

**CONFIDENTIAL**

**4531/1**

**Physics**

**Paper 1**

**August**

**2012**

**1 ½ jam**



**JABATAN PELAJARAN NEGERI TERENGGANU**

**PEPERIKSAAN PERCUBAAN  
SIJIL PELAJARAN MALAYSIA 2012**

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**PHYSICS**

**PAPER 1**

**1 Hour 15 minutes**

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**DO NOT OPEN THIS BOOKLET UNTIL YOU HAVE BEEN TOLD TO DO SO**

All candidates are advised to refer to the given information on page 2.

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<i>Disediakan oleh:</i>	<i>Dengan Kerjasama:</i>	<i>Dibiayai oleh:</i>
<b>AKRAM NEGERI TERENGGANU</b>	<b>MPSM NEGERI TERENGGANU</b>	<b>KERAJAAN NEGERI TERENGGANU</b>

**TERENGGANU NEGERI ANJUNG ILMU**

*Dicetak oleh:*  
*Percetakan Yayasan Islam Terengganu Sdn. Bhd.*  
*Tel: 609-666 8611/6652/8601 Faks: 609-666 0611/0063*

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*Kertas soalan ini mengandungi 33 halaman bercetak*

**MAKLUMAT UNTUK CALON**

1. *Kertas soalan ini mengandungi 50 soalan.*
2. *Jawab **semua** soalan.*
3. *Jawab dengan menghitamkan ruangan yang betul pada kertas jawapan.*
4. *Bagi setiap soalan hitamkan satu ruangan sahaja.*
5. *Sekiranya anda hendak menukarkan jawapan, padamkan tanda yang telah dibuat. Kemudian hitamkan jawapan yang baru.*
6. *Rajah yang mengiringi soalan tidak dilukiskan mengikut skala kecuali dinyatakan.*
7. *Senarai rumus disediakan di halaman 3.*
8. *Anda dibenarkan menggunakan kalkulator saintifik yang tidak boleh diprogram.*

**INFORMATION FOR CANDIDATES**

1. *This question paper consists of 50 questions.*
2. *Answer **all** questions.*
3. *Answer each question by blackening the correct space on the answer sheet.*
4. *Blacken only **one** space for each question.*
5. *If you wish to change your answer, erase the blackened mark that you have made. Then blacken the space for the new answer.*
6. *The diagrams in the question provided are not drawn to scale unless stated.*
7. *You may use a non-programmable scientific calculator.*
8. *A list of formula is provided on page 3.*

*Maklumat berikut mungkin berfaedah. Simbol-simbol mempunyai makna yang biasa.*

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

2. Momentum =  $mv$

3.  $F = ma$

4. Gravitational potential energy =  $mgh$

5.  $\rho = \frac{m}{v}$

6. Pressure,  $p = \frac{F}{A}$

7. Pressure,  $p = h\rho g$

8. Heat,  $Q = mc\theta$

9.  $\frac{pV}{T} = \text{constant}$

10.  $E = mc^2$

11.  $v = f\lambda$

12.  $\lambda = \frac{ax}{d}$

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

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

15.  $V = IR$

16.  $n = \frac{H}{h}$

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

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

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

20.  $g = 10 \text{ m s}^{-2}$

- 1 Which of the following physical quantities is derived quantity?

*Antara kuantiti fizik berikut, yang manakah kuantiti terbitan?*

- A Weight  
*Berat*
- B Time  
*Masa*
- C Temperature  
*Suhu*
- D Electric current  
*Arus Elektrik*

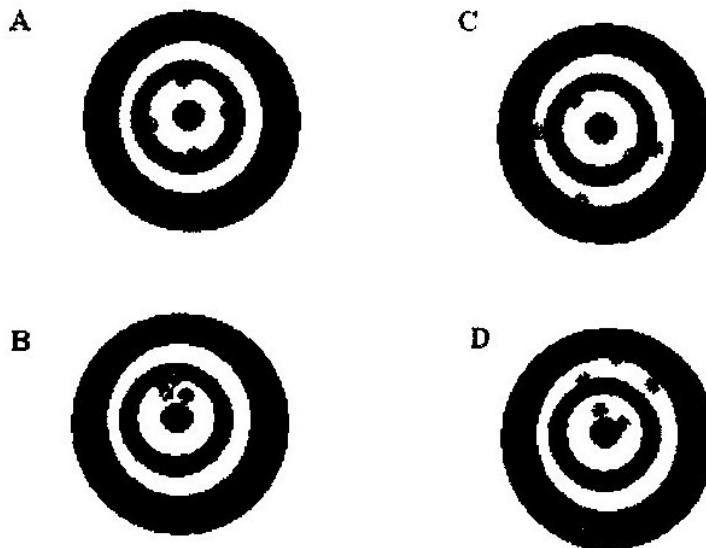
- 2 Which of the following frequencies is the same as 103.8 GHz?

*Antara frekuensi berikut, yang manakah sama dengan 103.8 GHz?*

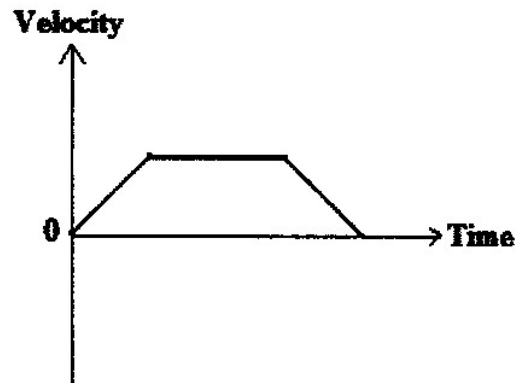
- A  $1.038 \times 10^{-9}$  Hz
- B  $1.038 \times 10^{-7}$  Hz
- C  $1.038 \times 10^9$  Hz
- D  $1.038 \times 10^{11}$  Hz

- 3 A, B, C, and D show the shooting marks on a target. Which marks can explain the concept of precision of a measurement?

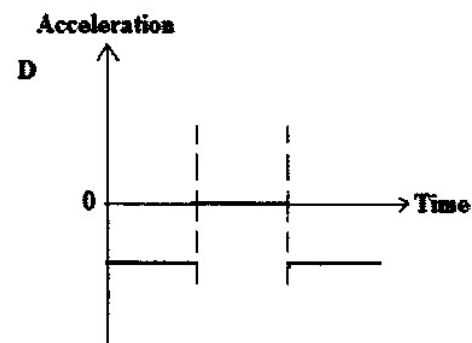
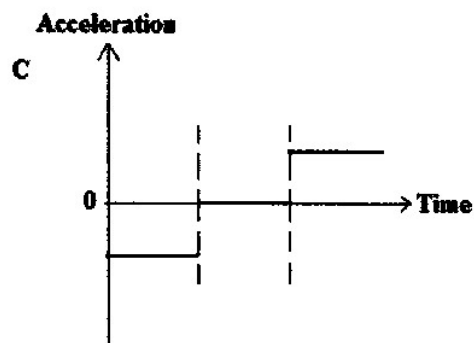
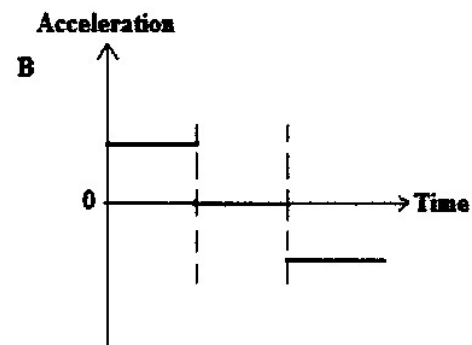
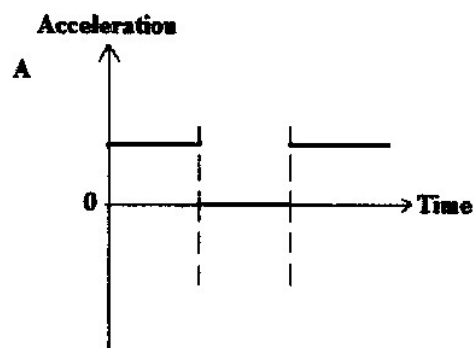
*A, B, C dan D merupakan kesan tembakan pada papan sasaran. Kesan tembakan yang manakah dapat menerangkan konsep kepersisan suatu pengukuran?*



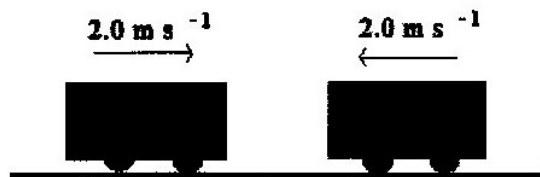
- 4 The velocity-time graph below shows the movement of an object.  
*Graf halaju-masa berikut menunjukkan pergerakan suatu objek.*



Which acceleration-time graph below shows the movement of the object?  
*Antara graf pecutan –masa di bawah yang manakah menunjukkan pergerakan bagi objek itu?*



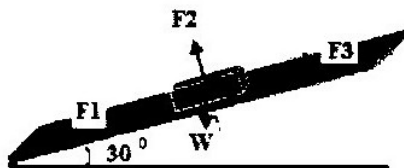
- 5 Diagram shows two trolleys of the same mass approaches each other with the same speed.  
*Rajah menunjukkan dua troli yang sama jisim menuju satu sama lain dengan laju yang sama.*



If the collision between the trolleys is an elastic, what happens to the trolleys after collision?

*Jika perlanggaran diantara troli-troli itu adalah kenyal, apakah yang akan berlaku selepas perlanggaran?*

- A The trolleys stop  
*Troli-troli itu berhenti*
- B The trolleys move off together  
*Troli-troli itu bergerak bersama-sama*
- C The trolleys move off separately in opposite directions  
*Troli-troli itu bergerak berasingan dalam arah berbeza*
- 6 Diagram shows a box weighing 10 N resting inclined surface. The forces acting on the box are in equilibrium.  
*Rajah menunjukkan satu kotak yang beratnya 10 N di atas landasan condong. Daya-daya yang bertindak ke atasnya dalam keseimbangan.*



The value of  $F_2$  is

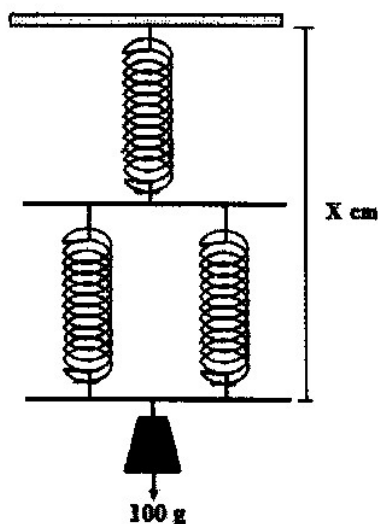
*Nilai  $F_2$  adalah*

- A 10 N
- B  $(10 \sin 30^\circ)$  N
- C  $(10 \cos 30^\circ)$  N
- D  $(10 \sin 30^\circ - F_3)$  N

- 7 Which of the following situation is **not** a benefit of impulsive force?  
*Antara situasi berikut yang manakah tidak menunjukkan kebaikan daya impuls?*

- A Hammer a nail into a wood  
*Memukul paku ke dalam kayu*
- B Hit a ball using a racket  
*Memukul bola menggunakan raket*
- C Collision between two vehicles  
*Perlanggaran di antara dua kenderaan*
- D Driving a pile into the ground using a pile driver  
*Memasukkan cerucuk ke dalam tanah menggunakan pelantak.*

- 8 Diagram shows a system of three identical springs. The original length of each spring is 10 cm. It is stretched to 13 cm when it is loaded with mass of 50 g.  
*Rajah menunjukkan satu sistem tiga spring yang sama. Panjang asal setiap spring ialah 10 cm. Spring itu akan memanjang kepada 13 cm apabila digantung beban 50 g.*

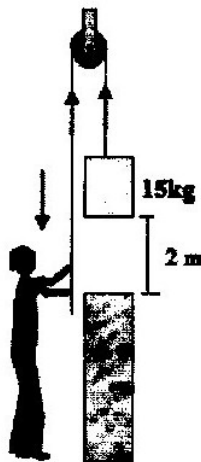


What is the total length of spring, X cm?  
*Berapakah jumlah panjang spring, X cm?*

- A 26 cm
- B 29 cm
- C 32 cm
- D 39 cm

- 9 Diagram shows a man is pulling a rope vertically downwards to lift a load of 15 kg on the other end through a vertical height of 2 m.

*Rajah menunjukkan seorang lelaki menarik tali ke bawah untuk mengangkat beban sebanyak 15 kg setinggi 2 m.*



What is the work done?

*Berapakah kerja yang telah dilakukan?*

- A 7.5 J  
 B 17 J  
 C 30 J  
 D 300 J
- 10 Which of the following ticker tapes describes a motion of deceleration?  
*Pita detik yang manakah berikut menerangkan pergerakan secara nyah pecutan?*

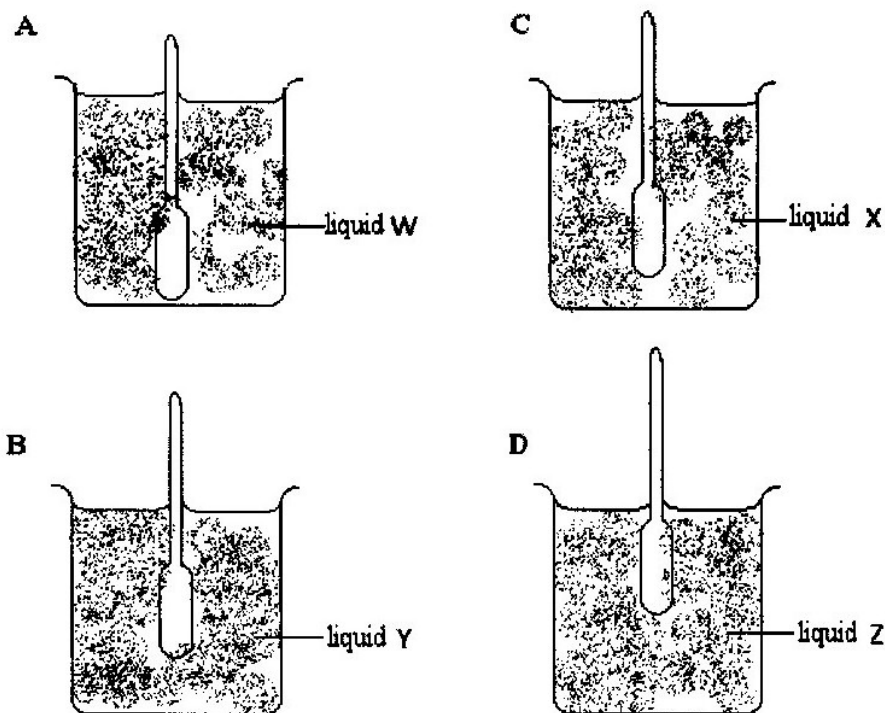
- A → direction of motion
- B → direction of motion
- C → direction of motion



- 11 Which of the following operates on the effects of atmospheric pressure?  
*Manakah berikut yang beroperasi berdasarkan kesan tekanan atmosfera?*
- A Aerofoil  
*aerofoil*
  - B Hydraulic brakes  
*Brek hidraulik*
  - C Lift pump  
*Pam Angkat*
- 12 What is the pressure acting on a diver when he is 10 m underwater?  
[ Density of water =  $10^3 \text{ kg m}^{-3}$ , atmospheric pressure =  $1 \times 10^5 \text{ Pa}$  ]  
*Berapakah tekanan yang bertindak ke atas seorang penyelam yang berada 10 m di dalam air?*  
[Ketumpatan air =  $10^3 \text{ kg m}^{-3}$ , Tekanan atmosfera =  $1 \times 10^5 \text{ Pa}$  ]
- A  $1 \times 10^5 \text{ Pa}$
  - B  $2 \times 10^5 \text{ Pa}$
  - C  $3 \times 10^5 \text{ Pa}$
  - D  $4 \times 10^5 \text{ Pa}$

- 13 The diagram shows the position of a hydrometer in four different liquids W, X, Y and Z. Which liquid has the biggest density?

*Gambar rajah menunjukkan kedudukan hidrometer di dalam empat jenis cecair yang berbeza W, X, Y dan Z. Cecair manakah yang mempunyai ketumpatan paling tinggi?*



- 14 The presence of air bubbles in the hydraulic brake system causes the system to function inefficiently.

Which statement explains this observation?

*Kehadiran gelembung-gelembung udara di dalam sistem brek hidraulik akan menyebabkan sistem tidak cekap.*

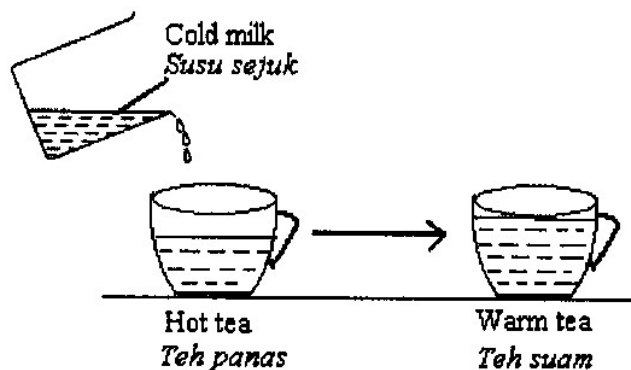
*Pernyataan manakah menerangkan pemerhatian ini?*

- A The air bubbles reduce the viscosity of the brake fluid  
*Gelembung-gelembung udara mengurangkan kelikatan cecair brek*
- B The air bubbles escape when the brake pedal is pressed  
*Gelembung-gelembung udara terbebas keluar apabila brek ditekan*
- C The air bubbles expand when the brake system becomes hot due to friction  
*Gelembung-gelembung udara mengembang apabila sistem brek menjadi panas disebabkan oleh geseran*
- D The air bubbles are compressed when the brake is pressed.  
*Gelembung-gelembung udara dimampatkan apabila brek ditekan*

- 15 Why is steam less dense than water?  
*Mengapakah stim kurang tumpat berbanding air?*

- A Steam particles are lighter  
*Zarah stim lebih ringan*
- B Steam particles move faster  
*Zarah stim bergerak lebih cepat*
- C Steam particles are further apart from each other  
*Zarah stim lebih jauh antara satu sama lain*
- D Steam particles have a higher kinetic energy  
*Zarah stim mempunyai tenaga kinetik yang lebih tinggi*

- 16 Diagram shows cold milk being added into a cup of hot tea.  
*Rajah menunjukkan susu sejuk ditambahkan kepada secawan teh panas.*



Which of the following statements is correct if there no heat losses to the surroundings?  
*Pernyataan manakah berikut adalah betul jika tiada haba hilang ke persekitaran?*

- A Heat lost by hot tea is greater than heat gained by cold milk.  
*Kehilangan haba oleh teh panas adalah lebih banyak daripada penerimaan haba oleh susu sejuk.*
- B Heat lost by hot tea is less than heat gained by cold milk.  
*Kehilangan haba oleh teh panas adalah kurang daripada penerimaan haba oleh susu sejuk.*
- C Heat lost by hot tea is equal to heat gained by cold milk.  
*Kehilangan haba oleh teh panas adalah sama dengan penerimaan haba oleh susu sejuk.*

- 17 The specific heat capacity of copper is  $400 \text{ J kg}^{-1} \text{ }^{\circ}\text{C}^{-1}$ .

Which statement is correct to explain the specific heat capacity of copper?

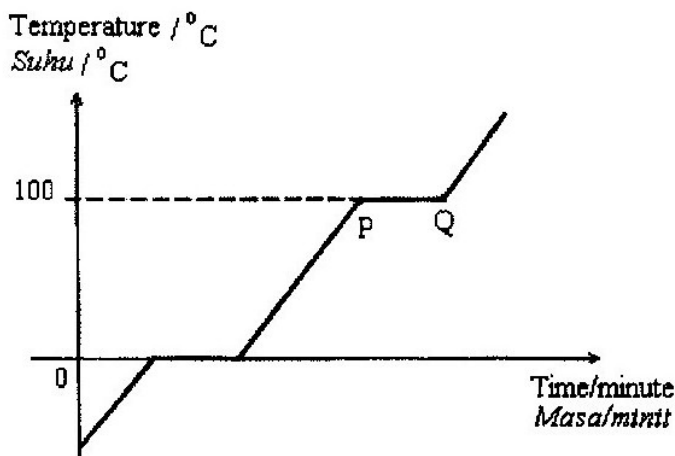
*Muatan haba tentu bagi kuprum ialah  $400 \text{ J kg}^{-1} \text{ }^{\circ}\text{C}^{-1}$ .*

*Pernyataan manakah yang betul bagi menerangkan muatan haba tentu kuprum?*

- A 1 kg of copper absorbs 400 J of heat energy during heating.  
*1 kg kuprum menyerap 400 J tenaga haba semasa pemanasan.*
- B Copper requires 400 J of heat energy to increase its temperature by  $1^{\circ}\text{C}$ .  
*Kuprum memerlukan 400 J tenaga haba untuk menaikkan suhunya sebanyak  $1^{\circ}\text{C}$ .*
- C The temperature of 1 kg of copper will rise by  $1^{\circ}\text{C}$  when it absorbs 400 J of heat energy.  
*Suhu 1 kg kuprum akan meningkat  $1^{\circ}\text{C}$  apabila ia menyerap 400 J tenaga haba.*
- D The temperature of 1 kg of copper will drop by  $1^{\circ}\text{C}$  when it absorbs 400 J of heat energy.  
*Suhu 1 kg kuprum akan berkurang  $1^{\circ}\text{C}$  apabila ia menyerap 400 J tenaga haba.*

- 18 Diagram shows the heating curve of water.

*Rajah menunjukkan lengkung pemanasan bagi air.*



Which statement is correct between point P and point Q?

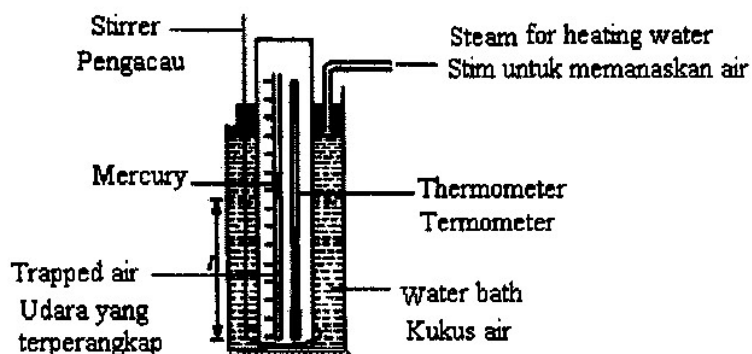
*Pernyataan manakah yang betul antara titik P dan titik Q?*

- A Specific latent heat of fusion is absorbed.  
*Haba pendam tentu pelakuran telah diserap.*
- B Specific latent heat of vapourisation is absorbed.  
*Haba pendam tentu pengewapan telah diserap.*
- C Specific latent heat of vapourisation is released.  
*Haba pendam tentu pengewapan telah dibebaskan.*
- D Specific heat capacity is released to change state of water.  
*Muatan haba tentu dibebaskan untuk menukarkan keadaan air.*

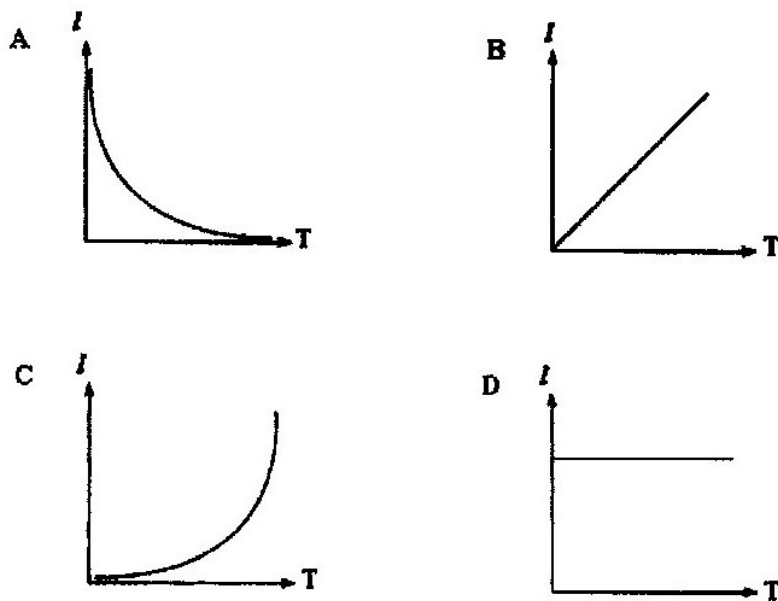
- 19 400 000 J of heat required to melt a block of ice from  $-4^{\circ}\text{C}$  to  $0^{\circ}\text{C}$   
 What is the mass of the ice?  
 [Specific heat capacity of ice,  $c = 2\,050\text{ J kg}^{-1}\text{ }^{\circ}\text{C}^{-1}$ ]  
 [Specific latent heat of fusion of ice,  $l_f = 334\,000\text{ J kg}^{-1}$ ]  
 400 000 J haba diperlukan untuk meleburkan satu bongkah ais daripada  $-4^{\circ}\text{C}$  to  $0^{\circ}\text{C}$ .  
 Berapakah jisim bongkah ais itu?  
 [Muatan haba tentu ais,  $c = 2\,050\text{ J kg}^{-1}\text{ }^{\circ}\text{C}^{-1}$ ]  
 [Haba pendam tentu pelakuran ais,  $l_f = 334\,000\text{ J kg}^{-1}$ ]

- A 1.17 kg  
 B 1.19 kg  
 C 1.20 kg  
 D 1.22 kg

- 20 Diagram shows the apparatus used to investigate the relationship between the length,  $\ell$ , and the temperature,  $T$ , of the trapped air.  
 Rajah menunjukkan radas yang digunakan untuk menyiasat hubungan antara panjang,  $\ell$ , dan suhu,  $T$ , udara yang terperangkap.

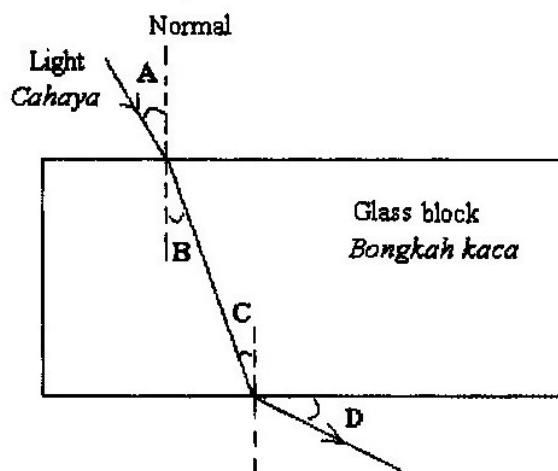


Which graph represents the relationship between  $\ell$  and  $T$ ?  $T$  is the temperature in Kelvin.  
 Graf manakah yang mewakili hubungan antara  $\ell$  dan  $T$ ?  $T$  ialah suhu dalam unit Kelvin.

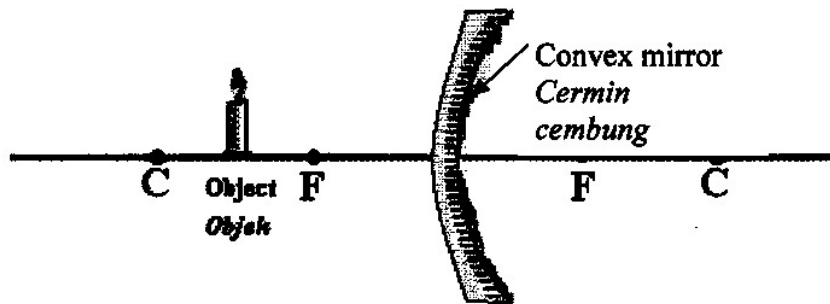


- 21 Diagram shows the propagation of a light ray into a glass block.  
Which is the angle of refraction?

*Rajah menunjukkan perambatan sinar cahaya ke dalam satu blok kaca.  
Manakah sudut pembiasan?*

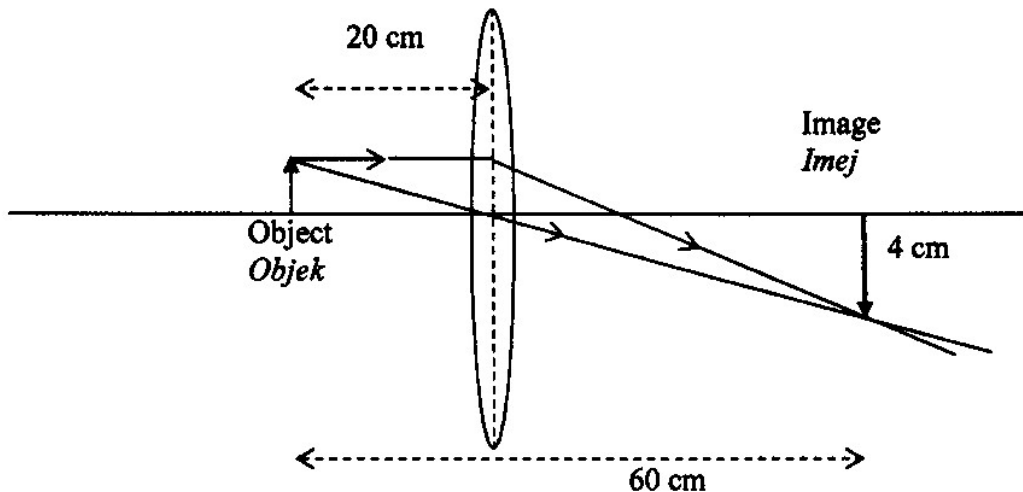


- 22 Diagram shows an object placed in front of a convex mirror.  
*Rajah menunjukkan suatu objek diletakkan di hadapan satu cermin cembung.*



What is the characteristics of the image formed?  
*Apakah ciri-ciri imej yang terbentuk?*

- A Real, upright, magnified  
*Nyata, tegak, lebih besar*
  - B Real, inverted, diminished  
*Nyata, songsang, lebih kecil*
  - C Virtual, upright, diminished  
*Maya, tegak, lebih kecil*
  - D Virtual, inverted, same size  
*Maya, songsang, sama saiz.*
- 23 Diagram shows the formation of an image from an object by a convex lens.  
*Rajah menunjukkan pembentukan imej daripada suatu objek oleh kanta cembung.*



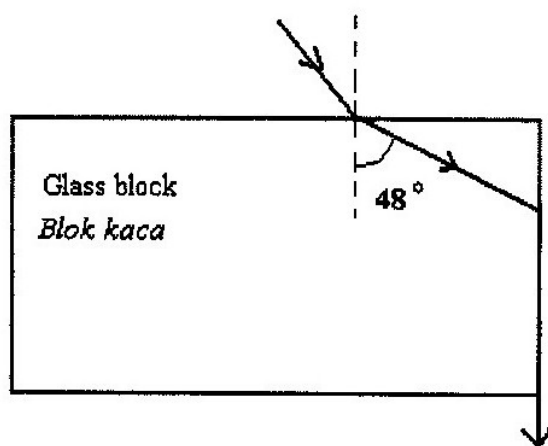
What is the height of the object if the height of its image is 4 cm?

*Berapakah tinggi objek itu jika tinggi imejnya adalah 4 cm?*

- A 0.3 cm
- B 1.3 cm
- C 2.0 cm
- D 3.0 cm

24 Diagram shows a ray of light propagates in a rectangular glass block.

*Rajah menunjukkan suatu sinar cahaya merambat dalam satu blok kaca segiempat tepat.*



What is the critical angle of the glass block?

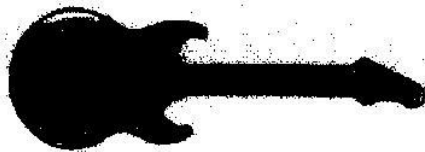
*Berapakah sudut genting blok kaca itu?*

- A  $42^\circ$
- B  $45^\circ$
- C  $48^\circ$
- D  $90^\circ$



- 25 Which statement is correct to compare the similarity between a microscope and a telescope?  
*Pernyataan manakah adalah betul bagi membandingkan kesamaan antara mikroskop dan teleskop?*
- A The final image is real and inverted  
*Imej akhir adalah nyata dan songsang.*
  - B Both use concave lenses  
*Kedua-duanya menggunakan kanta cekung*
  - C The objective lenses of both form real image  
*Kanta objektif kedua-duanya membentuk imej nyata*
  - D The distance between the two lenses is the sum of focal lengths of the objective and eyepiece lenses.  
*Jarak antara dua kanta adalah jumlah panjang fokus bagi kanta objektif dan kanta mata.*
- 26 Which of the following produces longitudinal waves?  
*Manakah antara berikut menghasilkan gelombang membujur?*

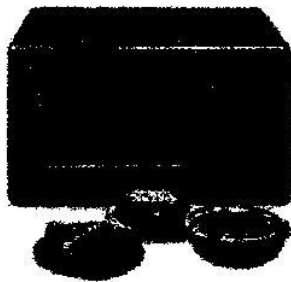
A



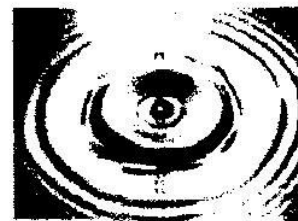
B



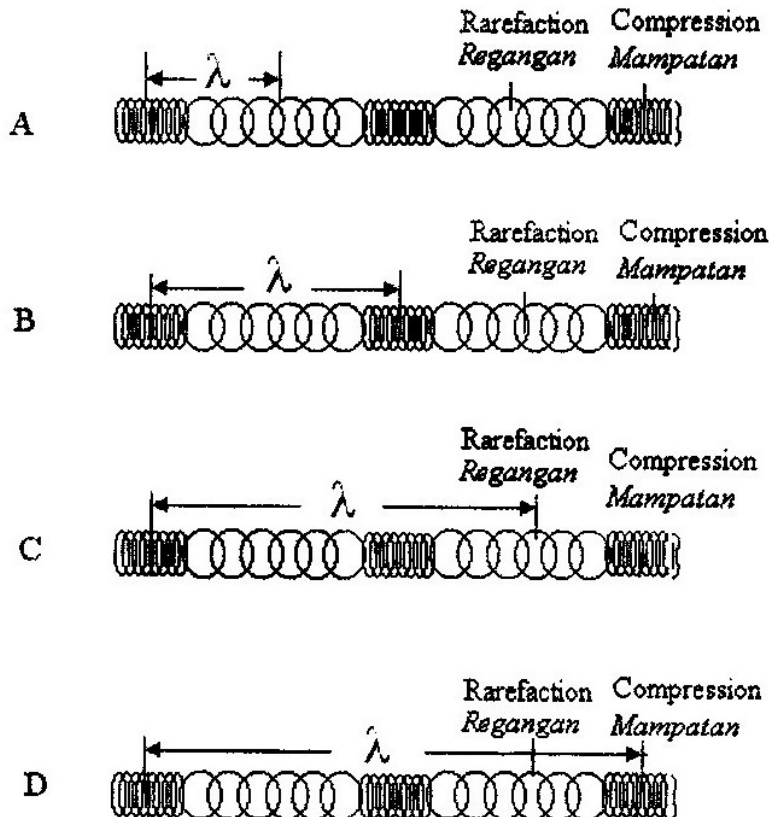
C



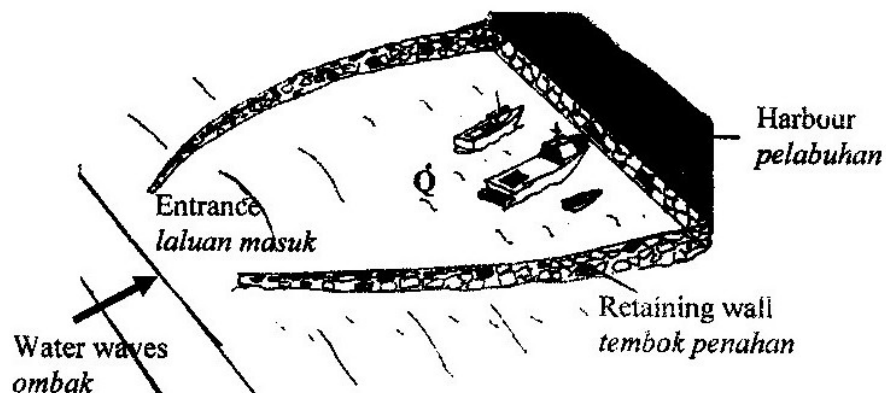
D



- 27 Which diagram shows the correct label of wavelength,  $\lambda$  produce by a slinky spring?  
*Rajah manakah menunjukkan label yang betul untuk panjang gelombang,  $\lambda$  bagi gelombang yang dihasilkan oleh spring slinki?*



- 28 Diagram shows water waves moving towards a harbour.  
*Rajah menunjukkan gelombang air sedang menuju ke sebuah pelabuhan.*

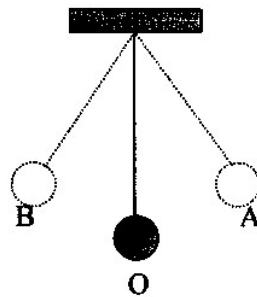


- Which statement is correct about the waves at Q?  
*Pernyataan manakah yang betul mengenai gelombang di Q?*

- A The frequency decreases  
*Frekuensi berkurang*
- B The velocity increases  
*Halaju bertambah*
- C The wavelength increases  
*Panjang gelombang bertambah*
- D The energy decreases  
*Tenaga gelombang berkurang*

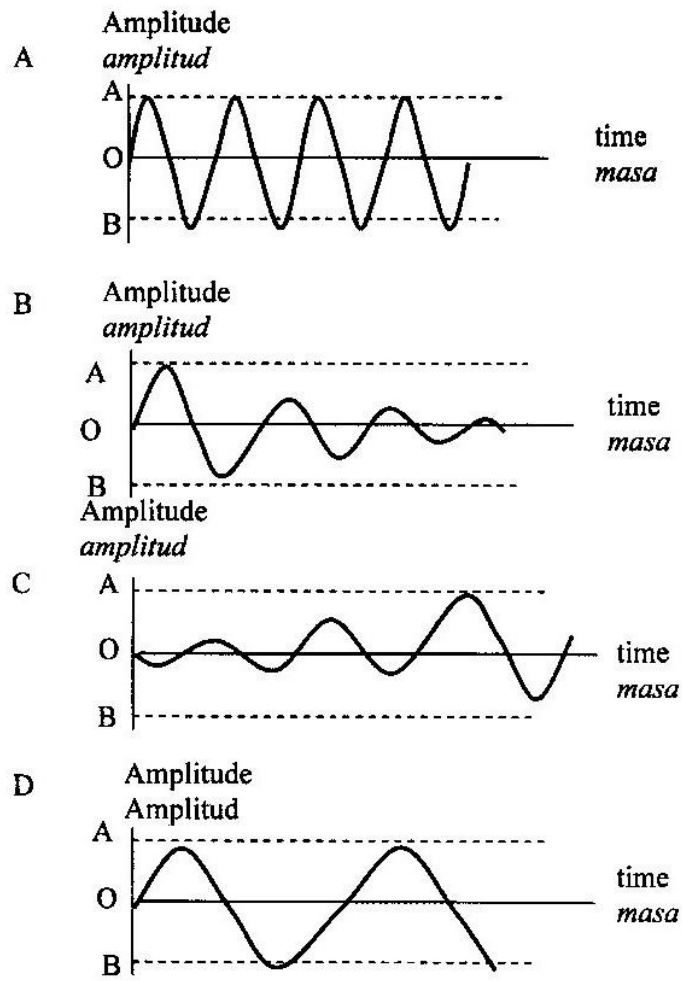
29 Diagram shows a pendulum oscillates between an equilibrium position, O, experiences a damping effect.

*Rajah menunjukkan sebuah bandul berayun melalui kedudukan keseimbangan, O, mengalami kesan pelembapan.*

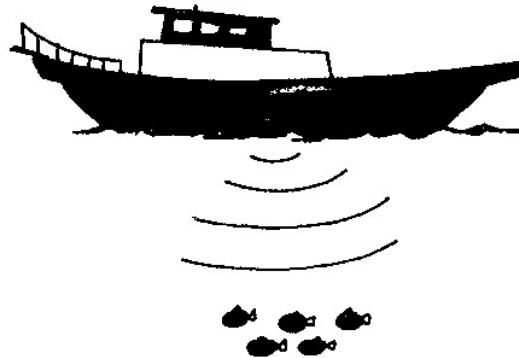


Which graph of amplitude against time is correct?

*Manakah graf amplitud melawan masa berikut adalah betul?*

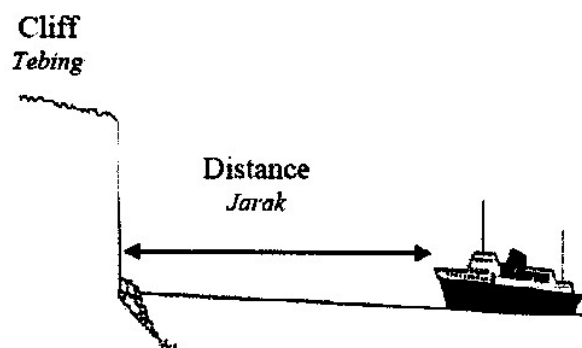


- 30 Diagram shows a fisherman boat used sonar to determine a shoal of fish under sea  
*Rajah menunjukkan bot nelayan menggunakan sonar untuk mengesan kumpulan ikan di dalam laut.*



The wave phenomenon is  
*Fenomena gelombang yang digunakan ialah*

- A interference  
*interferens*
  - B reflection  
*pantulan*
  - C defraction  
*pembelauan*
  - D refraction  
*pembiasan*
- 31 Diagram shows a ship in front of a cliff. It produces a loud sound which travel at a velocity of  $330 \text{ ms}^{-1}$ . An echo is heard 4 seconds later.  
*Rajah menunjukkan sebuah kapal di hadapan sebuah tebing. Ia menghasilkan bunyi yang kuat yang merambat pada kelajuan  $330 \text{ ms}^{-1}$ . Gema kedengaran 4 saat kemudian.*



What is the distance between the ship and the cliff?  
*Berapakah jarak antara kapal dan tebing?*

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

32 The Global Positioning System (GPS) is used to provide reliable location controlled by a satellite.

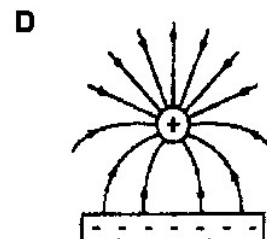
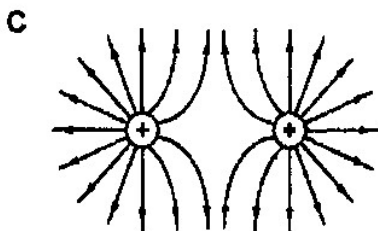
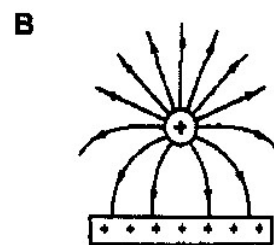
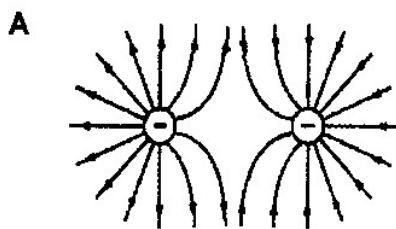
Microwaves is suitable to be used in GPS compared to radio waves because microwaves  
*Sistem Penentu Kedudukan Global (GPS) digunakan untuk mengesan sesuatu lokasi dikawal oleh satelit.*

*Gelombang mikro sesuai digunakan dalam GPS berbanding gelombang radio kerana gelombang mikro*

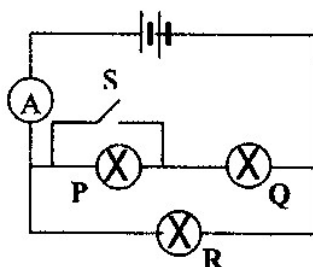
- A has longer wavelength  
*mempunyai panjang gelombang yang lebih panjang*
- B can travel through vacuum more easily  
*boleh merambat melalui vakum dengan lebih mudah*
- C can penetrate the atmosphere more easily  
*boleh menembusi ruang atmosfera dengan lebih mudah*
- D gives more energy to the water molecules in air  
*memberi lebih banyak tenaga kepada molekul air dalam udara*

33 Which diagram shows the correct electric field pattern?

*Rajah manakah menunjukkan corak medan elektrik yang betul?*



- 34 Diagram shows an electric circuit that contains three identical bulbs P, Q and R.  
*Rajah menunjukkan satu litar elektrik yang mempunyai tiga mentol serupa P, Q dan R.*

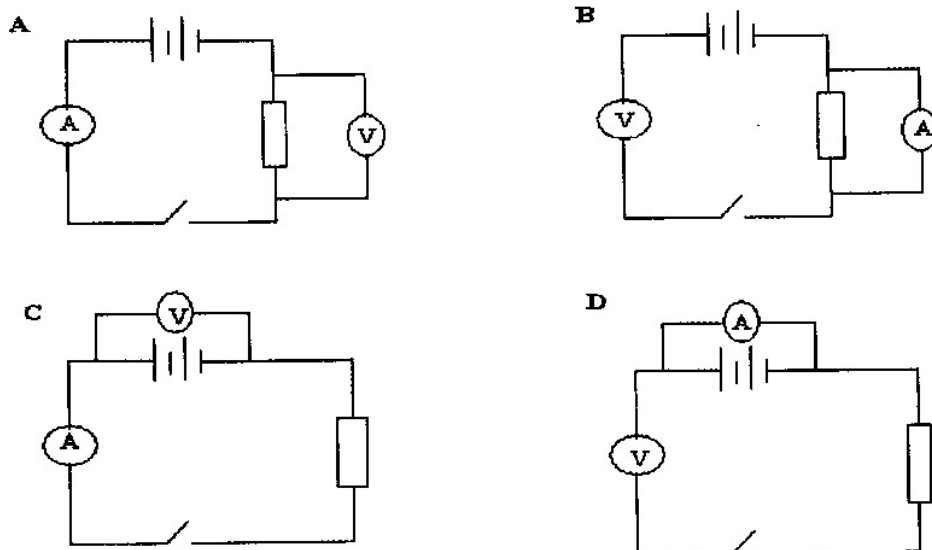


What will happen to the reading of the ammeter and the brightness of the bulb Q when the switch is on?

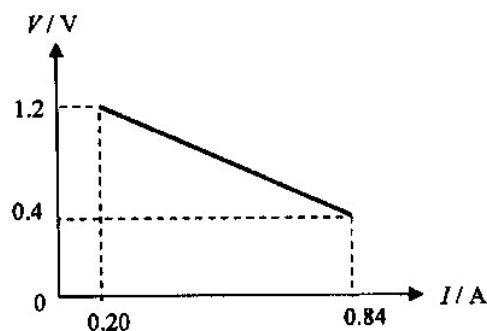
*Apakah yang terjadi pada bacaan ammeter dan kecerahan mentol Q bila suis ditutup?*

	<u>Reading of the ammeter</u> <u>Bacaan ammeter</u>	<u>Brightness of the bulb Q</u> <u>Kecerahan mentol Q</u>
A	increase <i>bertambah</i>	remain unchanged <i>tidak berubah</i>
B	increase <i>bertambah</i>	increase <i>bertambah</i>
C	Remain unchanged <i>tidak berubah</i>	increase <i>bertambah</i>
D	Remain unchanged <i>tidak berubah</i>	remain unchanged <i>tidak berubah</i>

- 35 Which circuit can be used to determine the electromotive force of a battery?  
*Litar yang manakah boleh digunakan untuk menentukan daya gerak elektrik sebuah bateri.*



- 36 Diagram shows a graph of the potential difference,  $V$ , across the terminals of a cell against with the current,  $I$ , through the cell.  
*Rajah menunjukkan graf beza keupayaan,  $V$ , merentasi terminal sebuah sel melawan arus,  $I$ , melalui sel itu*



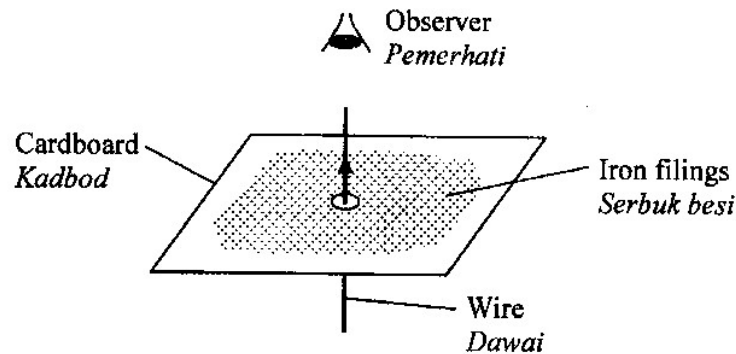
What is the internal resistance of the cell?  
*Berapakah rintangan dalam sel itu?*

- A 0.80  $\Omega$   
 B 1.16  $\Omega$   
 C 1.25  $\Omega$   
 D 1.43  $\Omega$



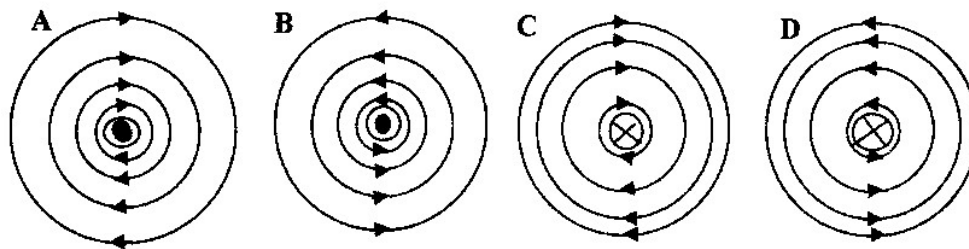
- 37 Diagram shows the set up of the apparatus to study the pattern of the magnetic field produced by the current in a straight wire

*Rajah menunjukkan susunan radas bagi mengkaji corak medan magnet yang dihasilkan oleh arus yang mengalir dalam satu dawai lurus.*

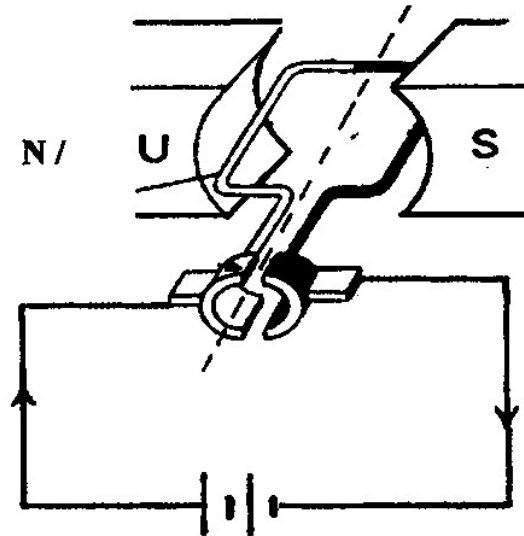


Which diagram shows the correct pattern and direction of the magnetic field that will be seen by the observer?

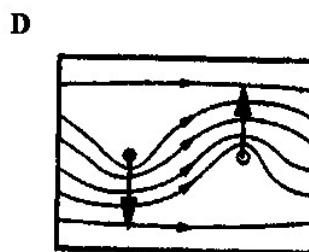
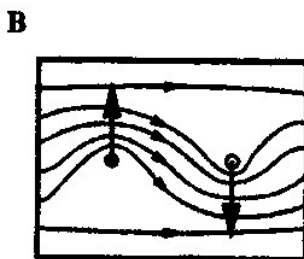
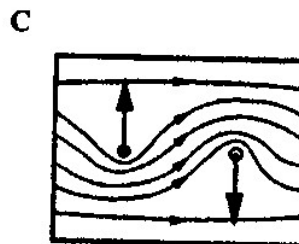
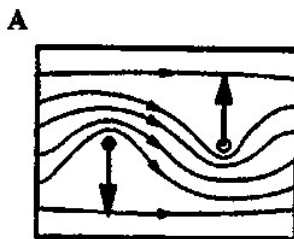
*Rajah manakah menunjukkan pola serta arah yang betul bagi medan magnet yang akan dilihat oleh pemerhati itu?*



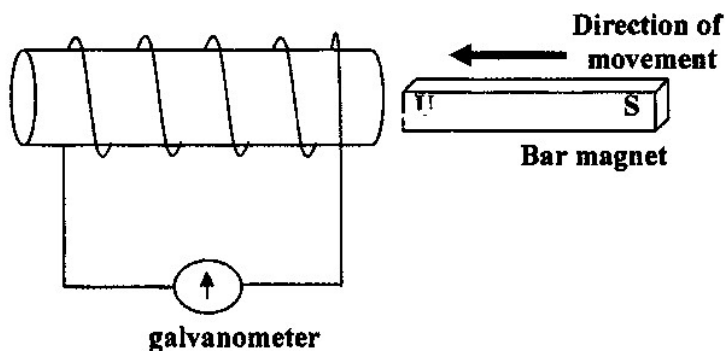
- 38 Diagram shows current carrying coil in a magnetic fields.  
*Rajah menunjukkan gegelung membawa arus dalam medan magnet*



Which diagram shows the pattern of the magnetic field produced?  
*Rajah manakah yang menunjukkan corak medan magnet yang dihasilkan?*

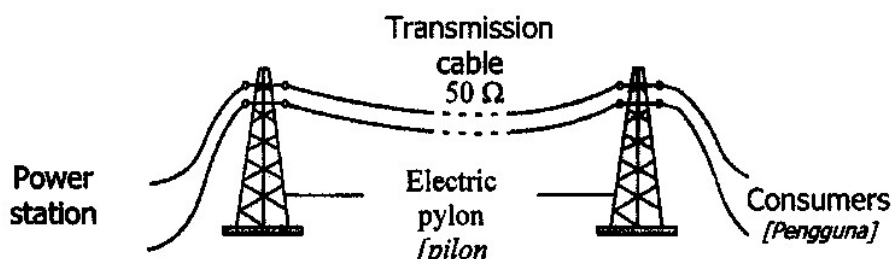


- 39 The diagram shows a bar magnet moving towards a solenoid.  
*Rajah menunjukkan magnet bar bergerak ke arah solenoid.*



Which of these actions will not increase the deflection of the galvanometer pointer?  
*Tindakan manakah yang tidak akan menambah pesongan jarum galvanometer?*

- A Reversing the polarity of the magnet  
*Menukar kutub magnet*
  - B Increasing the number of coils in the solenoid  
*Menambah lilitan solenoid*
  - C Increasing the speed of the bar magnet  
*Menambah halaju magnet bar*
  - D Increasing the number of magnets used  
*Menambah bilangan magnet*
- 40 Diagram shows the transmission of electrical energy from a power station to the consumers with current supplied 20 A.  
*Rajah menunjukkan penghantaran tenaga elektrik dari stesen kuasa kepada pengguna dengan bekalan arus elektrik 20 A.*

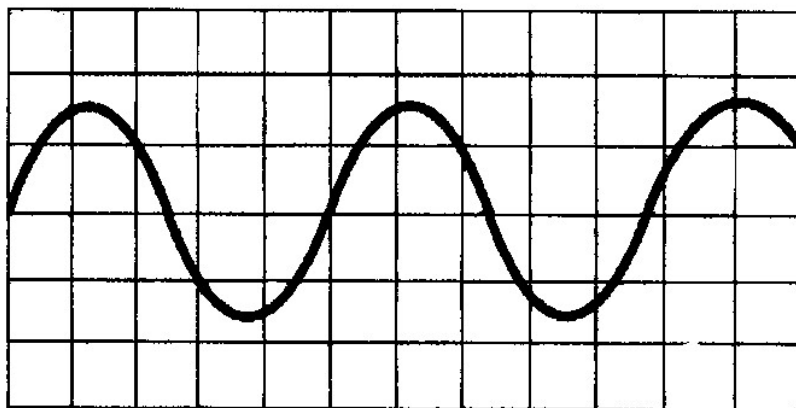


What is the loss of power in the cable if the total resistance of the cable is  $50\ \Omega$ .

*Berapakah kuasa yang hilang di dalam kabel jika jumlah rintangan dalam kabel tersebut ialah  $50\ \Omega$ ?*

- A  $2.42 \times 10^6\ \text{W}$
- B  $2.20 \times 10^5\ \text{W}$
- C  $2.42 \times 10^4\ \text{W}$
- D  $2.00 \times 10^4\ \text{W}$

- 41 The graph shows trace on a Cathode Ray Oscilloscope (CRO) screen.  
The Y-gain and the time-base are set at 3 volt / division and 5 ms / division respectively.  
*Graf menunjukkan surih di atas skrin Osiloskop Sinar Katod (OSK).*  
*Gandaan-Y dan dasar masa telah disetkan pada 3 volt / bahagian dan 5 ms / bahagian masing-masing.*

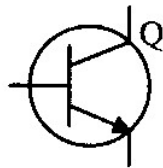


What is the peak voltage and the frequency of the alternating current supply that connected to the C.R.O?

*Apakah voltan puncak dan frekuensi arus ulang alik yang disambungkan ke OSK?*

	Peak voltage / V <i>Voltan puncak / V</i>	Frequency / Hz <i>Frekuensi / Hz</i>
A	9.0	40
B	6.0	40
C	4.5	40
D	9.0	80

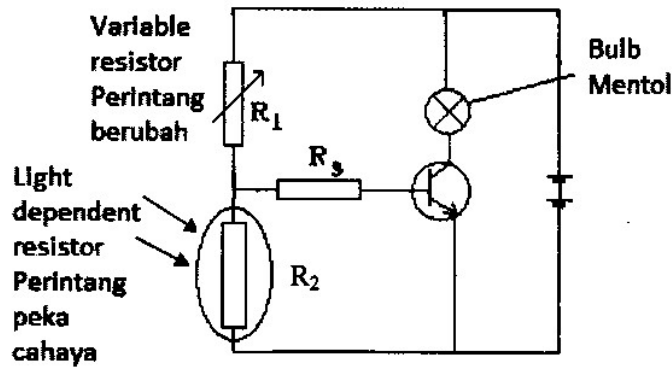
- 42 What is the function of diode?  
*Apakah fungsi diod?*
- A To convert direct current to alternating current.  
*Menukarkan arus terus ke arus ulang-alik.*
  - B To convert alternating current to direct current.  
*Menukarkan arus ulang-alik ke arus terus.*
  - C To raise the potential different of alternating current.  
*Membesarkan beza keupayaan arus ulang-alik.*
  - D To raise the potential different of direct current.  
*Membesarkan beza keupayaan arus terus.*
- 43 Diagram shows the symbol of a transistor.  
*Rajah menunjukkan simbol bagi satu transistor*



What are the type of the transistor and name part Q?  
*Apakah jenis transistor dan namakan bahagian Q?*

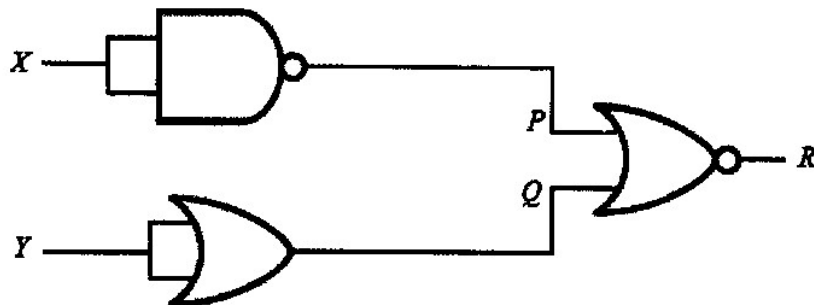
Type of Transistor/ <i>Jenis transistor</i>		Part of Q <i>Bahagian Q</i>
A	pnp	Collector <i>Pengumpul</i>
B	pnp	Emitter <i>Pengeluar</i>
C	nnp	Collector <i>Pengumpul</i>
D	nnp	Emitter <i>Pengeluar</i>

- 44 Diagram shows an automatic switch circuit to light up a bulb at night.  
*Rajah menunjukkan satu litar suis automatik untuk menyalakan mentol pada waktu malam.*



What changes should be done to light up the bulb during the day time?  
*Apakah perubahan yang perlu dilakukan untuk menyalakan mentol pada waktu siang?*

- A Interchange  $R_1$  and  $R_2$   
*Tukar antara  $R_1$  and  $R_2$*   
 B Reverse the terminal of the battery  
*Songsangkan terminal bateri*  
 C Replace the npn transistor with a pnp transistor  
*Ganti transistor npn dengan transistor pnp*  
 D Replace resistor  $R_3$  with a resistor of lower resistance  
*Ganti perintang  $R_3$  dengan perintang yang lebih rendah rintangan.*
- 45 Diagram shows a logic gate circuit which has two inputs,  $X$  and  $Y$ .  
*Rajah menunjukkan satu litar get logik yang mempunyai dua input,  $X$  dan  $Y$ .*



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  $R$ ?*

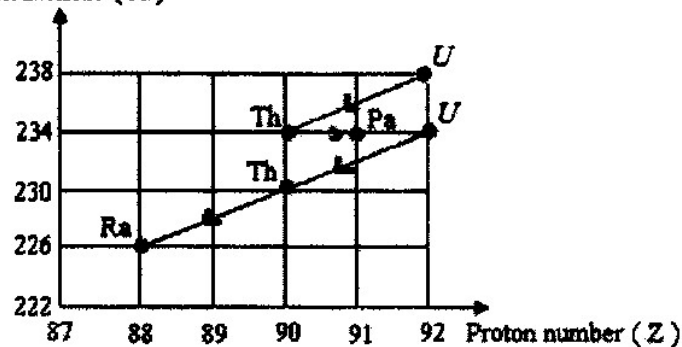
	$P$	$Q$	$R$
A	0	0	1
B	0	1	1
C	1	1	0
D	1	0	1

- 46 Which nuclide notation represents a nuclide which has 30 protons and 35 neutrons?  
*Antara simbol nuklid berikut yang manakah mewakili nuklid yang mempunyai 30 proton dan 35 neutron?*

- A  ${}_{30}^{35}\text{X}$   
 B  ${}_{35}^{65}\text{X}$   
 C  ${}_{35}^{30}\text{X}$   
 D  ${}_{30}^{65}\text{X}$

- 47 The Diagram shows a series of radioactive decays for the nucleus of uranium-238 to nucleus of radium-226.  
*Rajah menunjukkan siri pereputan radioaktif nukleus uranium-238 kepada nukleus radium-226.*

Nucleon number (A)



What is the number of the alpha particles and beta particles emitted during this process?  
*Berapakah bilangan zarah alfa dan zarah beta yang dihasilkan semasa proses ini?*

The number of alpha particles  
*Bilangan zarah alfa*

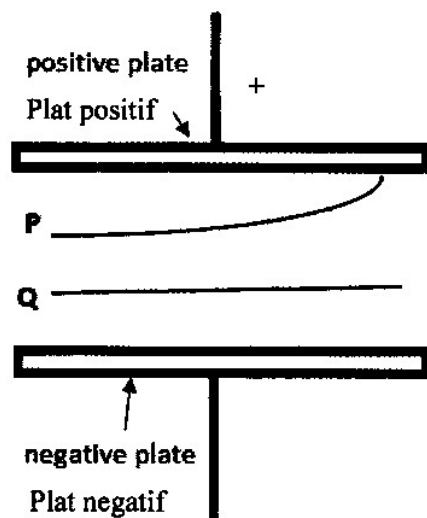
The number of beta particles  
*Bilangan zarah beta*

- |   |   |   |
|---|---|---|
| A | 2 | 3 |
| B | 3 | 2 |
| C | 4 | 1 |
| D | 1 | 1 |

- 48 The half-life of a radioactive substance is 5 hours. A sample is tested and found to contain 45.0 g of the substance.  
How much of the substance was present in the sample 15 hours before the sample was tested?  
*Sepuluh hayat suatu bahan radioaktif ialah 5 jam. Satu sampel diuji dan ia mengandungi 45.0 g bahan tersebut.*  
*Berapa banyakkah bahan radioaktif dalam sampel tersebut ketika 15 jam sebelum sampel itu diuji?*
- A 360.0 g  
B 180.0 g  
C 11.25 g  
D 5.62 g
- 49 In a fission reaction, an atom of U-235 is hit by a fast moving neutron and 200 MeV of energy is released. The energy released is in the form of  
*Dalam satu proses pembelahan nucleus, atom U-235 dihentam oleh satu neutron berkelajuan tinggi dan 200 MeV tenaga terhasil dari tindakbalas tersebut. Tenaga yang terhasil adalah dalam bentuk*
- A nuclear energy  
*tenaga nuklear*  
B heat energy  
*tenaga haba*  
C atom U-235  
*atom U-235*  
D moving neutron  
*neutron yang bergerak*



- 50 Diagram shows the deflection of two types of radioactive emission in an electric field.  
*Rajah menunjukkan pesongan dua jenis pancaran radioaktif di dalam medan elektrik.*



What are the type of emissions P and Q?  
*Apakah jenis pancaran P dan Q?*

	Emission P <i>Pancaran P</i>	Emission Q <i>Pancaran Q</i>
A	alpha particles <i>Zarah alfa</i>	gamma rays <i>sinaran gama</i>
B	beta particles <i>Zarah beta</i>	gamma rays <i>sinaran gama</i>
C	gamma rays <i>Sinaran gama</i>	alpha particles <i>zarah alfa</i>
D	gamma rays <i>Sinaran gama</i>	beta particles <i>zarah beta</i>

\*\*\*\*\* END OF QUESTIONS\*\*\*\*\*  
*KERTAS SOALAN TAMAT*

**SCHEME FOR OTI2 PAPER 1 PHYSICS FORM 5 2012**

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