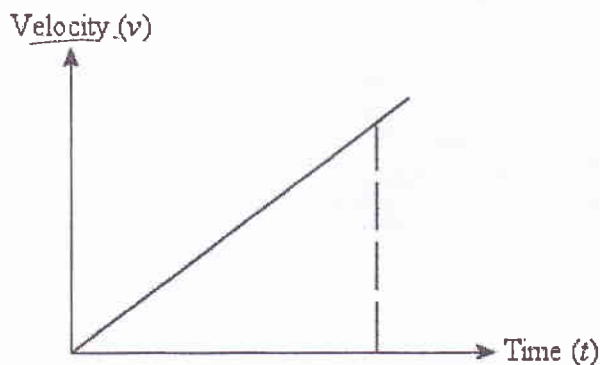
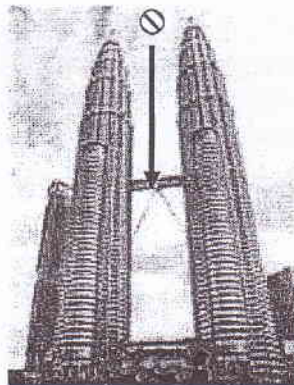


Diagram 2
Rajah 2

Which of the following is correct?
Di antara berikut, manakah yang benar?

	Gradient of the graph <i>Kecerunan graf</i>	Area under the graph <i>Luas dibawah graf</i>
A	Displacement <i>Sesaran</i>	Kinetic energy <i>Tenaga kinetic</i>
B	Acceleration <i>Pecutan</i>	Kinetic energy <i>Tenaga kinetic</i>
C	Displacement <i>Sesaran</i>	Acceleration <i>Pecutan</i>
D	Acceleration <i>Pecutan</i>	Displacement <i>Sesaran</i>

5. The forces are in equilibrium in all the following phenomena **except**
Daya-daya adalah berada di dalam keseimbangan kecuali
- A a coconut falling from the tree.
buah kelapa yang jatuh dari pokok
 - B a car descending a hill at constant velocity
kereta yang menuruni bukit dengan halaju seragam
 - C a ship floating in the sea
kapal laut yang terapung di laut
 - D a ball is not moving
bola di tidak bergerak
6. An object is dropped from the top of KLCC building.
Which physical quantity remains constant as the ball falls?
Satu objek dijatuhkan dari atas bangunan KLCC.
Di antara berikut, manakah yang seragam semasa bola itu jatuh?



- A Gravitational potential energy
Tenaga keupayaan gravity
- B Kinetic energy
Tenaga kinetik
- C Acceleration
Pecutan
- D Velocity
Halaju

7. Diagram 3 shows a bullet is fired from a rifle.
Rajah 3 menunjukkan sebutir peluru ditembak dari sepucuk senapang.



Diagram 3
Rajah3

Which of the following statements is **true**?
Di antara berikut, manakah yang benar?

- A The momentum of the bullet is more than the momentum of the rifle.
Momentum peluru adalah lebih dari momentum senapang.
- B The total momentum of the bullet and the rifle is zero
Jumlah momentum peluru dan senapang adalah sifar.
- C The speed of the rifle is more than the speed of bullet
Kelajuan peluru adalah lebih dari kelajuan peluru.
- D The kinetic energy of the bullet is equal to the kinetic energy of the rifle.
Tenaga kinetik peluru adalah sama dengan tenaga kinetik senapang.

8. Diagram 4 shows an object at rest on a rough inclined plane.
Rajah 4 menunjukkan satu objek berada pegun di atas permukaan kasar landasan condong

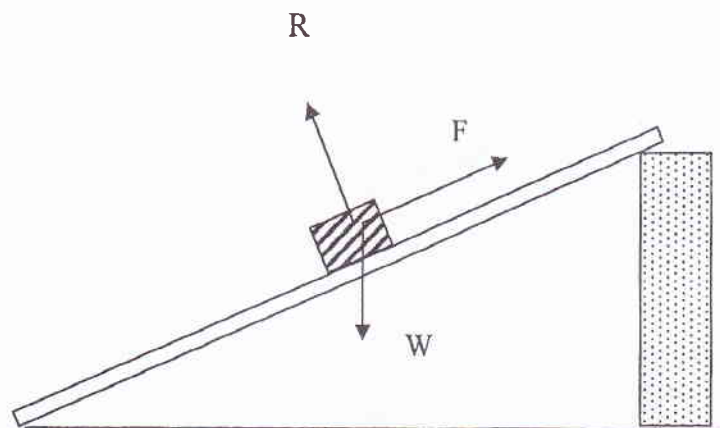
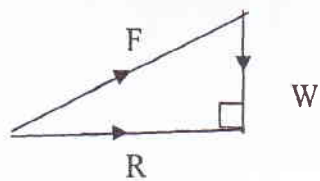


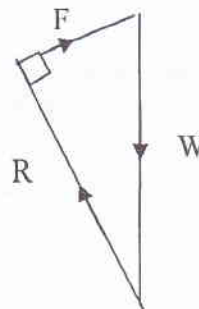
Diagram 4
Rajah 4

Which vector diagram represents the forces R , W and F that acts on the object?
Manakah di antara berikut menunjukkan daya-daya R , W dan F yang bertindak ke atas objek itu?

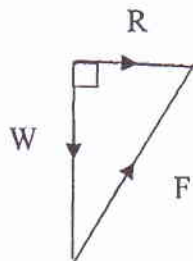
A



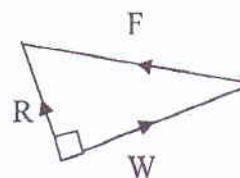
B



C



D



9. Diagram 5 shows a box of mass 5 kg slides down a smooth curved ramp.
Rajah 5 menunjukkan sebuah kotak 5 kg meluncur ke bawah landasan licin.

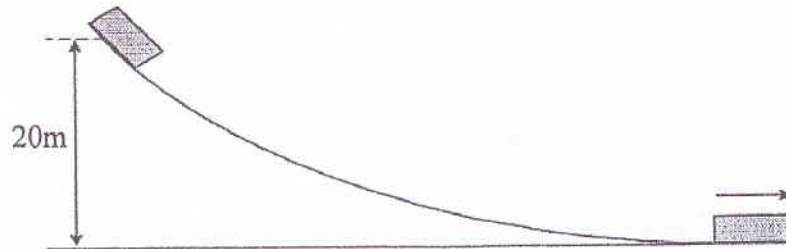


Diagram 5
Rajah 5

What is the speed of the box when it reaches the bottom? [Take $g = 10 \text{ m s}^{-2}$]
Berapakah kelajuan kotak itu semasa sampai ke bawah? [Ambil $g = 10 \text{ m s}^{-2}$]

- A 10 ms^{-1}
B 20 ms^{-1}
C 30 ms^{-1}
D 40 ms^{-1}
10. Diagram 6 shows an object of mass 5 kg suspended by two strings from points X and Y.
Rajah 6 menunjukkan satu objek dengan jisim 5 kg digantung oleh dua tali pada dua titik X dan Y.

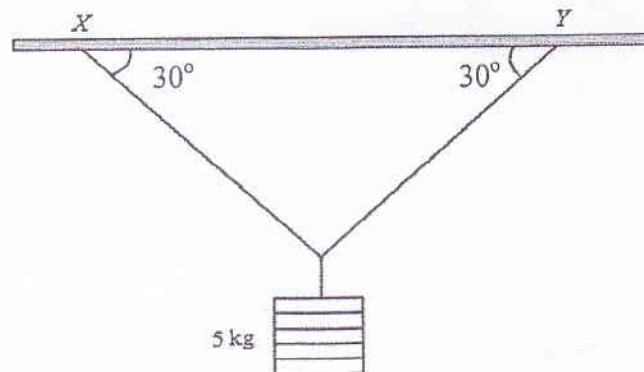


Diagram 6
Rajah 6

The tension in each of the strings is
Ketegangan pada setiap tali itu adalah

- A 2.5 N
B 12.5 N
C 25.0 N
D 50.0 N

11. Diagram 7 shows a force-extension graph for a spring which is loaded.
[Assume that the expansion of the spring does not exceed the elasticity limit]
Rajah 7 menunjukkan graf daya-pemanjangan bagi satu spring
[Andaikan pemanjangan spring tidak melebihi had kenyal]

Force / N
Daya / N

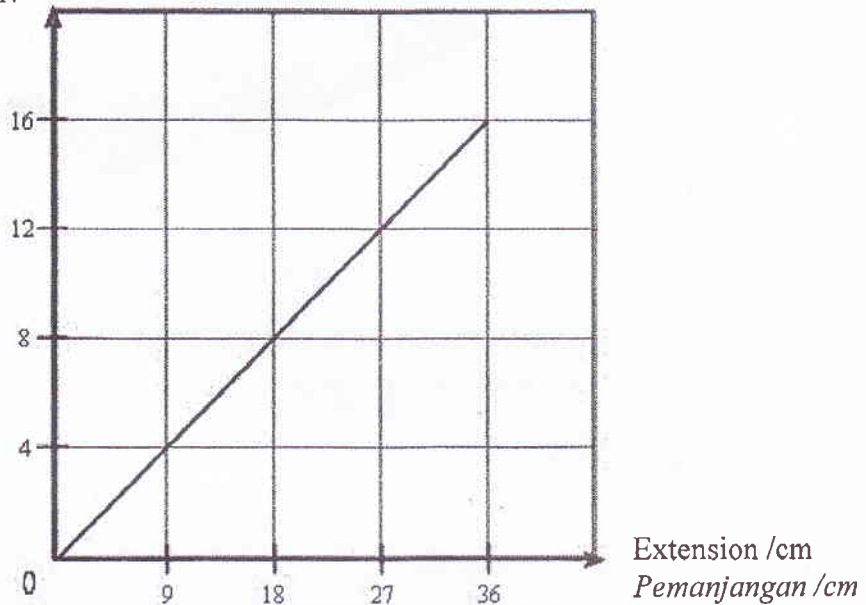


Diagram 7
Rajah 7

How much elastic potential energy is stored in the spring when its extension is 36 cm?

Berapakah tenaga keupayaan kenyal yang disimpan apabila pemanjangan adalah 36 cm?

- A 9.6 J
- B 2.88 J
- C 5.76 J
- D 11.52 J

12. Diagram 8 shows a glue tube with the glue is coming out through the mouth and the holes on the tube when pressed.

Rajah 8 menunjukkan gam keluar dari mulutnya dan keluar dari lubang-lubang yang terdapat pada tiub itu setelah dipicit.

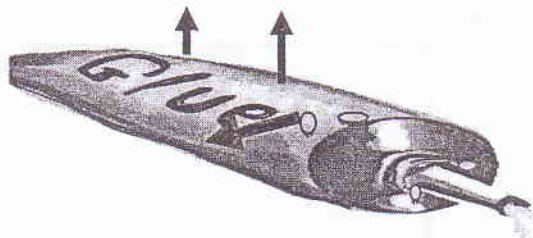


Diagram 8
Rajah 8

What is the principal involved in this situation?
Apakah prinsip yang terlibat dalam situasi ini?

- A Pascal's Principle
Prinsip Pascal
- B Bernoulli's Principle
Prinsip Bernoulli
- C Boyle's Principle
Prinsip Boyle
- D Archimedes' Principle
Prinsip Archimedes

13. Diagram 9 shows a sucking hook on a glass surface.
Rajah 9 menunjukkan penggantung lekat pada permukaan kaca.

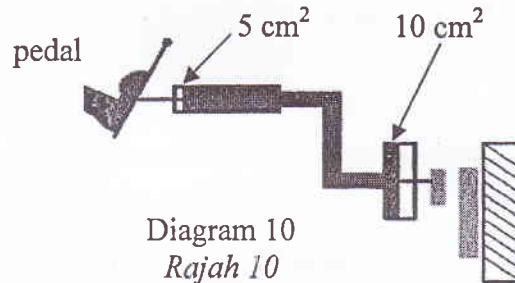


Diagram 9
Rajah 9

Which of the following explanations is correct?
Manakah di antara penjelasan berikut adalah benar?

- A The hook is actually pressed on the glass surface by the surrounding atmospheric pressure.
Penggantung itu sebenarnya di tekan oleh tekanan atmosfera dari udara sekelilingi.
- B The opposite electrostatic charges on hook and glass attract each other.
Cas elektrostatik yang bertentangan pada penggantung dan cermin menarik bersama .
- C There is no friction between the glass and the hook that can cause it to move.
Tiada geseran diantara cermin dan penggantung yang membolehkannya bergerak.
- D No forces act on the surface of the hook.
Tiada daya yang bertindak ke atas permukaan penggantung.

14. Diagram 10 shows the area of two pistons in a hydraulic brake system.
If 50N force applied to the pedal, what is the force exerted on the wheels?
Rajah 10 menunjukkan luas dua piston di dalam sistem hidraulik.
Jika 50N dikenakan pada pedal, berapakah daya dikenakan pada roda?



- A 50N
B 100N
C 160N
D 250N
15. Diagram 11 shows a hot balloon is rising up in the air.
Rajah 11 menunjukkan sebuah belon udara panas naik ke atas udara.



Diagram 11
Rajah 11

Which of the following statements is correct?
Manakah di antara pernyataan berikut benar?

- A Hot air has a lower density than the surrounding air.
Ketumpatan udara panas lebih rendah daripada udara sekeliling
- B Bouyant force of hot air balloon is lower than the weight of the balloon.
Daya apungan belon udara panas lebih rendah daripada berat belon itu.
- C The balloon is half vacuumed.
Belon itu separa vakum.
- D Gravitational force does not act on hot balloon.
Daya graviti tidak bertindak ke atas belon udara panas.

- 16 Nowadays football players like to use 'banana kick' technique to change the direction of the ball. The principle used in banana kick can also be used in following instrument laboratory.
Pemain bola sepak masa kini suka mengguna tendangan teknik 'banana kick' untuk mengubah arah pergerakan bola. Prinsip yang digunakan dalam tendangan 'banana kick' juga digunakan dalam peralatan makmal berikut

- A Hydrometer
Hidrometer
- B Bourdon gauge
Tolok Bourdon
- C Bunsen Burner
Penunu Bunsen
- D Aneroid Barometer
Barometer Aneroid

17. Diagram 12 shows an elephant of 5000 kg mass on a wooden platform with an area of 50 cm² during a circus performance.
Rajah 12 menunjukkan seekor gajah berjisim 5000 kg ke atas sebuah pentas dengan luas 50 cm² semasa satu pertunjukkan sarkis.

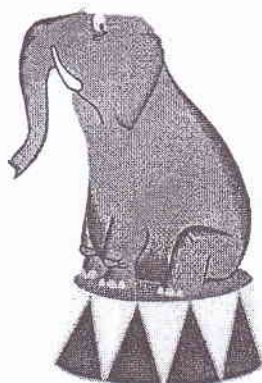


Diagram 12
Rajah 12

What is the pressure applied on the platform?
Berapakah tekanan dikenakan pada pentas itu ?

- A 0.1 N m⁻²
- B 1 x 10² N m⁻²
- C 1 x 10⁵ N m⁻²
- D 1 x 10⁷ N m⁻²

18. Diagram 13 shows a barometer mercury.
Rajah 13 menunjukkan sebuah barometer merkuri.

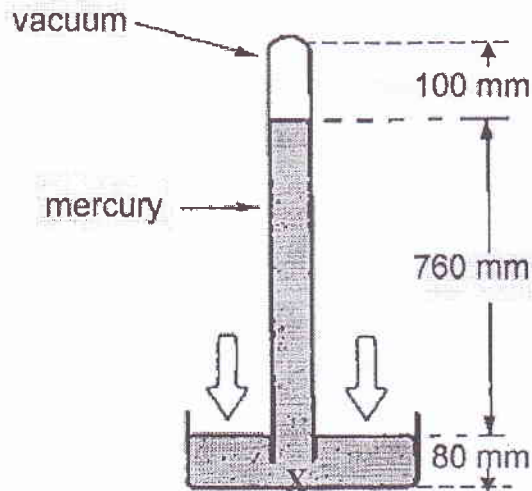


Diagram 13
Rajah 13

What is the pressure at X ?
Berapakah tekanan pada X ?

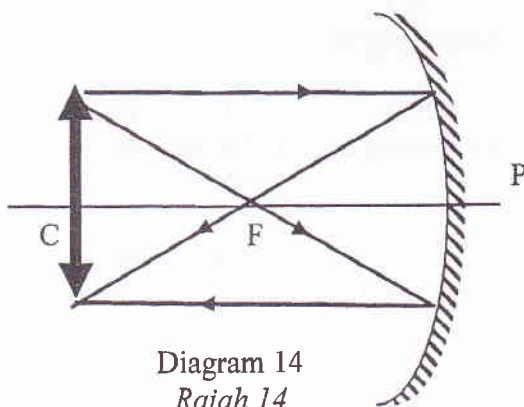
- A 76 cm Hg
 - B 84 cm Hg
 - C 86 cm Hg
 - D 94 cm Hg
19. Two objects in contact is said to be in thermal equilibrium if
Dua objek yang bersentuhan dikatakan dalam keadaan keseimbangan terma jika
- A No heat transfer between the objects.
Tiada baba perpindahan haba di antara objek.
 - B They possess the same amount of heat.
Kedua-duanya mempunyai jumlah tenaga haba yang sama
 - C The temperature of the objects are different.
Suhu kedua-dua objek adalah berbeza.
 - D The net rate of heat transfer between the two objects is zero.
Perbezaan tenaga haba dipindahkan antara dua objek adalah sifar.

- 20 Aluminium has a higher specific heat capacity than copper.
When heat is supplied at the same rate to two identical blocks of aluminium and copper, which of the following will take place?
*Aluminium mempunyai muatan haba tentu yang tinggi berbanding kuprum.
Apabila haba dibekalkan dengan kadar yang sama kepada dua blok aluminium dan kuprum yang sama, yang manakah antara berikut akan berlaku?*
- A The aluminium block melts earlier than the copper block.
Blok aluminium melebur lebih cepat daripada blok kuprum.
 - B The aluminium block will expand more than the copper block.
Blok aluminium mengembang dengan banyaknya berbanding blok kuprum.
 - C The temperature rise in the copper block is higher than aluminium block.
Peningkatan suhu dalam kuprum lebih tinggi berbanding blok aluminium.
 - D The temperature rise in the aluminium block is the same as copper block.
Peningkatan suhu dalam blok aluminium adalah sama dengan blok kuprum.
21. A heater rated with power of 2.0 kW takes 10 s to raise the temperature of a liquid of mass 500g by 5°C.
What is the specific heat capacity of the liquid in $\text{Jkg}^{-1}\text{ }^\circ\text{C}^{-1}$?
Sebuah pemanas dengan kadar kuasa 2.0kW mengambil masa 10 s untuk meningkatkan suhu suatu cecair berjisim 500g sebanyak 5°C. Apakah muatan haba tentu cecair tersebut dalam $\text{Jkg}^{-1}\text{ }^\circ\text{C}^{-1}$?
- A 0.8
 - B 8.0
 - C 8×10^{-3}
 - D 8×10^3
22. The pressure of a gas decreases from $2.5 \times 10^5 \text{ Pa}$ to $5.4 \times 10^4 \text{ Pa}$ at 30 °C.
If the volume of the gas is constant, what is the initial temperature of the gas?
Tekanan suatu gas berkurang daripada $2.5 \times 10^5 \text{ Pa}$ kepada $5.4 \times 10^4 \text{ Pa}$ pada 30 °C. Jika isipadu gas adalah malar, apakah suhu awal gas tersebut?
- A 6.48 °C
 - B 65.4 °C
 - C 1129.8 °C
 - D 1402.8 °C

23. The velocity of light in vacuum is $3 \times 10^8 \text{ ms}^{-1}$.
The refractive index of water is 1.30. What is the velocity of light in the water?
*Halaju cahaya di dalam vakum ialah $3 \times 10^8 \text{ ms}^{-1}$.
Indeks biasan bagi air ialah 1.30. Berapakah halaju cahaya di dalam air?*

- A $2.11 \times 10^8 \text{ ms}^{-1}$
- B $2.31 \times 10^8 \text{ ms}^{-1}$
- C $3.11 \times 10^8 \text{ ms}^{-1}$
- D $4.26 \times 10^8 \text{ ms}^{-1}$

24. Diagram 14 shows a ray diagram of a concave mirror.
Rajah 14 menunjukkan sebuah cermin cekung.



Which of the following shows the correct relationship between the object distance, u and the focal length, f ?

Yang manakah menunjukkan hubungan yang betul di antara jarak objek, u dan panjang fokus, f ?

- A $u > f$
- B $u = f$
- C $u = 2f$
- D $u > 2f$

25. Table 1 shows three different mediums with its refractive index.
Jadual 1 menunjukkan tiga medium yang mempunyai indeks biasan yang berbeza.

Medium <i>Medium</i>	Refractive index, n <i>Indeks biasan, n</i>
Glass <i>Kaca</i>	1.52
Water <i>Air</i>	1.33
Ice <i>Ais</i>	1.30

Table 1
Jadual 1

Which of the following ray diagrams is **correct**?
Yang manakah menunjukkan lintasan sinar dengan betul?

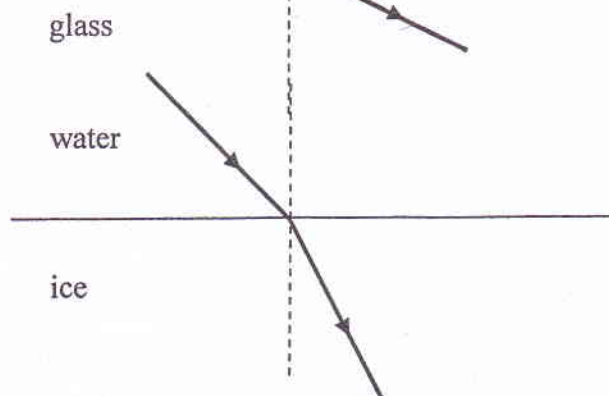
A



B



C

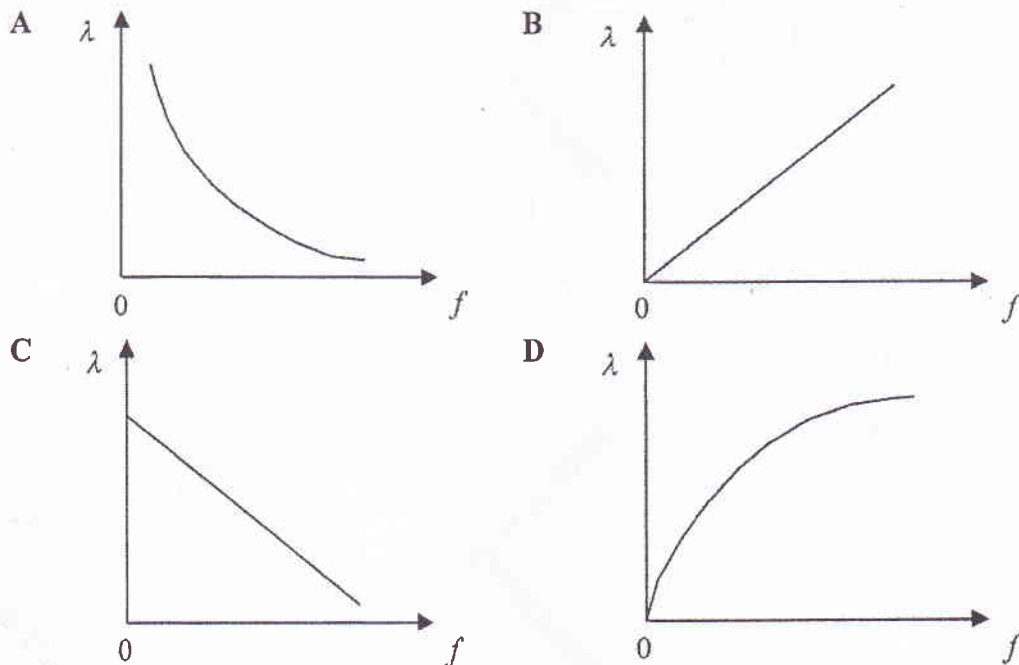


26. A boy stands 2m from a mirror. He sees an upright image two times his actual height. What is the type of the mirror?
Seorang budak lelaki berdiri 2m di depan sebuah cermin. Dia melihat imejnya dua kali ganda lebih tinggi. Apakah jenis cermin tersebut?
- A Plane mirror
Cermin satah
- B Concave mirror
Cermin cekung
- C Convex mirror
Cermin cembung
27. An astronomical telescope has two lenses with the focal length of 60 cm and 15 cm. Which of the following is true about the focal length of the objective lens, f_o and the eyepiece lens, f_e and its magnification, m ?
Sebuah teleskop mempunyai dua jenis kanta dengan panjang fokus 60 cm dan 15 cm masing-masing. Yang manakah menunjukkan panjang fokus kanta ojek f_o , dan panjang fokus kanta mata, f_e serta pembesarannya dengan betul?

	$f_o(\text{cm})$	$f_e(\text{cm})$	m
A	15	60	4
B	15	60	$\frac{1}{4}$
C	60	15	4
D	60	15	$\frac{1}{4}$

28. Which graph shows the correct relationship between the wavelength, λ , and the frequency, f , of water waves in a ripple tank where the depth of water is constant?

Graf yang manakah menunjukkan hubungan yang betul antara panjang gelombang, λ , dan frekuensi, f , gelombang air dalam tangki riak dengan kedalaman air yang seragam?



29. Diagram 15 shows a wave pattern.
Rajah 15 menunjukkan satu corak gelombang.

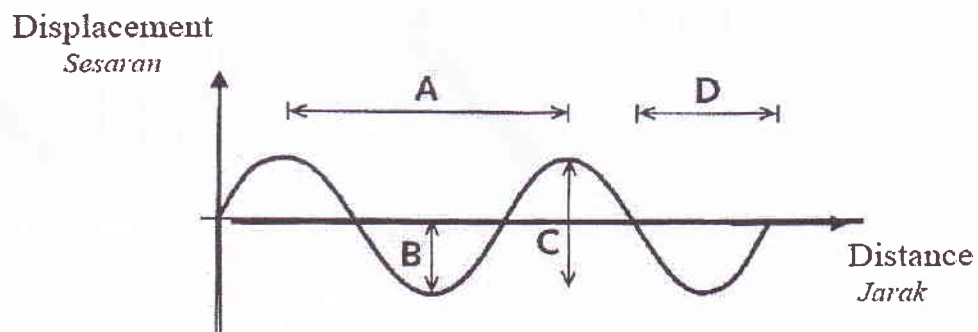


Diagram 15
Rajah 15

Which of the distances labelled A, B, C or D, represents one wavelength?
Antara jarak berlabel A, B, C atau D, yang manakah mewakili satu panjang gelombang?

30. Diagram 16 shows plane water waves travelling towards an L-shaped barrier in a ripple tank.

Rajah 16 menunjukkan gelombang air satah bergerak menuju sebuah halangan yang berbentuk L dalam sebuah tangki riak.

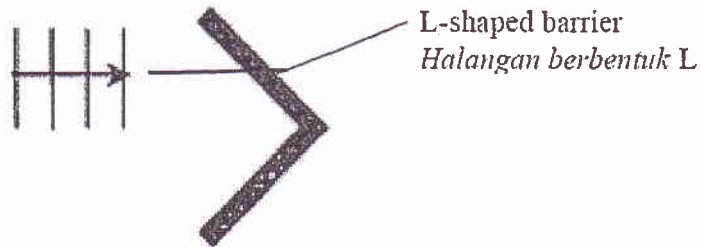
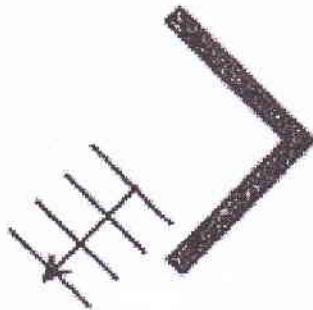


Diagram 16
Rajah 16

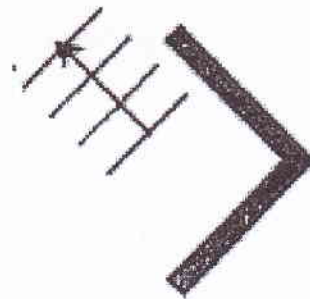
Which diagram shows the reflected wave pattern?

Rajah manakah menunjukkan corak gelombang yang dipantulkan?

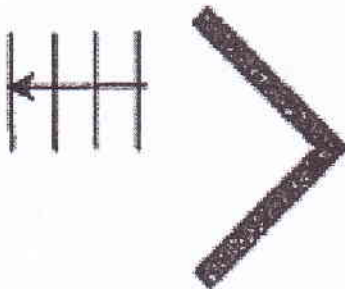
A



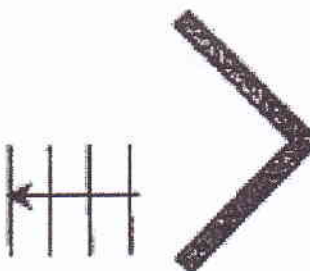
B



C



D



31. Diagram 17 shows the diffraction of water waves in a ripple tank.
Rajah 17 menunjukkan belauan gelombang air dalam tangki riak.

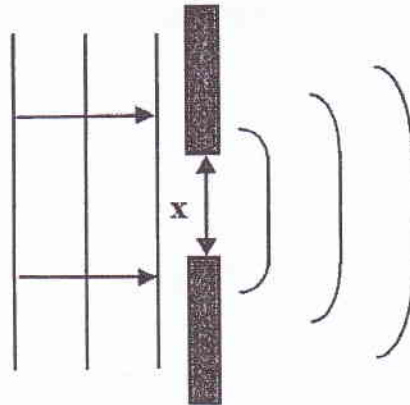


Diagram 17
Rajah 17

When x decreases, the effect of diffraction will
Apabila x berkurang, kesan belauan akan

- A decreases
berkurang
- B increases
bertambah
- C remains the same
tidak berubah

32. Diagram 18 shows a ship in front of a cliff. It produces a loud sound which travels at a velocity of 330 ms^{-1} . An echo is heard 4 seconds later.

Rajah 18 menunjukkan sebuah kapal di hadapan sebuah tebing. Ia menghasilkan bunyi yang kuat yang merambat pada kelajuan 330 ms^{-1} . Gema kedengaran 4 saat kemudian.

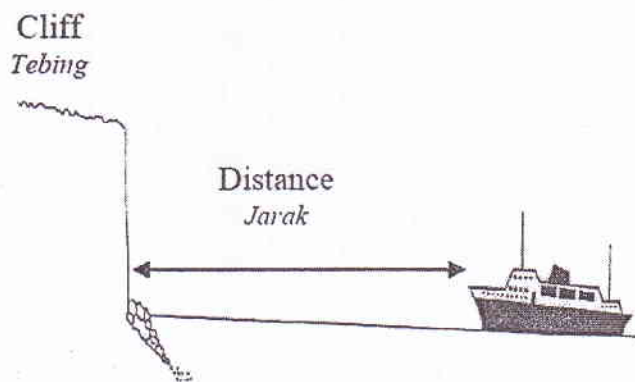


Diagram 18
Rajah 18

Calculate the distance between the ship and the cliff.

Hitung jarak antara kapal dan tebing.

- A 82.5 m
- B 330.0 m
- C 660.0 m
- D 1200.0 m

33. Diagram 19 shows the displacement-time graph for wave P, Q and R.
Rajah 19 menunjukkan graf sesaran-masa bagi gelombang P, Q dan R.

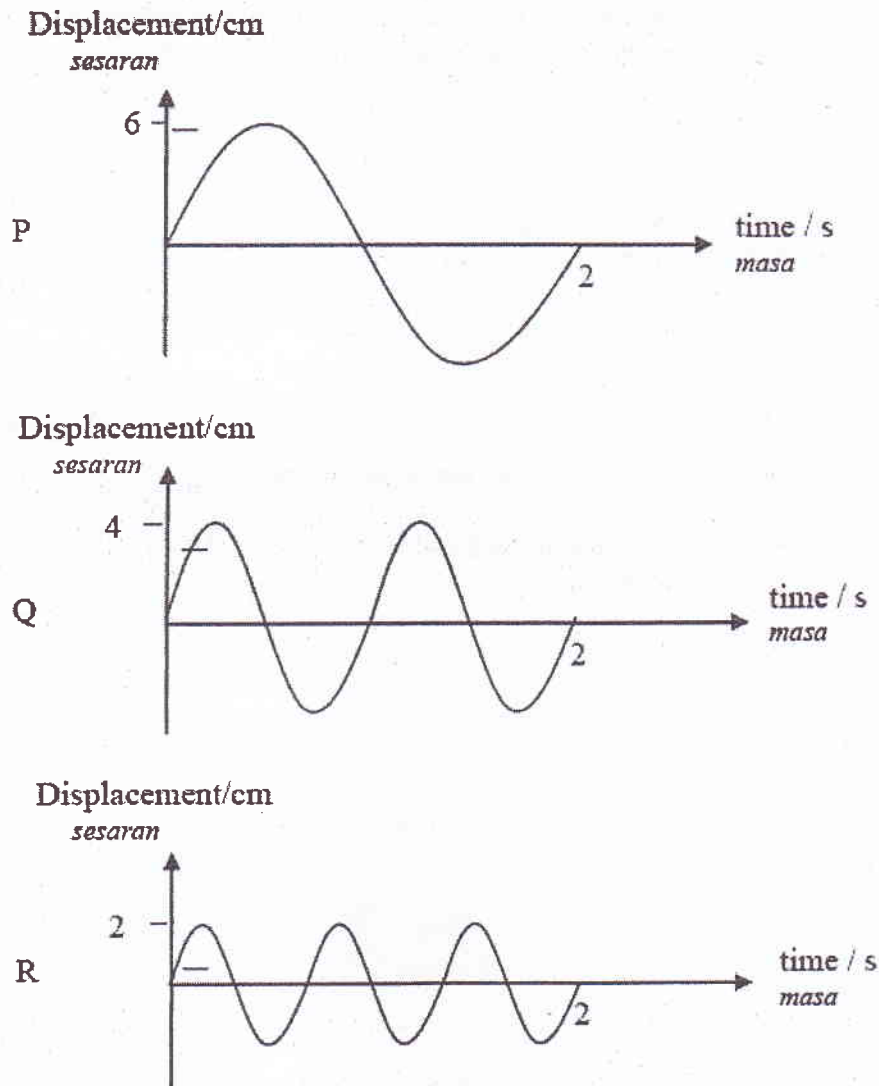


Diagram 19
Rajah 19

Arrange the pitch of the waves P, Q and R in a descending order.
Susun gelombang P, Q and R berdasarkan kelangsingan dari tinggi ke rendah.

- A P, Q, R
- B R, Q, P
- C Q, R, P
- D P, R, Q

34. Table 2 shows part of electromagnetic waves spectrum.
Jadual 2 menunjukkan sebahagian gelombang electromagnet.

Microwave <i>Gelombang mikro</i>	Infrared rays <i>Sinar inframerah</i>	Ultraviolet rays <i>Sinar ultraungu</i>	X-rays <i>Sinar-X</i>	Gamma rays <i>Sinar Gamma</i>
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Table 2
Jadual 2

The position of the visible light is
Kedudukan cahaya nampak adalah

- A between gamma rays and ultraviolet rays
di antara sinar gamma dan sinar ultraungu
- B between infrared rays and ultraviolet rays
di antara sinar inframerah dan sinar ultraungu
- C between microwave and infrared rays
di antara gelombang mikro dan sinar inframerah
- D between ultraviolet rays and X-rays
di antara sinar ultraungu dan sinar-X

35. Diagram 20 shows a circuit consisting of two resistors and a bulb.
Rajah 20 menunjukkan satu litar mengandungi dua perintang dan sebuah mentol

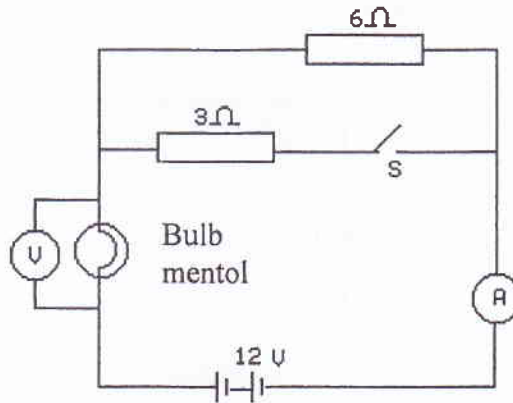


Diagram 20
Rajah 20

When switch S is opened, the reading of the ammeter is 1.5 A.
What is the reading of the voltmeter when the switch is closed?

*Apabila suis S dibuka, bacaan ammeter adalah 1.5 A.
Apakah bacaan voltmeter apabila suis ditutup?*

- A 3 V
- B 6 V
- C 8 V
- D 12 V

36. Diagram 21 shows a circuit. When the switch, S is opened and then closed, the reading of the ammeter is I_1 and I_2 respectively.
Rajah 21 menunjukkan satu litar. Apabila suis, S terbuka dan tertutup, bacaan ammeter ialah I_1 dan I_2 .

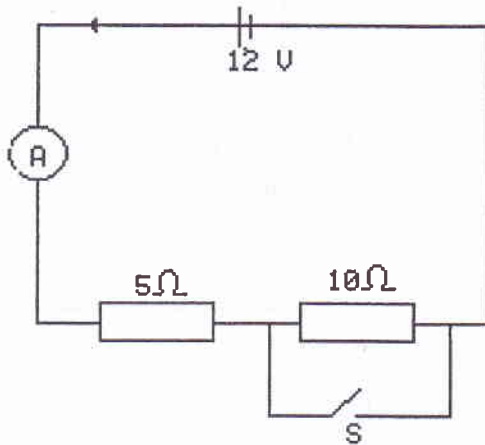


Diagram 21
Rajah 21

What the ratio of $I_1 : I_2$?
Apakah nisbah $I_1 : I_2$?

- A 1 : 2
- B 2 : 1
- C 1 : 3
- D 3 : 1

37. Diagram 22.1 shows a circuit to determine the e.m.f and internal resistance of a cell.

Diagram 22.2 shows the experiment is repeated by using the same cell.

Rajah 22.1 menunjukkan satu litar untuk menentukan d.g.e dan rintangan dalam suatu sel.

Rajah 22.2 menunjukkan satu eksperimen diulang menggunakan sel yang sama.

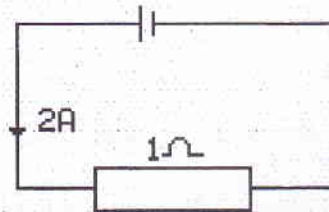


Diagram 22.1
Rajah 22.1

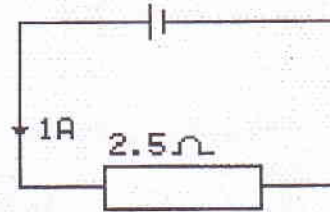


Diagram 22.2
Rajah 22.2

What is the internal resistance and the electromotive force of the cell?
Apakah rintangan dalam dan daya gerak elektrik sel?

	Internal resistance / Ω	E.m.f / V
A	0.25	1.5
B	0.50	3.0
C	1.00	3.0
D	1.25	4.5
E	1.50	4.5

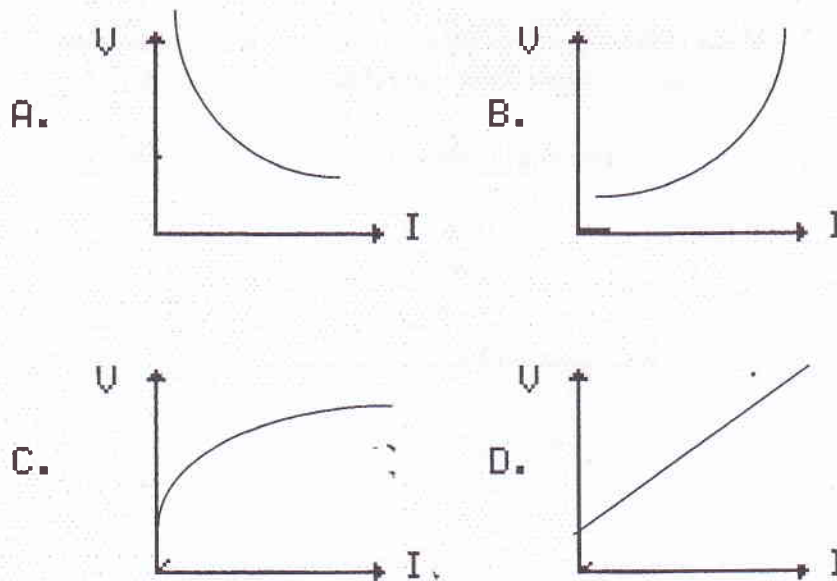
38. An electric bulb is labeled "240V, 25W. How much energy is used by the bulb in one minute if the bulb is connected to a 240V power supply?

Satu mentol berlabel "240V, 25W". Berapakah tenaga yang digunakan oleh mentol tersebut dalam satu minit jika ia disambung kepada bekalan kuasa 240V?

- A 25 J
- B 1500 J
- C 6000 J
- D 14 400 J

39. Which of the following V-I graph shows the resistance increasing as the current rises?

Manakah di antara berikut graf V-I menunjukkan rintangan bertambah apabila arus bertambah?



40. Diagram 23 shows a square coil rotating at a steady speed in a magnetic field.
Rajah 23 menunjukkan gegelung segiempat berputar dengan kelajuan seragam di dalam medan magnet.

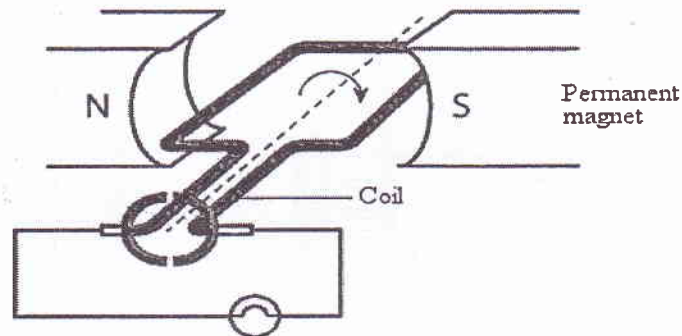
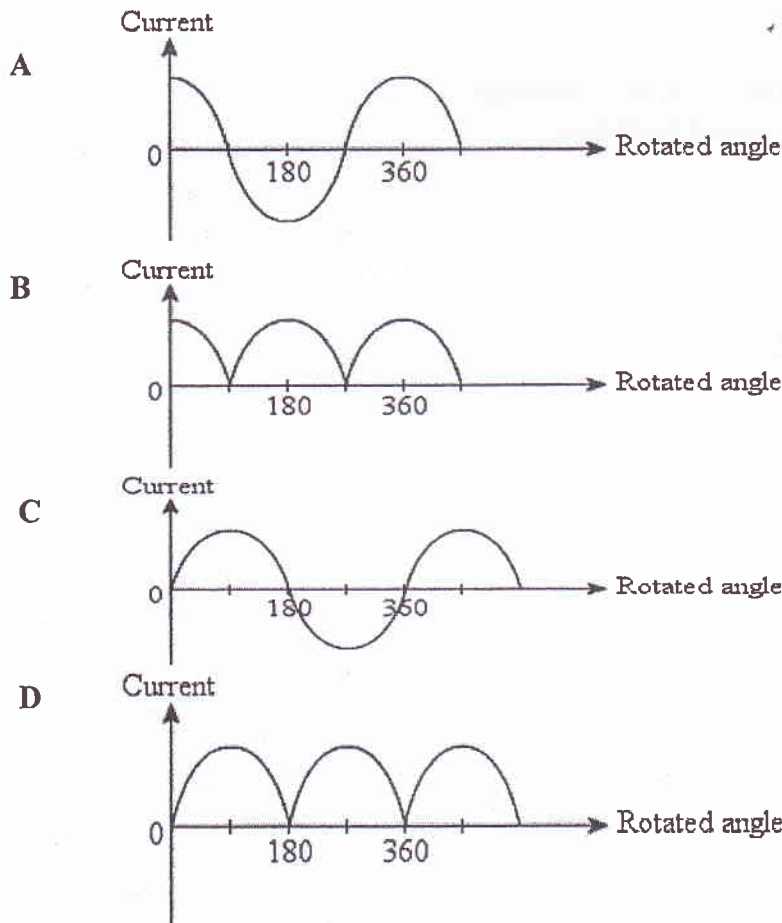


Diagram 23
Rajah 23

Which of the following graphs shows the fluctuation in the current flowing through the lamp starting with the coil being in the horizontal position?
Graf manakah menunjukkan perubahan arus yang mengalir melalui mentol bermula dari gegelung berada di dalam keadaan kedudukan mendatar?



41. Diagram 24 shows a simple transformer with bulb lights up at normal brightness.
Rajah 24 menunjukkan sebuah transformer ringkas dengan mentol menyala dengan kecerahan biasa.

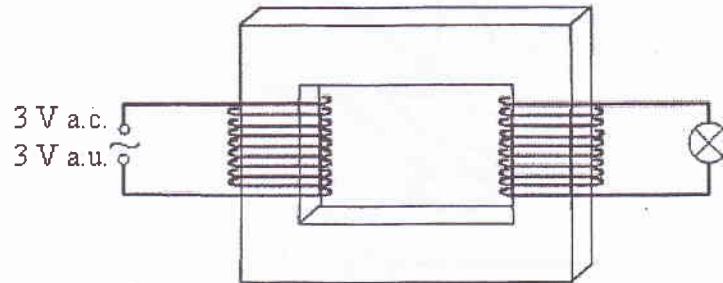


Diagram 24
Rajah 24

What will happen if the alternating current, a.c input is replaced by a 3 V battery?
Apakah yang berlaku jika arus ulangalik digantikan dengan bateri 3V?

- A The bulb blows
Mentol terbakar
- B The brightness of the bulb decreases
Kecerahan mentol berkurang
- C The brightness of the bulb increases
Kecerahan mentol bertambah
- D The bulb does not light up
Mentol tidak menyala

43. Diagram 26 shows a coil of wire placed next to a magnet. The galvanometer pointer deflects when the magnet is pushed into the coil.
Rajah 26 menunjukkan gegelung dawai berada di sebelah satu magnet. Jarum galvanometer itu terpesong apabila magnet itu di tolak kea rah gegelung.

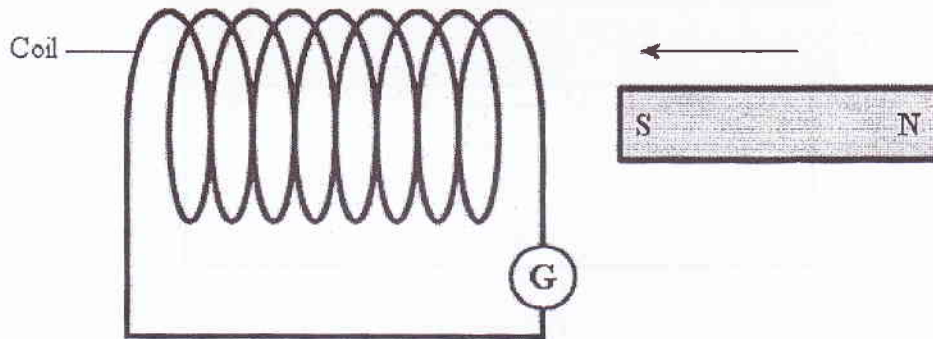


Diagram 26
Rajah 26

Which action will increase the deflection of the galvanometer pointer?
Apakah tindakan yang akan meningkatkan pesongan jarum galvanometer?

- A The magnetic pole is reversed.
Kekutuban magnet diterbalikkan.
- B The number of turns of coils is increased.
Bilangan lilitan gegelung ditambah.
- C The coil is made from insulated wire.
Gegelung dibuat daripada dawai bertebat.
- D The magnet is pushed slowly into the coil.
Magnet itu ditolak secara perlahan ke dalam gegelung.

44. Diagram 27 shows a graph of the output current from a source of alternating current supply.

Rajah 27 menunjukkan graf arus output daripada satu bekalan arus ulangalik.

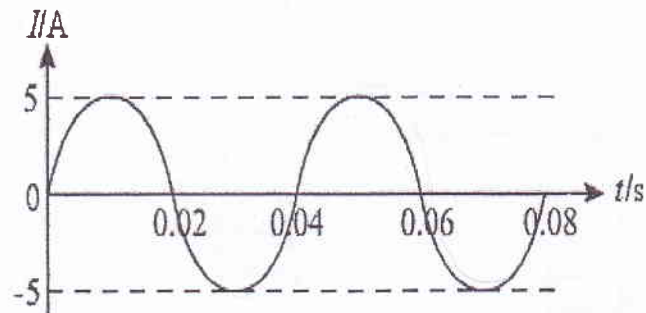


Diagram 27
Rajah 27

Which statement about this output current is true.

Pernyataan manakah yang benar berkenaan arus output?

- A The peak current is 10 A.
Arus puncak ialah 10 A
- B The magnitude of current is always constant.
Magnitud arus sentiasa malar.
- C The period of the alternating current is 0.02 s.
Tempoh arus ulangalik itu ialah 0.02 s.
- D The frequency of the alternating current is 25 Hz.
Frekuensi arus ulangalik ialah 25 Hz

45. Diagram 28 shows the primary coil of a transformer is connected to a 240 V a.c. supply and an output voltage of 12V is produced.

Rajah 28 menunjukkan gegelung primer sebuah transformer disambung ke bekalan 240V a.u dan voltan output 12V dihasilkan.

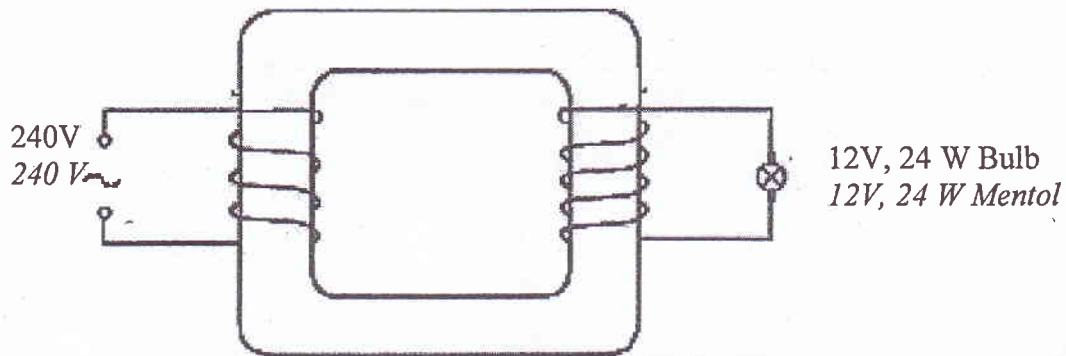


Diagram 28
Rajah 28

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 : 45
- C 1 : 20
- D 2 : 40

46. Diagram 29 shows a full wave rectifier circuit.
Rajah 29 menunjukkan litar rektifikasi gelombang penuh.

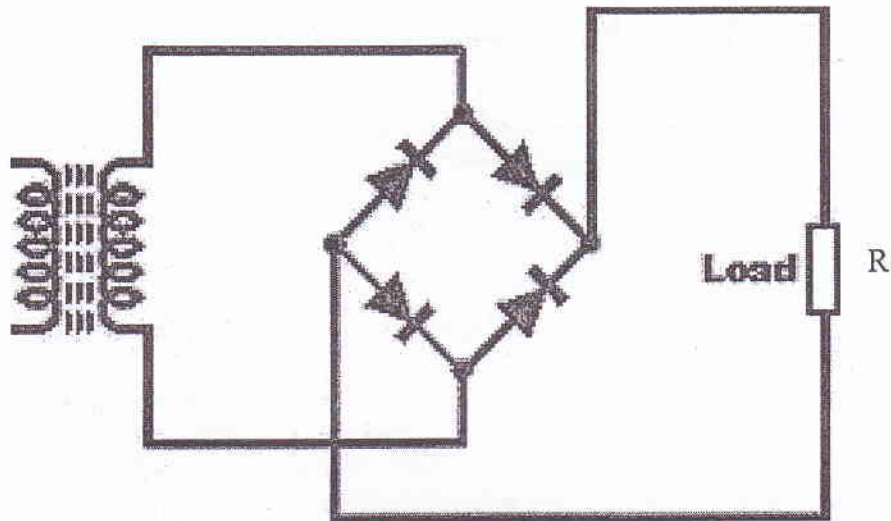


Diagram 29
Rajah 29

Suggest a modification that has to be done to the circuit in Diagram 29 to obtain a smoothed full wave rectification ?
Cadangkan satu modifikasi yang perlu lakukan pada litar di Rajah 29 untuk memperolehi rektifikasi gelombang penuh yang licin?

- A Add a transformer parallel to R
Tambah sebuah transformer selari dengan R
- B Add a transistor parallel to R
Tambah sebuah transistor selari dengan R
- C Add an inductor parallel to R
Tambah sebuah inductor selari dengan R
- D Add a capacitor parallel to R
Tambah sebuah kapasitor selari dengan R

47. Diagram 30 shows combination of two logic gates circuit.
Rajah 30 menunjukkan litar kombinasi bagi dua get logik.

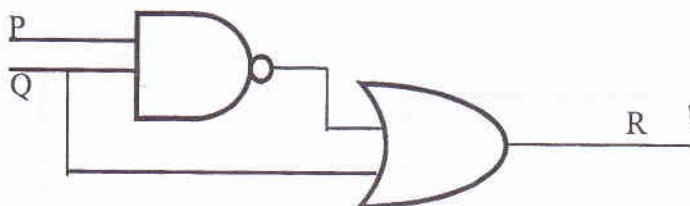


Diagram 30
Rajah 30

If P and Q are inputs and R is output, which of the following truth table is correct for the circuit in diagram

Jika P dan Q input dan R output, manakah Jadual kebenaran yang berikut betul bagi litar pada Rajah

A

P	Q	R
0	0	0
1	0	0
0	1	0
1	1	1

B

P	Q	R
0	0	1
1	0	0
0	1	1
1	1	0

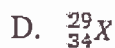
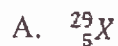
C

P	Q	R
0	0	0
1	0	0
0	1	1
1	1	1

D

P	Q	R
0	0	1
1	0	1
0	1	1
1	1	1

48. Which of the following nuclide notation is correct for a nuclide X has 29 protons and 5 neutrons?
Yang manakah symbol nuklid betul bagi nuklid X yang mempunyai 29 proton dan 5 neutron?



49. The process of splitting a heavier nucleus into lighter nuclei by released of a large amount of energy is called
Proses yang membelah nukleus berat kepada nucleus yang ringan serta menghasilkan tenaga yang besar di panggil
- A Nuclear Fusion
Pelakuran nucleus
- B Nuclear Fission
Pembelahan nucleus
- C Radioactive Decay
Reputan Radioaktif
- D Half life
Separuh hayat
50. In a nuclear fission, about 0.05 a.m.u. is lost. How much energy is given out ?
Dalam suatu pembelahan nukleus, 0.05 u.j.a hilang. Berapakah tenaga terhasil ?
[Given 1 a.m.u. = 1.66×10^{-27} kg, and $c = 3.0 \times 10^8$ m s⁻¹]
[Diberi 1 u.j.a. = 1.66×10^{-27} kg, dan $c = 3.0 \times 10^8$ m s⁻¹]
- A 4.50×10^{-19} J
- B 7.47×10^{-12} J
- C 8.31×10^{-20} J
- D 9.06×10^{-27} J

END OF QUESTION PAPER
KERTAS SOALAN TAMAT