MODUL PENINGKATAN PRESTASI TINGKATAN 5

TAHUN 2014

MAJLIS PENGETUA SEKOLAH MALAYSIA (KEDAH)

MODUL 1

FIZIK

Kertas 1

Satu jam lima belas minit

JANGAN BUKA MODUL INI SEHINGGA DIBERITAHU

1. *Modul ini adalah dalam dwibahasa.*

2. *Soalan dalam bahasa Inggeris mendahului soalan yang sepadan dalam bahasa Melayu.*

3. *Anda dibenarkan menggunakan kalkulator saintifik.*

Modul ini mengandungi **23** 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. $a = \dfrac{v-u}{t}$

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

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

4. Momentum = mv

5. $F = ma$

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

7. Gravitational potential energy /

   Tenaga keupayaan graviti = mgh

8. Elastic potential energy /

   Tenaga keupayaan kenyal = $\dfrac{1}{2}Fx$

9. Power, $P = \dfrac{\text{energy}}{\text{time}}$

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

10. Density / *Ketumpatan*, $\rho = \dfrac{m}{V}$

11. Pressure / *Tekanan*, $p = h\rho g$

12. Pressure / *Tekanan*, $p = \dfrac{F}{A}$

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

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

15. $\dfrac{pV}{T}$ = constant / *pemalar*

16. $n = \dfrac{\sin i}{\sin r}$

    $n = \dfrac{1}{\sin c}$

17. $\dfrac{1}{f} = \dfrac{1}{u} + \dfrac{1}{v}$

18. Magnifying power /

    Kuasa pembesaran = $\dfrac{f_O}{f_E}$

19. $v = f\lambda$

20. $\lambda = \dfrac{ax}{D}$

21. $Q = It$

22. $E = VQ$

23. $V = IR$

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

    Power / *Kuasa*, $P = I^2R$

    Power / *Kuasa*, $P = \dfrac{V^2}{R}$

25. g = 10 m s^{-2}

1 The speed of light in water is 200 Mm s^{-1}. What is this speed in m s^{-1}?
Laju cahaya dalam vakum ialah 200 Mm s^{-1}. *Berapakah laju ini dalam* m s^{-1}?

A $2{\cdot}00 \times 10^{6}$ m s^{-1}

B $2{\cdot}00 \times 10^{8}$ m s^{-1}

C $2{\cdot}00 \times 10^{9}$ m s^{-1}

D $2{\cdot}00 \times 10^{11}$ m s^{-1}

2 The following are three readings for X, Y and Z obtained using three different instruments.
Berikut adalah tiga bacaan yang diperolehi bagi X, Y dan Z bagi tiga alat pengukur yang berbeza.

X = 52·5 cm
Y = 4·56 mm
Z = 7·44 cm

Which are the most appropriate instruments for X, Y and Z ?
Apakah alat pengukur yang paling sesuai bagi X, Y *dan* Z *?*

	X	**Y**	**Z**
A	Vernier Caliper *Angkup Vernier*	Micrometer Screw Gauge *Tolok Skru Mikrometer*	Metre Rule *Pembaris Meter*
B	Micrometer Screw Gauge *Tolok Skru Mikrometer*	Metre Rule *Pembaris Meter*	Vernier Caliper *Angkup Vernier*
C	Micrometer Screw Gauge *Tolok Skru Mikrometer*	Vernier Caliper *Angkup Vernier*	Metre Rule *Pembaris Meter*
D	Metre Rule *Pembaris Meter*	Micrometer Screw Gauge *Tolok Skru Mikrometer*	Vernier Caliper *Angkup Vernier*

3 A student finds that the readings he obtained from a stopwatch are not consistent.
Which step will help him to reduce the error caused by this problem?
Seorang pelajar mendapati bacaan-bacaan yang diperoleh daripada sebuah jam randik tidak konsisten.
Langkah manakah akan membantunya mengurangkan ralat yang disebabkan oleh masalah ini?

A Repeat the measurement and calculate the average value
Ulang pengukuran dan hitung nilai purata

B Check the stopwatch for zero error
Semak jam randik untuk ralat sifar

C Repeat the measurement and choose the best value
Ulang pengukuran dan pilih nilai terbaik

D Use a better quality stopwatch
Guna jam randik lebih berkualiti

4 Diagram 1 shows an investigation about the stretching of the spring. Babies of different masses are supported by identical springs.
Rajah 1 *menunjukkan satu penyiasatan tentang regangan satu spring. Bayi yang berlainan jisim disokong oleh spring yang serupa.*

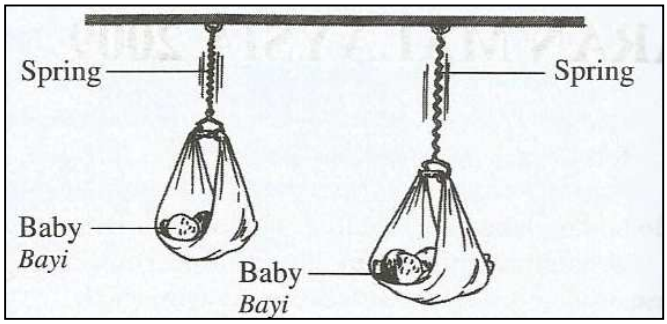


Diagram 1 / *Rajah* 1

Which of the following variables are correct?
Antara pembolehubah berikut, yang manakah betul?

	Manipulated variable	**Responding variable**	**Constant variable**
A	Mass of the baby *Jisim bayi*	Length of the spring *Panjang spring*	Diameter of the spring *Diameter spring*
B	Length of the spring *Panjang spring*	Mass of the baby *Jisim bayi*	Diameter of the spring *Diameter spring*
C	Diameter of the spring *Diameter spring*	Length of the spring *Panjang spring*	Mass of the baby *Jisim bayi*
D	Mass of the baby *Jisim bayi*	Diameter of the spring *Diameter spring*	Length of the spring *Panjang spring*

5 Which of the following quantities increase when an object is moving along a straight line with uniform acceleration?
Antara kuantiti berikut, yang manakah bertambah apabila suatu objek bergerak sepanjang satu garis lurus dengan pecutan seragam?

I Distance */ Jarak*
II Velocity */ Halaju*
III Time taken */ Masa yang diambil*

A I and II

B I and III

C II and III

D I, II and III

6 Diagram 2 shows two strips of ticker tapes which were attached to two moving trolleys X and Y.
Rajah 2 *menunjukkan dua pita detik yang dilekat pada dua buah troli X dan Y yang sedang bergerak.*

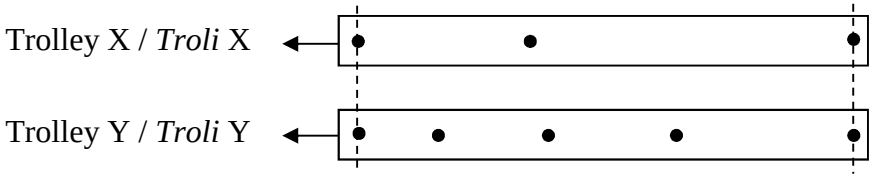


Diagram 2 */ Rajah 2*

Which statement is correct?
Pernyataan yang manakah betul?

A The time taken by both trolleys are the same
Masa yang diambil oleh kedua-dua troli adalah sama

B The distance travelled by both trolleys are the same
Jarak yang dilalui oleh kedua-dua troli adalah sama

C The velocity of both trolleys are the same
Halaju kedua-dua troli adalah sama

D The acceleration of both trolleys are the same
Pecutan kedua-dua troli adalah sama

7 Diagram 3 shows the displacement-time graph of the student motion.
Rajah 3 *menunjukkan graf sesaran-masa bagi pergerakan seorang pelajar*

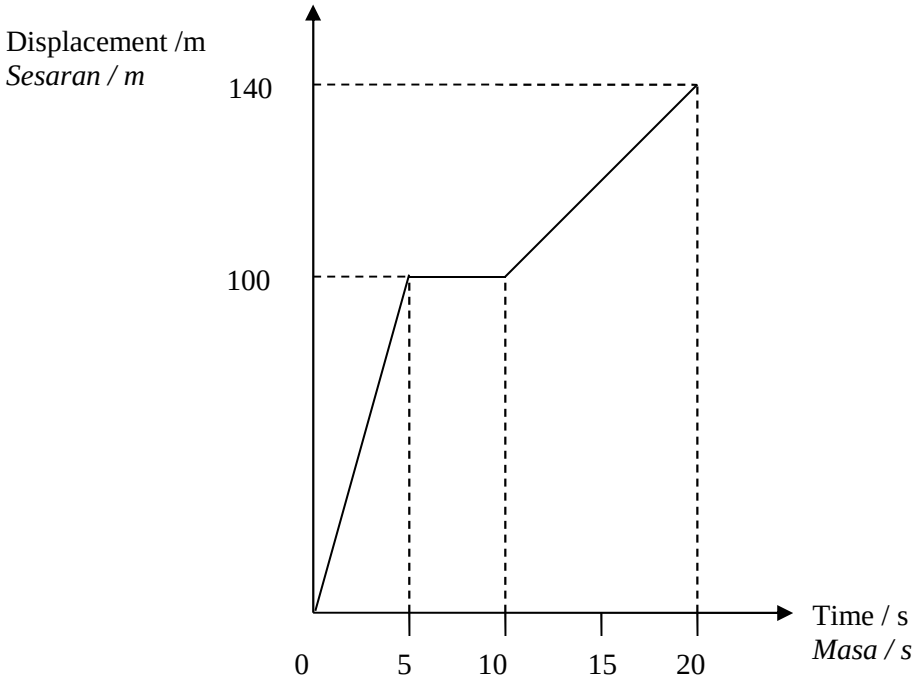


Diagram 3 / *Rajah* 3

What is the average velocity of the student?
Berapakah halaju purata pelajar tersebut ?

A 6 m s^{-1}

B 7 m s^{-1}

C 12 m s^{-1}

D 60 m s^{-1}

8 Diagram 4 is a velocity-time graph showing the motion of an object.
Rajah 4 *menunjukkan graf halaju-masa bagi gerakan satu objek.*

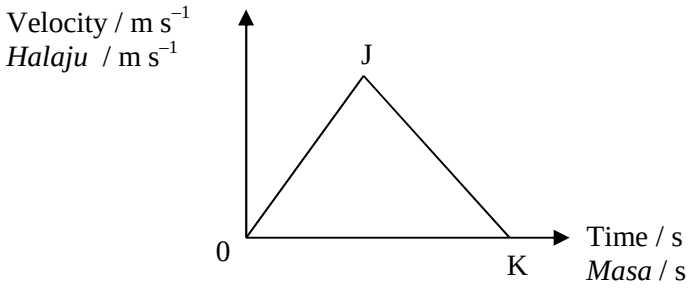


Diagram 4 / *Rajah* 4

Which of the following describes the motion of the object?
Pernyataan manakah yang menerangkan mengenai pergerakan objek tersebut?

	OJ	JK
A	Uniform acceleration *Pecutan seragam*	Decreasing acceleration *Pecutan berkurang*
B	Increasing acceleration *Pecutan meningkat*	Decreasing acceleration *Pecutan berkurang*
C	Increasing acceleration *Pecutan meningkat*	Uniform deceleration *Nyahpecutan seragam*
D	Uniform acceleration *Pecutan seragam*	Uniform deceleration *Nyahpecutan seragam*

9 Which object has the largest inertia?
Objek manakah mempunyai inersia paling besar?

A

Mass / *Jisim* = 90 kg
Speed / *Laju* = 20 m s^{-1}

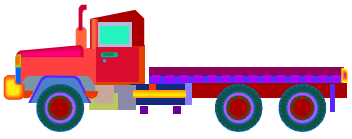
B

Mass / *Jisim* = 360 kg
Speed / *Laju* = 40 m s^{-1}

C

Mass / *Mass* = 1000 kg
Speed / *Laju* = 38 m s^{-1}

D



Mass / *Jisim* = 12000 kg
Speed / *Laju* = 3 m s^{-1}

10 Diagram 5 shows two trolleys before and after collision.
Rajah 5 *menujukkan dua troli sebelum dan selepas pelanggaran.*

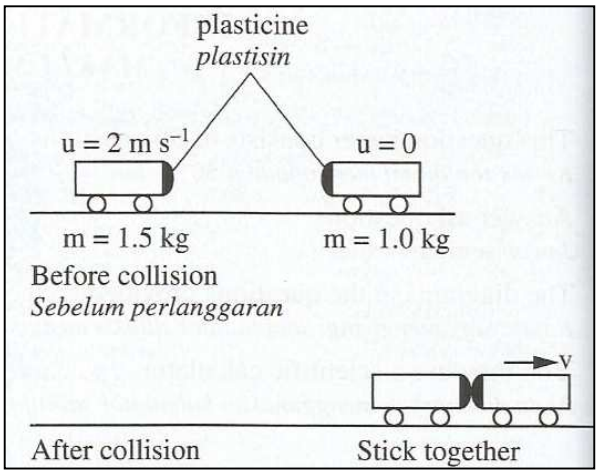


Diagram 5 / *Rajah* 5

What is the velocity of both trolleys after collision?
Berapakah halaju bagi kedua-dua troli tersebut selepas pelanggaran?

A 0·60 m s^{-1}

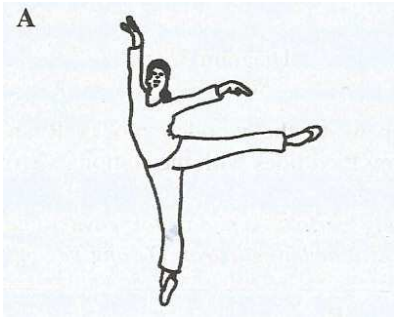
B 0·83 m s^{-1}

C 1·20 m s^{-1}

D 2·00 m s^{-1}

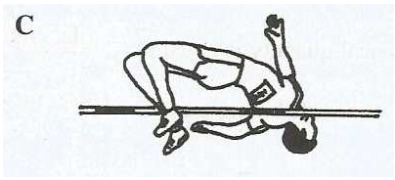
11 In which situation can the principle of conservation of momentum be applied?
Keadaan manakah Prinsip Keabadian Momentum diaplikasikan?

A

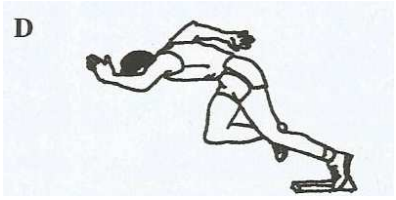


B

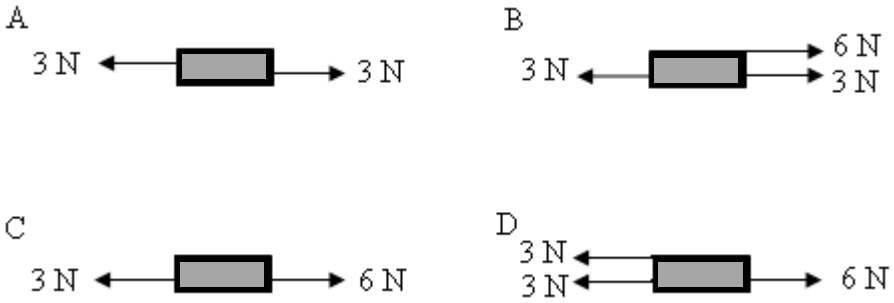
C



D



12 Which of the following has the highest net force?
Antara berikut, yang manakah mempunyai daya bersih paling tinggi?



13 Diagram 6 shows a car with a mass 1200 kg moving with an acceleration of 2·5 m s^{-2}.
There is a force of 3800 N exerted by the engine of the car.
Rajah 6 *menunjukkan sebuah kereta berjisim* 1200 kg *sedang bergerak dengan pecutan* 2·5 m s^{-2}.
Daya yang dikenakan oleh enjin kereta itu ialah 3800 N.

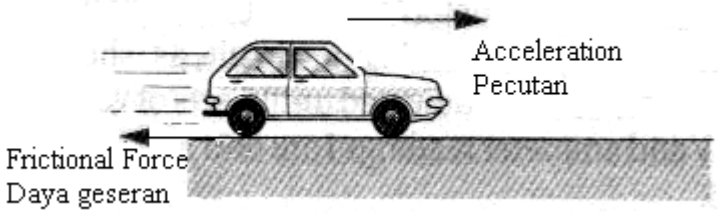


Diagram 6 / *Rajah* 6

What is the frictional force acting on the car?
Berapakah daya geseran yang bertindak ke atas kereta itu?

A 800 N

B 3 000 N

C 3 800 N

D 9 500 N

14 Diagram 7 shows a boy landing with his legs bent after jumping down from the wall.
Rajah 7 *menunjukkan seorang budak mendarat dengan membengkok kakinya selepas melompat dari dinding.*

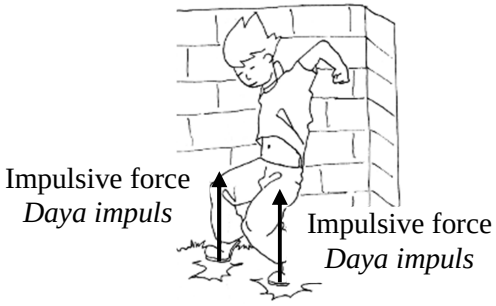


Diagram 7 / *Rajah* 7

What is the effect of bending his legs on his stopping time and the impulsive forces acting on him?
Apakah kesan membengkok kakinya pada masa berhenti dan daya impuls yang bertindak pada budak itu?

	Stopping time / *Masa berhenti*	Impulsive forces / *Daya impuls*
A	Decreases / *Berkurang*	Decreases / *Berkurang*
B	Decreases / *Berkurang*	Increases / *Bertambah*
C	Increases / *Bertambah*	Decreases / *Berkurang*
D	Increases / *Bertambah*	Increases / *Bertambah*

15 Nizar kicks a ball of mass 1·2 kg with a force of 15 N and the time of impact between his boots and the ball is 0·2 s.
Calculate the maximum velocity achieved by the ball.
Nizar menendang sebiji bola berjisim 1·2 kg *dengan daya* 15 N *dan masa pelanggaran di antara but dan bola ialah* 0·2 s.
Hitungkan halaju maksimum yang dicapai oleh bola.

A 2·5 m s^{-1}

B 15 m s^{-1}

C 25 m s^{-1}

D 30 m s^{-1}

16 Diagram 8 shows a load of mass 2 kg hanging on a spring balance in a stationary lift. The reading of the spring balance is 20 N.
Rajah 8 *menunjukkan satu beban berjisim* 2 kg *digantung pada neraca spring dalam lif pegun. Bacaan neraca spring ialah* 20 N.

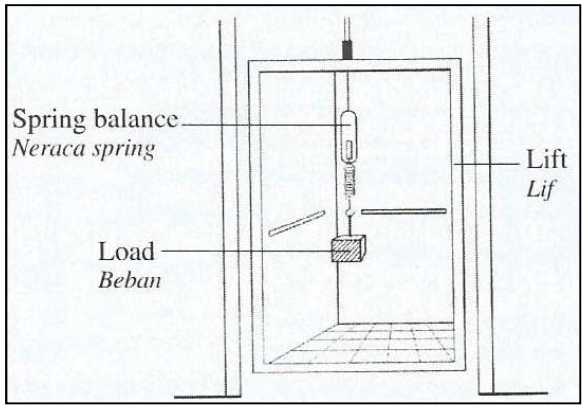


Diagram 8 / *Rajah* 8

What is the reading of the spring balance when the lift moves up with an acceleration of 2 m s^{-2}?
Berapakah bacaan neraca spring apabila lif bergerak ke atas dengan pecutan 2 m s^{-2}?

A 16 N

B 18 N

C 20 N

D 24 N

17 An astronaut of mass 80 kg, can jump 25 cm high off the surface of the Earth. When he is on the moon he can jump higher than this because
Seorang angkasawan dengan jisim 80 kg *boleh melompat setinggi* 25 cm *dari permukaan bumi. Apabila berada di bulan, dia boleh melompat lebih tinggi kerana*

A his mass is smaller than on Earth.
jisimnya lebih kecil daripada di Bumi

B his weight is greater than on Earth.
beratnya lebih besar daripada di Bumi

C his weight is smaller than on Earth
beratnya lebih kecil daripada di Bumi

D his weight is the same as on Earth
beratnya sama seperti di Bumi

18 Diagram 9 shows a car is moving at zero acceleration.
Rajah 9 *menunjukkan sebuah kereta sedang bergerak dengan pecutan sifar.*

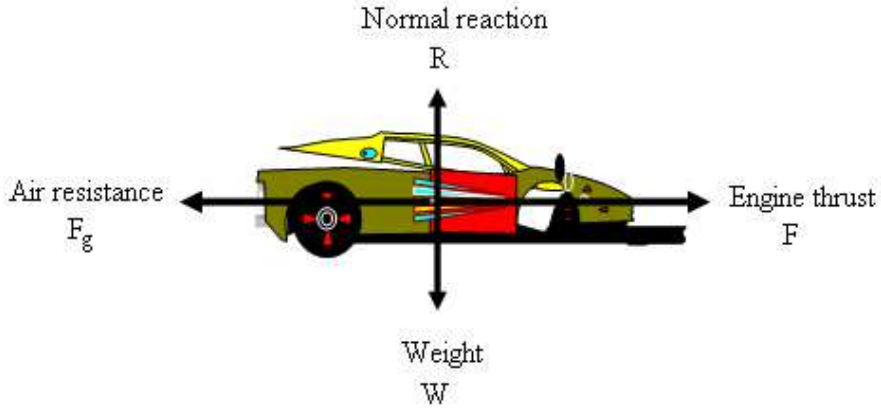


Diagram 9 / *Rajah* 9

Which relationship of the forces is correct?
Hubungan daya yang manakah benar ?

A $F > F_g$

B $F = F_g$

C $F < F_g$

D $W > R$

19 Diagram 10 shows a picture hanging on a wall.
Rajah 10 *menunjukkan sebuah gambar tergantung pada dinding*

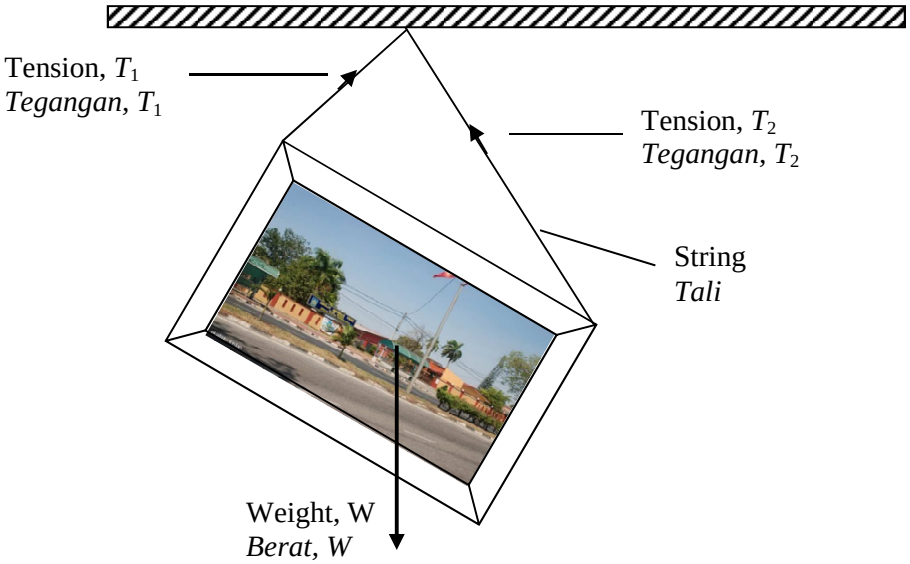
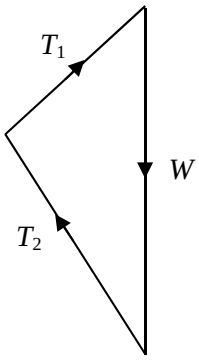


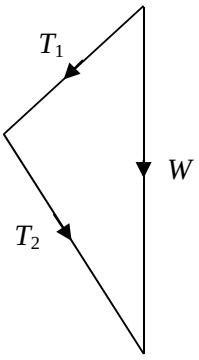
Diagram 10 / *Rajah* 10

Which vector diagram represents the forces, T_1, T_2 and W that act on the picture?
Manakah rajah vektor yang menggambarkan daya T_1, T_2 *dan* W *yang bertindak pada gambar?*

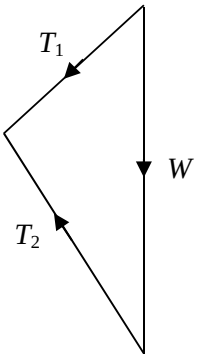
A



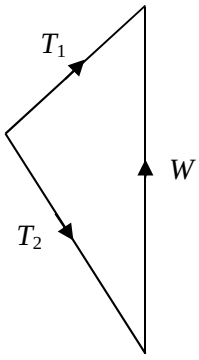
B



C



D



20 Diagram 11 shows a toy car moving up a slope with constant velocity.
Rajah 11 *menunjukkan sebuah kereta mainan sedang mendaki permukaan condong dengan halaju malar.*

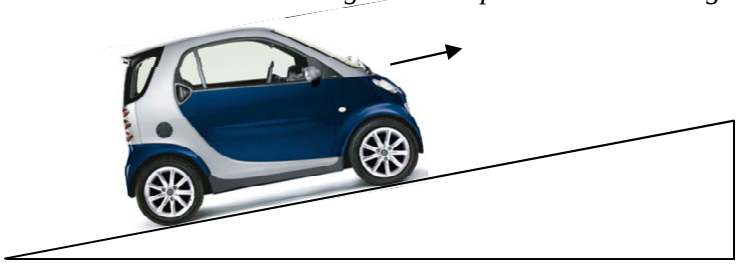


Diagram 11 / *Rajah* 11

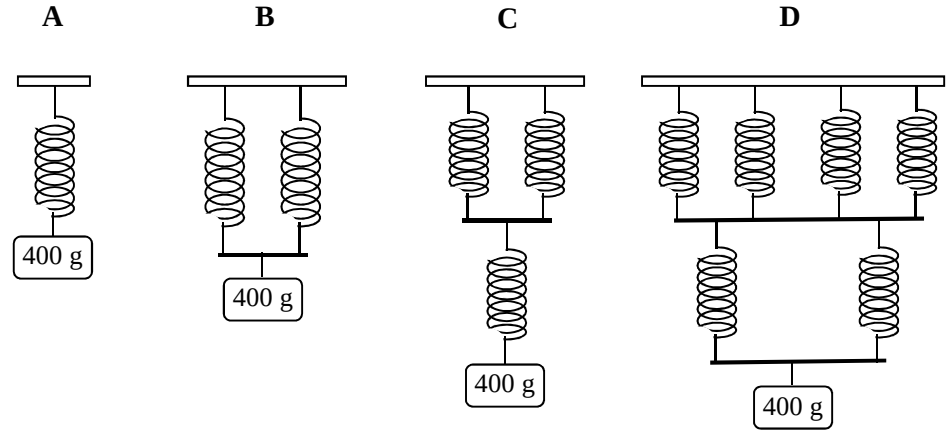
What happens to the kinetic energy and potential energy of the car?
Apakah yang sedang berlaku kepada tenaga kinetik dan tenaga keupayaan kereta itu?i

	Kinetic energy / *Tenaga kinetik*	Potential energy / *Tenaga keupayaan*
A	Increasing *Bertambah*	Increasing *Bertambah*
B	Decreasing *Berkurang*	Decreasing *Berkurang*
C	Constant *Malar*	Increasing *Bertambah*
D	Increasing *Bertambah*	Constant *Malar*

21 The table below shows the exercise time and the power developed by four students, A, B, C and D. From the data in the table which student did the most work?
Jadual di bawah menunjukkan masa senaman dan kuasa yang dihasilkan oleh empat orang pelajar, A, B, C *dan* D. *Daripada data tersebut, pelajar manakah yang melakukan kerja yang paling banyak?*

Student *Pelajar*	Exercise time / s *Masa senaman* / s	Power developed / watt *Kuasa terhasil* / watt
A	50	250
B	100	150
C	200	200
D	250	30

22 Four arrangements A, B, C and D are made of identical springs. Each spring extends by 4 cm when a 200 g load is hung at its end. Which arrangement produces the largest extension?
Empat susunan A, B, C *dan* D *adalah terdiri daripada spring yang sama. Setiap spring meregang sebanyak* 4 cm *apabila satu beban* 200 g *digantung pada hujungnya. Susunan yang manakah menghasilkan regangan yang terbesar?*



23 Diagram 12 shows a graph of stretching force, F against extension, x, for spring R and S. Both spring are made of same material and have the same thickness.
Rajah 12 *menunjukkan graf daya regangan, F melawan pemanjangan, x, bagi spring R dan S. Kedua-dua spring dibuat dari bahan yang sama dan mempunyai ketebalan yang sama..*

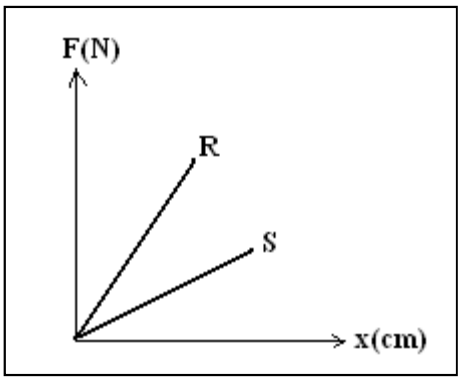


Diagram 12 / *Rajah* 12

Which of the following statements about spring S and spring R is correct?
Pernyataan berikut yang manakah benar mengenai spring S dan spring R?

A Spring S has a greater diameter of wire of spring than spring R
Spring S *mempunyai diameter dawai spring yang lebih besar daripada spring* R

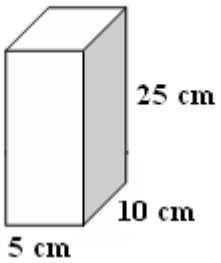
B Spring S has a smaller coil diameter than spring R
Spring S *mempunyai diameter gelung yang lebih kecil daripada spring* R

C Spring S has a smaller stiffness than spring R
Spring S *mempunyai kekerasan lebih kecil daripada spring* R

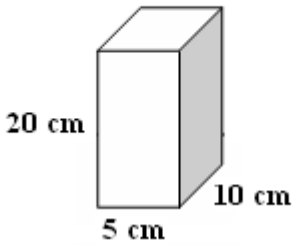
D Spring S has a larger force constant than spring R
Spring S *mempunyai pemalar daya yang lebih besar daripada spring* R

24 Which of the block produces the minimum pressure on the floor if all the blocks are made of the same material? The weight of each block is 100 N.
Blok manakah yang menghasilkan tekanan yang minima ke atas lantai jika kesemua blok itu diperbuat daripada bahan yang sama? Berat setiap blok ialah 100 N.

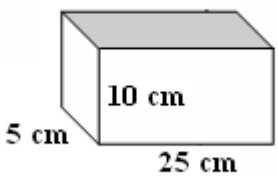
A



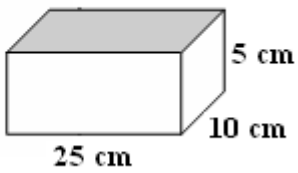
C



B



D



25 Diagram 13 shows a dam is built across a river. The depth of the water at the base of the dam is 25 m.
Rajah 13 *menunjukkan sebuah empangan dibina merentasi sebuah sungai. Kedalaman air dari dasar empangan ialah* 25 m.

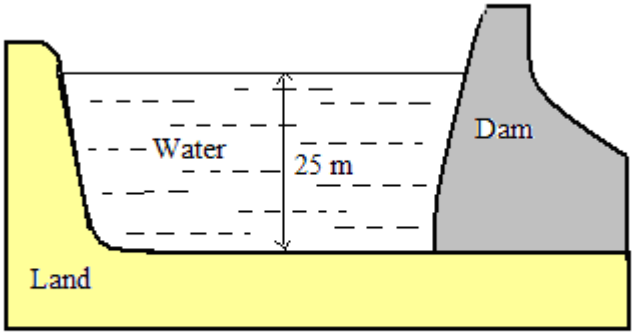


Diagram 13 / *Rajah* 13

If the density of water is 1·0 x 10^3 kg m^{-3}, what is the water pressure at the base of the dam?
Jika ketumpatan air ialah 1·0 x 10^3 kg m^{-3}, *berapakah tekanan air pada dasar empangan itu?*

A 2·5 × 10^2 N m^{-2}

B 2·5 × 10^3 N m^{-2}

C 2·5 × 10^4 N m^{-2}

D 2·5 × 10^5 N m^{-2}

26 Diagram 14 shows a mercury barometer. Atmospheric pressure is 75 cm Hg.
Rajah 14 *menunjukkan sebuah barometer merkuri. Tekanan atmosfera ialah* 75 cm Hg.

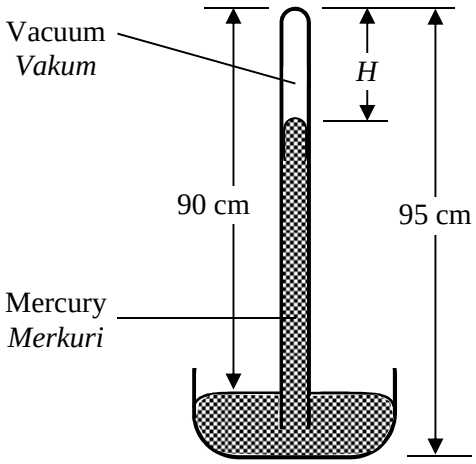


Diagram 14 / *Rajah* 14

What is the height, *H*, of the vacuum column?
Berapakah ketinggian, H, bagi turus vakum?

A 5 cm

B 15 cm

C 20 cm

D 25 cm

27 Diagram 15 shows a manometer being connected to a gas X supply.
Rajah 15 *menunjukkan sebuah manometer disambungkan kepada bekalan gas* X.

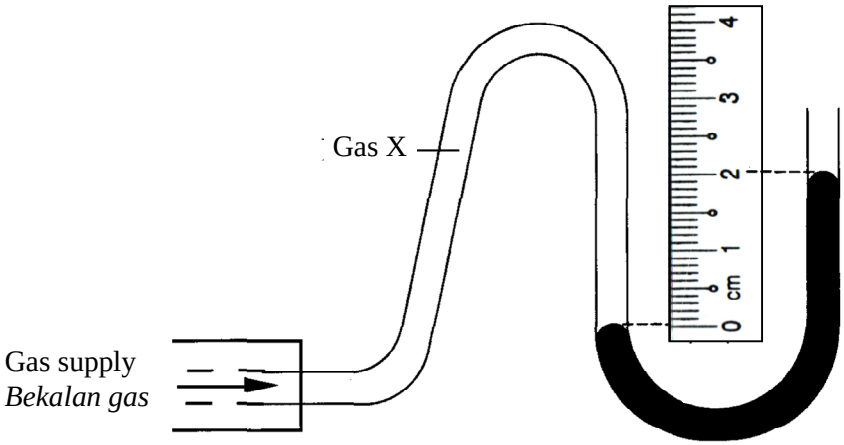


Diagram 15 / *Rajah* 15

Atmospheric pressure is 75 cm Hg. What is the pressure of gas X?
Tekanan atmosfera ialah 75 cm Hg. *Berapakah tekanan gas* X*?*

A 73 cm Hg

B 75 cm Hg

C 77 cm Hg

D 79 cm Hg

28 Which of the following devices use Pascal's Principle?
Alat yang manakah menggunakan Prinsip Pascal?

A Syringe / *Picagari*

B Perfume spray / *Penyembur minyak wangi*

C Hydraulic press / *Penekan hidraulik*

D Siphon / *Sifon*

29 Diagram 16 shows three similar balls, X, Y and Z fully immersed in olive oil, glycerine and turpentine respectively. The weights used are also similar.
Rajah 16 *menunjukkan tiga biji bola,* X, Y *dan* Z, *yang serupa, masing-masing terendah sepenuhnya di dalarn minyak zaitun, gliserin dan turpentin. Jenis pemberat yang digunakan juga adalah serupa.*

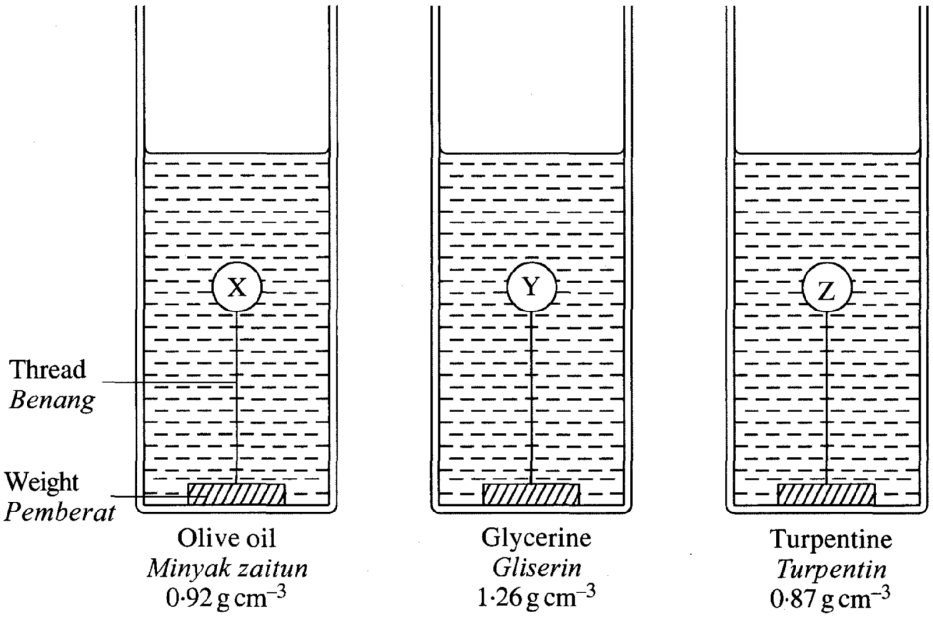


Diagram 15 / *Rajah* 15

Which ball experiences the biggest buoyant force?
Bola manakah yang mengalami daya keapungan yang paling besar?

A Ball X / *Bola* X

B Ball Y / *Bola* Y

C Ball Z / *Bola* Z

30 Diagram 17 shows a boy blowing over a glass tube.
Rajah 17 *menunjukkan seorang budak sedang meniup di atas tiub kaca.*

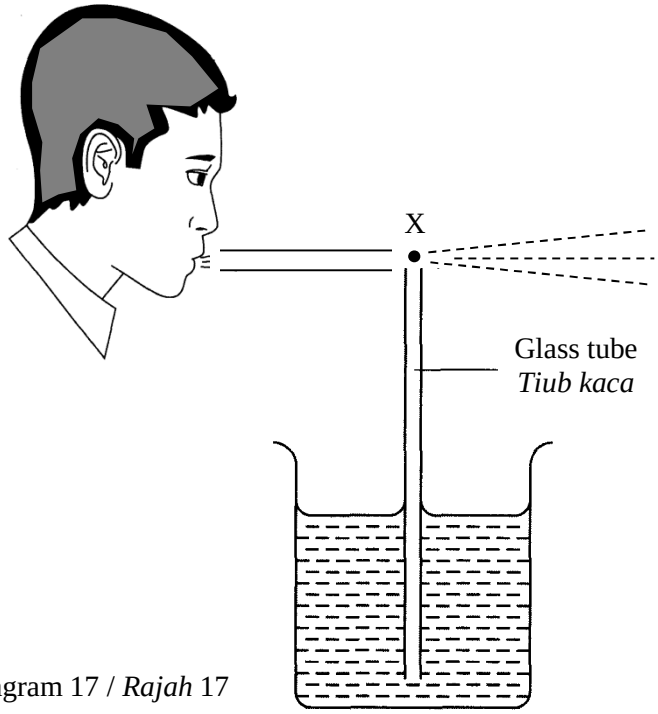


Diagram 17 / *Rajah* 17

The pressure at X is / *Tekanan di* X *ialah*

A lower than atmospheric pressure / *lebih rendah daripada tekanan atmosfera*

B equal to atmospheric pressure / *sama dengan tekanan atmosfera*

C higher than atmospheric pressure / *lebih tinggi daripada tekanan atmosfera*

31 A fish is placed in a freezer. The temperature of the fish is the same as that of the freezer after several minutes. Which concept explains the situation?
Seekor ikan diletakkan di dalam sebuah peti beku. Suhu ikan itu adalah sama dengan suhu peti beku selepas beberapa minit. Konsep manakah yang menerangkan situasi itu?

A Specific latent heat of vaporisation / *Haba pendam tentu pengewapan*

B Specific latent heat of fusion / *Haba pendam tentu pelakuran*

C Specific heat capacity / *Muatan haba tentu*

D Thermal equilibrium / *Keseimbangan terma*

32 A block made of wood of mass 2 kg has a specific heat capacity of 3600 J kg^{-1} $^{o}C^{-1}$.
What is the quantity of heat energy released by the block of wood when its temperature drops by 1 ^{o}C?
Satu bongkah kayu berjisim 2 kg *mempunyai muatan haba tentu* 3600 J kg^{-1} $^{o}C^{-1}$.
Berapakah kuantiti haba yang dibebaskan oleh bongkah kayu itu apabila suhunya berkurang sebanyak 1 ^{o}C?

A 1200 J

B 1800 J

C 3600 J

D 7200 J

33 The specific latent heat of vaporisation for water is heat absorbed by
Haba pendam tentu pengewapan air ialah haba yang diserap oleh

A 1 kg of water during boiling without a change in temperature
1 *kg air semasa mendidih tanpa perubahan suhu*

B 1 m^3 of water during boiling without changes in temperature
1 m^3 *air semasa mendidih tanpa perubahan suhu*

C 1 kg of steam to increase the temperature by 1°C
1 *kg stim untuk menaikkan suhu sebanyak* 1°C

D 1 m^3 of steam to increase the temperature by 1°C
1 m^3 *stim untuk menaikkan suhu sebanyak* 1°C

34 In the pressure law, the variables that are kept constant are
Dalam hukum tekanan, pembolehubah yang dimalarkan ialah

A Mass and volume / *Jisim dan isipadu*

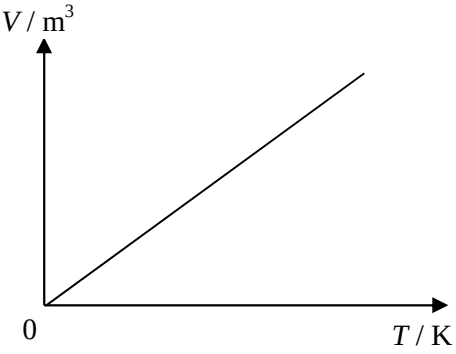
B Temperature and volume / *Suhu dan isipadu*

C Mass and temperature / *Jisim dan suhu*

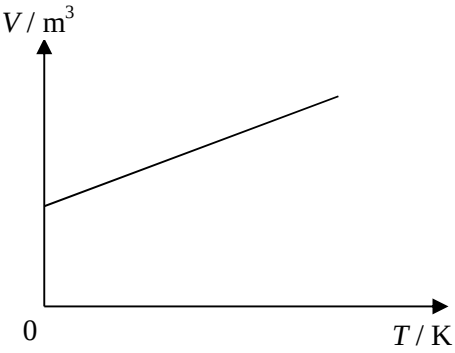
35 Which graph shows the relationship between the volume and absolute temperature of a fixed mass of gas at constant pressure?

Graf yang manakah menunjukkan hubungan antara isipadu dan suhu mutlak bagi satu jisim tetap gas pada tekanan malar?

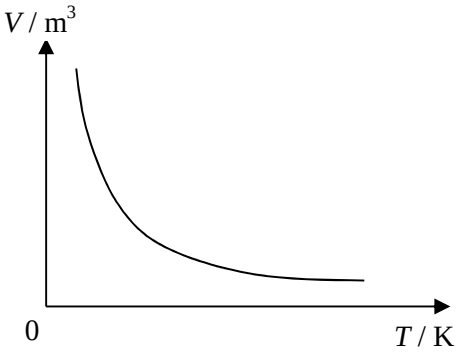
A



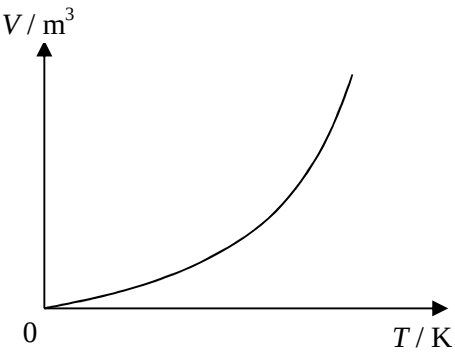
B



C



D



36 Diagram 18 shows four objects, P, Q, R and S in front of a plane mirror.
Rajah 18 *menunjukkan empat objek,* P, Q, R *dan* S *di hadapan sebuah cermin satah.*

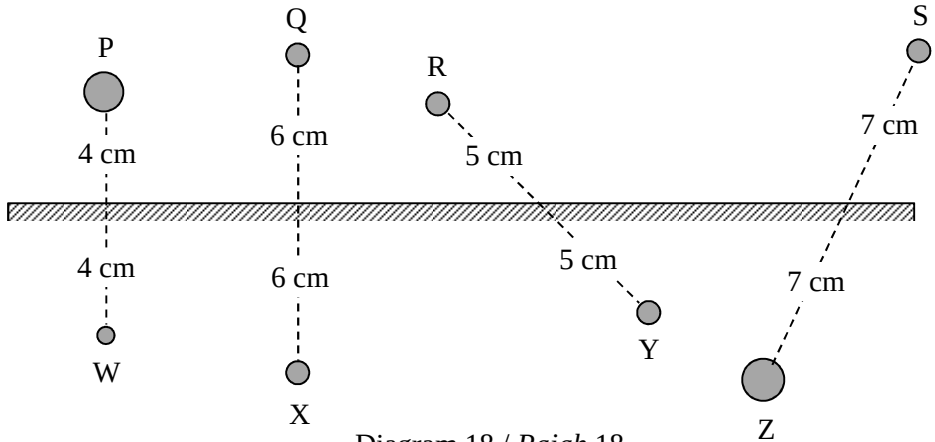


Diagram 18 / *Rajah* 18

Which is the correct pair of object and image formed by the mirror?
Antara yang berikut, yang manakah pasangan yang betul bagi objek dan imej yang dibentuk oleh cermin itu?

A PW

B QX

C RY

D SZ

37 Diagram 19 shows a light ray propagating from water to air.
Rajah 19 *menunjukkan satu sinar cahaya merambat dari air ke udara.*

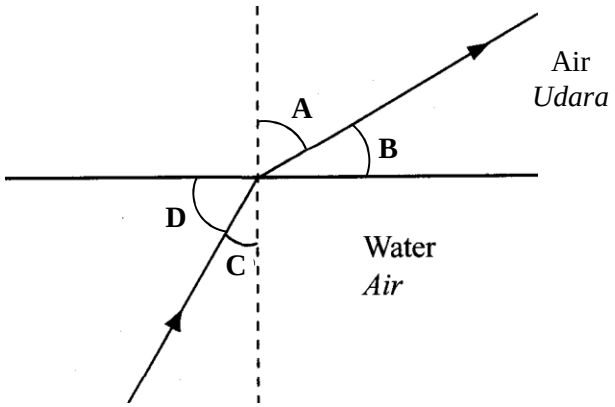


Diagram 19 / *Rajah* 19

Which angle is the angle of refraction? / *Sudut manakah ialah sudut pembiasan?*

38 Diagram 20 shows a light ray propagating from glass to air.
Rajah 20 *menunjukkan satu sinar cahaya merambat dari kaca ke udara..*

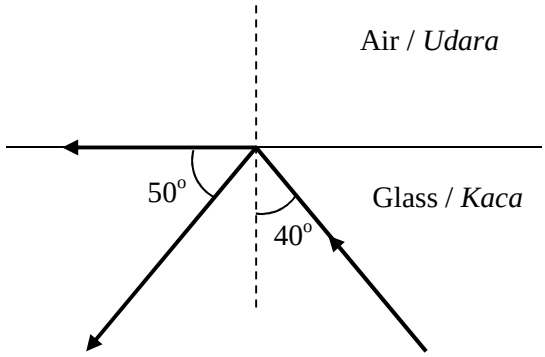


Diagram 20 / *Rajah* 20

What is the refractive index of glass? / *Berapakah indeks biasan kaca?*

A 1.19

B 1.25

C 1.31

D 1.56

39 Diagram 20 shows an object in front of a convex lens.
Rajah 20 *menunjukkan suatu objek di hadapan satu kanta cembung.*

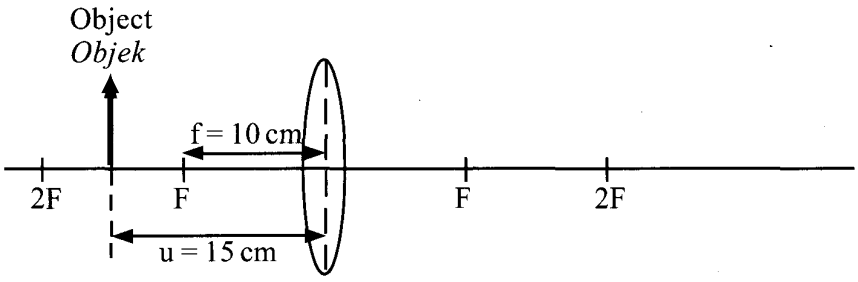


Diagram 20 / *Rajah* 20

The image distance is / *Jarak imej adalah*

A less than 10 cm / *lebih kecil daripada* 10 cm

B between 10 cm and 20 cm / *antara* 10 cm *dan* 20 cm

C equal to 20 cm / *sama dengan* 20 cm

D more than 20 cm / *lebih besar daripada* 20 cm

40 Diagram 22 shows a displacement-time graph of a wave.
Rajah 22 *menunjukkan graf sesaran-masa bagi suatu gelombang.*

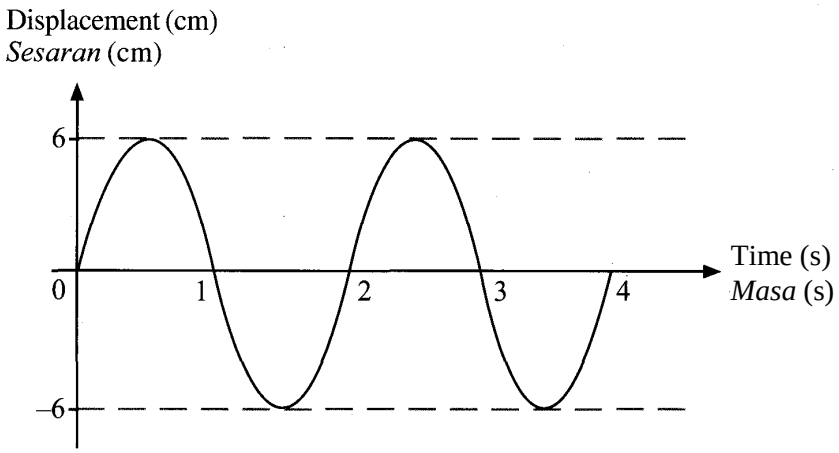


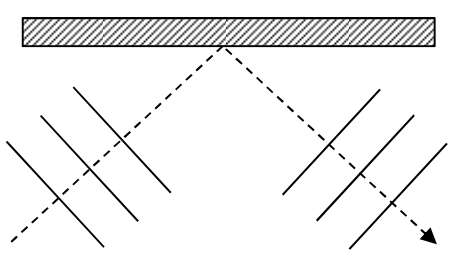
Diagram 22 / *Rajah* 22

What is the amplitude and period of the wave? / *Berapakah amplitud dan tempoh bagi gelombang itu?*

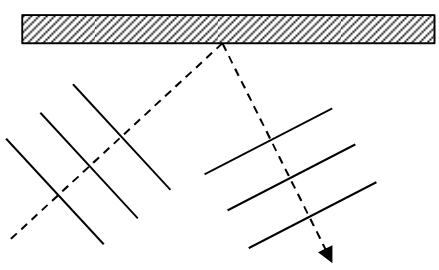
	Amplitude (cm) / *Amplitud* (cm)	Period (s) / *Tempoh* (s)
A	6	1
B	6	2
C	12	1
D	12	2

41 Which diagram shows the reflection of waves in a ripple tank?
Rajah yang manakah menunjukkan pantulan gelombang di sebuah tangki riak?

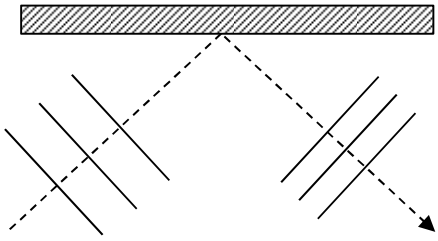
A



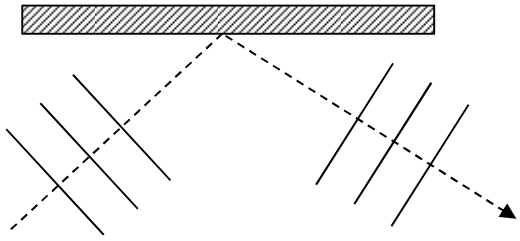
B



C



D



42 Diagram 23 shows waves moving towards a shallow region in a ripple tank.
Rajah 23 *menunjukkan gelombang merambat menuju satu kawasan cetek di dalam sebuah tangki tiak.*

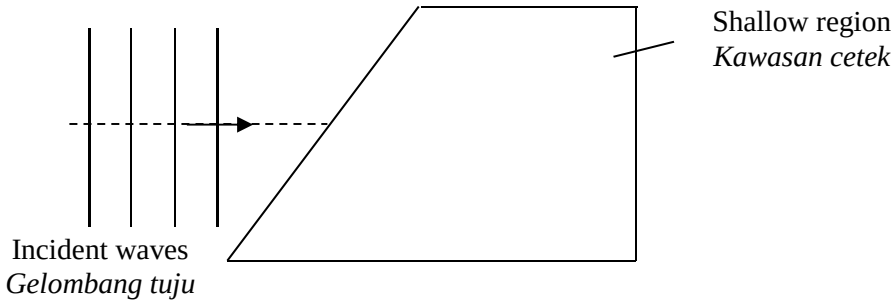


Diagram 23 / *Rajah* 23

What will happen to the frequency and wavelength of the waves when it enters the shallow region?
Apakah yang akan berlaku pada frekuensi dan panjang gelombang apabila gelombang itu memasuki kawasan cetek itu?

	Frequency / *Frekuensi*	**Wavelength / *Panjang gelombang***
A	No change / *Tiada perubahan*	Decreases / *Berkurang*
B	No change / *Tiada perubahan*	Increases / *Bertambah*
C	Decreases / *Berkurang*	Decreases / *Berkurang*
D	Increases / *Bertambah*	Increases / *Bertambah*

43 Diagram 24 shows plane waves moving towards an obstacle in a ripple tank.
Rajah 24 *menunjukkan gelombang satah merambat menuju satu halangan di sebuah tangki riak.*

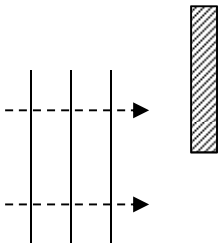


Diagram 24 / *Rajah* 24

What wave phenomena will occur when the waves move past the obstacle?
Apakah fenomena gelombang yang berlaku apabila gelombang merambat melalui halangan itu?

A Reflection and refraction / *Pantulan dan pembiasan*

B Reflection and diffraction / *Pantulan dan pembelauan*

C Refraction and diffraction / *Pembiasan dan pembelauan*

44 Diagram 25 shows the superposition of two water waves.
Rajah 25 *menunjukkan superposisi dua gelombang air.*

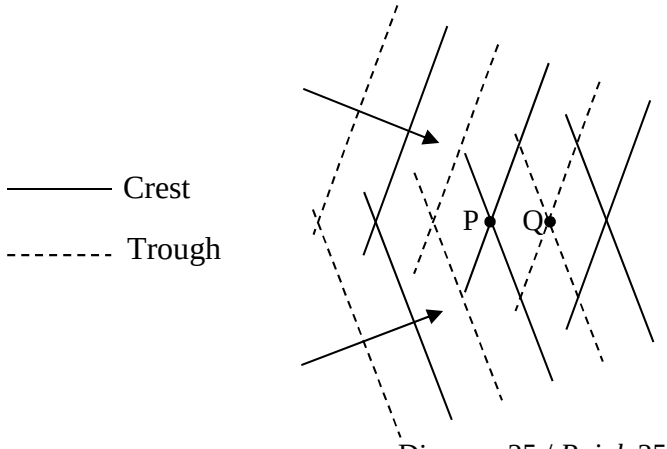


Diagram 25 / *Rajah* 25

What is the type of interference that occurs at points P and Q?
Apakah jenis interferens yang berlaku di titik P *dan* Q?

	Point P / *Titik* P	**Point Q / *Titik* Q**
A	Constructive / *Membina*	Construstive / *Membina*
B	Constructive / *Membina*	Destructive / *Memusnah*
C	Destructive / *Memusnah*	Construstive / *Membina*
D	Destructive / *Memusnah*	Destructive / *Memusnah*

45 Diagram 26 shows a candle in front of a loud speaker.
Rajah 26 *menunjukkan sebatang lilin di hadapan sebuah pembesar suara.*

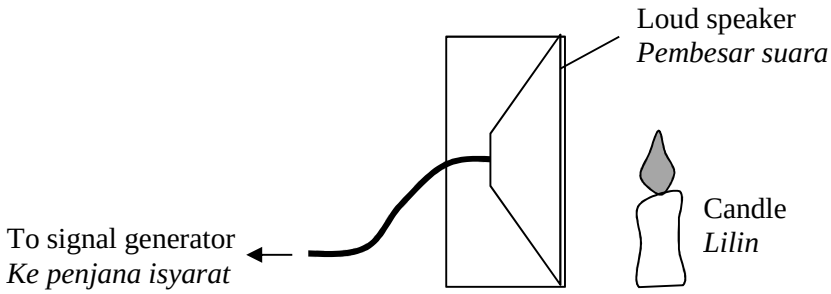
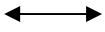


Diagram 26 / *Rajah* 26

What is the direction of vibration of the candle flame when the signal generator is switched on?
Apakah arah getaran nyalaan lilin apabila penjana isyarat dihidupkan?

A  **B**  **C**  **D** 

46 Which is **not** a property of electromagnetic waves?
Antara yang berikut, yang manakah bukan ciri gelombang elektromagnet?

A Are transverse waves / *Adalah gelombang melintang*

B Can travel through vacuum / *Boleh merambat melalui vakum*

C Move at the same speed in all mediums / *Merambat pada laju yang sama dalam semua medium*

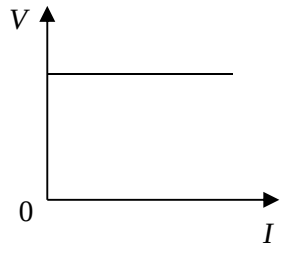
D Can be diffracted / *Boleh dibelaukan*

47 A lamp with a normal operating current of 0·25 A is switched on for 10 minutes.
What is the quantity of charge that flowed through the lamp?
Sebuah lampu dengan arus pengendalian normal 0·25 A *dipasang selama* 10 *minit.*
Berapakah kuantiti cas yang mengalir melalui lampu itu?

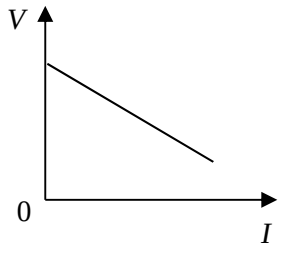
A 0·25 C **B** 2·5 C **C** 40 C **D** 150 C

48 Which graph shows the relationship between potential difference and current for an ohmic conductor?
Graf yang manakah menunjukkan hubungan antara beza keupayaan dan arus bagi sebuah konduktor yang mematuhi hukum ohm?

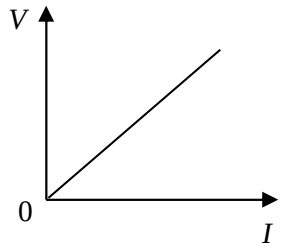
A



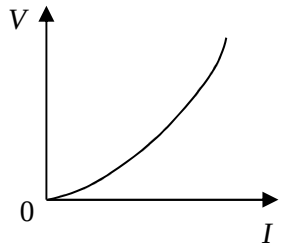
B



C



D



49 Diagram 27 shows two electrical circuits.
Rajah 27 *menunjukkan dua litar elektrik.*

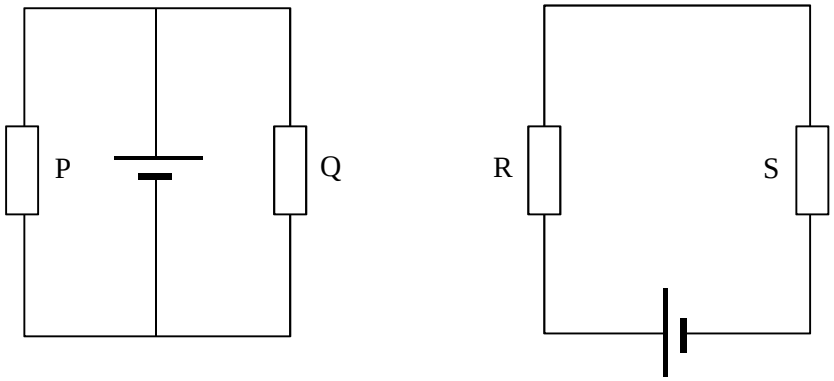


Diagram 27 / *Rajah* 27

What is the type of connection for resistors P and Q, and resistors R and S?
Apakah jenis sambungan bagi perintang P *dan* Q, *dan perintang* R *dan* S?

	P and Q / P *dan* Q	**R and S / R *dan* S**
A	Series / *Siri*	Series / *Siri*
B	Series / *Siri*	Parallel / *Selari*
C	Parallel / *Selari*	Series / *Siri*
D	Parallel / *Selari*	Parallel / *Selari*

50 A light bulb labelled 2·5 V 0·3 A is switched on for 60 s.
What is the electrical energy used up by the light bulb?
Sebuah mentol berlabel 2·5 V 0·3 A *dihidupkan selama* 60 s.
Berapakah tenaga elektrik yang digunakan oleh mentol itu?

A 13·5 J **B** 45·0 J **C** 112·5 J **D** 500·0 J