1 Kuantiti fizik manakah merupakan kuantiti skalar?
*Which physical quantity is a scalar quantity?*

A Jisim
*Mass*

B Berat
*Weight*

C Halaju
*Velocity*

D Pecutan
*Acceleration*

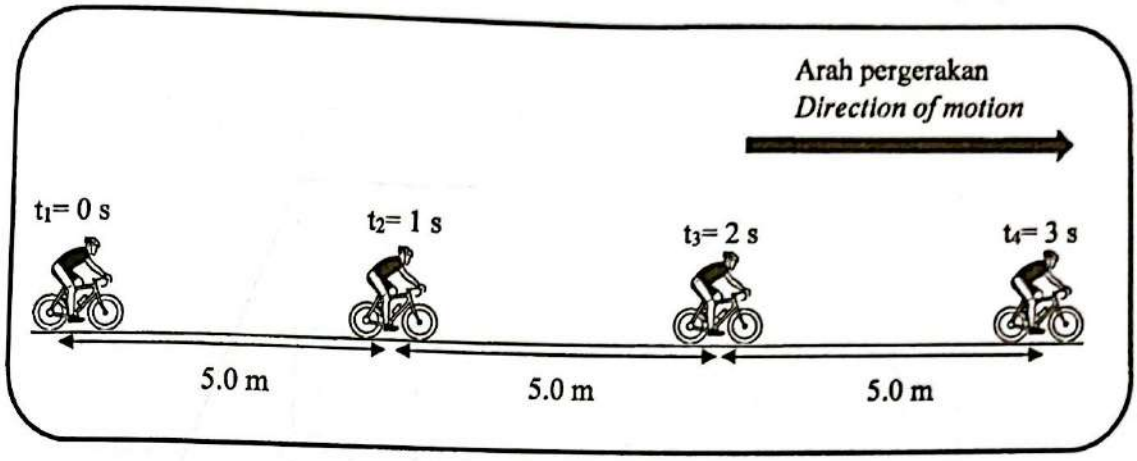
2 Jadual 1 menunjukkan senarai unit kuantiti terbitan.
*Table 1 shows a list of units of derived quantities.*

Antara berikut pasangan manakah yang betul?
*Which of the following pair is correct?*

| | **Kuantiti Terbitan** ***Derived Quantities*** | **Unit** ***Units*** |
|---|---|---|
| **A** | Momentum *Momentum* | $kg\ m^{-3}$ $kg\ m^{-3}$ |
| **B** | Tekanan *Pressure* | $N\ m^{-3}$ $N\ m^{-3}$ |
| **C** | Kerja *Work* | $N\ m\ s^{-1}$ $N\ m\ s^{-1}$ |
| **D** | Daya *Force* | $kg\ m\ s^{-2}$ $kg\ m\ s^{-2}$ |

Jadual 1
*Table 1*

3 Rajah 1 menunjukkan gerakan sebuah basikal.
*Diagram 1 shows the motion of a bicycle.*




Rajah 1
*Diagram 1*

Apakah jenis gerakan tersebut?
*What is the type of motion?*

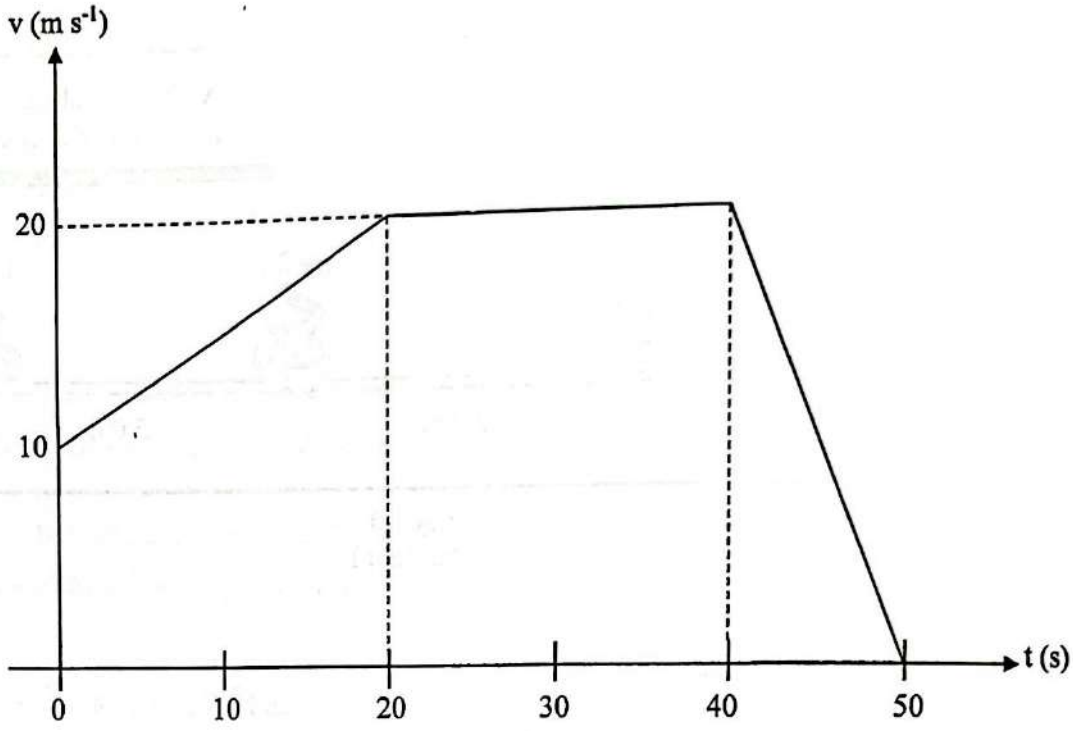
**A** Halaju seragam.
*Uniform velocity.*

**B** Halaju berkurang.
*Decreasing velocity.*

**C** Halaju meningkat.
*Increasing velocity.*

**D** Halaju tidak seragam.
*Non – uniform velocity.*

4 Rajah 2 menunjukkan graf halaju, v melawan masa, t bagi sebuah objek.
*Diagram 2 shows a graph of velocity, v against time, t of an object.*




Rajah 2
*Diagram 2*

Pernyataan manakah yang benar?
*Which statement is correct?*

**A** Jumlah sesaran objek dalam masa 50 s ialah 700 m.
*Total displacement object in* 50 s *is* 700 m.

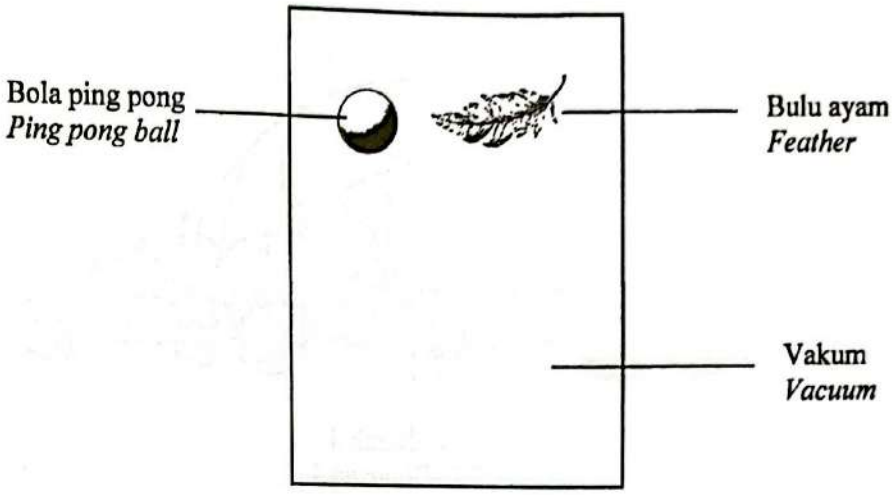
**B** Objek tersebut kekal pegun dari t = 20 s hingga t = 40 s.
*The object remains stationary from* t = 20 s *to* t = 40 s.

**C** Objek bergerak dengan nyahpecutan dari t = 40 s hingga t = 50 s.
*The object decelerates from* t = 40 s *to* t = 50 s.

**D** Objek bergerak dengan pecutan bertambah dari t = 0 s hingga t = 20 s.
*The object moves with increasing acceleration from* t = 0 s *to* t = 20 s.

5 Rajah 3 menunjukkan dua objek yang dijatuhkan dari ketinggian yang sama dalam vakum.
*Diagram 3 shows two objects dropped from the same height in vacuum.*




Rajah 3
*Diagram 3*

Apakah yang berlaku kepada pecutan kedua-dua objek?
*What happen to the acceleration of both objects?*

**A** Kedua-dua objek mempunyai pecutan sifar.
*Both objects have zero acceleration.*

**B** Kedua-dua objek mempunyai pecutan yang sama.
*Both objects have same acceleration.*

**C** Pecutan bola ping pong lebih kecil dari bulu ayam.
*The acceleration of ping pong ball is smaller than feather.*

**D** Pecutan bola ping pong lebih besar dari bulu ayam.
*The acceleration of ping pong ball is greater than feather.*

6 Rajah 4 menunjukkan payung yang basah dipusing dan dihentikan dengan tiba-tiba menyebabkan titisan air meninggalkan permukaan payung.

*Diagram 4 shows a wet umbrella is rotated with a sudden stop causes water droplets leave the surface of the umbrella.*

Rajah 4
*Diagram 4*

Hukum fizik manakah menerangkan situasi di atas?

*Which physics law explained the above situation?*

**A** Hukum Gerakan Newton Pertama.
*Newton's First Law of Motion.*

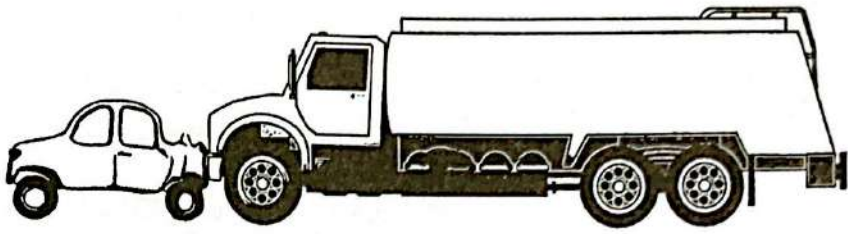
**B** Hukum Gerakan Newton Kedua.
*Newton's Second Law of Motion.*

**C** Hukum Gerakan Newton Ketiga.
*Newton's Third Law of Motion.*

**D** Hukum Kegravitian Semesta Newton.
*Newton's Universal Law of Gravitation.*

7 Rajah 5 menunjukkan lori tangki minyak berjisim 7500 kg melanggar sebuah kereta berjisim 1000 kg. Sebelum pelanggaran, lori dan kereta bergerak pada arah yang sama dengan kelajuan masing-masing 30 $m\ s^{-1}$ dan 25 $m\ s^{-1}$.

*Diagram 5 shows an oil tanker of mass* 7500 kg *collides with a car of mass* 1000 kg. *The lorry and car move in the same direction with velocity of* 30 $m\ s^{-1}$ *and* 25 $m\ s^{-1}$ *respectively before collision.*



Rajah 5
*Diagram 5*

Selepas perlanggaran, kedua–dua kenderaan melekat bersama-sama. Berapakah halaju akhir,v kedua–dua kenderaan?

*After collision, both vehicles stick together. What is the final velocity,* v *of both vehicles?*

**A** 2.94 $m\ s^{-1}$ **B** 25.59 $m\ s^{-1}$

**C** 29.41 $m\ s^{-1}$ **D** 33.33 $m\ s^{-1}$

8 Pernyataan manakah betul menerangkan berat?

*Which statement is correct to describe weight?*

**A** Daya angkat yang bertindak ke atas objek.
*The lifting force acting on the object.*

**B** Daya geseran yang bertindak ke atas objek.
*The frictional force acting on the object.*

**C** Daya graviti yang bertindak ke atas objek.
*The gravitational force acting on the object.*

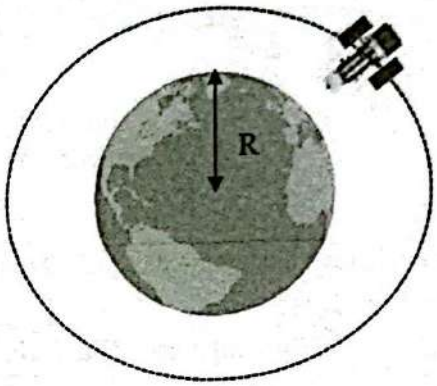
**D** Daya tujah ke depan yang bertindak ke atas objek.
*The forward force acting on the object.*

9 Rajah 6 menunjukkan satelit Teleskop Angkasa Hubble berjisim 11000 kg yang mengorbit pada ketinggian 547 km dari permukaan bumi.

[Jejari Bumi, $R = 6.37 \times 10^6$ m]
[Jisim Bumi, $M = 5.97 \times 10^{24}$ kg]

*Diagram 6 shows the Hubble Space Telescope satellite with mass of* 11000 kg *orbits at a height of* 547 km *above the earth's surface.*

[*Radius of the Earth,* $R = 6.37 \times 10^6$ m]
[*Mass of the Earth,* $M = 5.97 \times 10^{24}$ kg]




Rajah 6
*Diagram 6*

Berapakah daya graviti satelit tersebut?
*What is the gravitational force of the satellite?*

**A** $9.155 \times 10^4$ N

**B** $1.079 \times 10^5$ N

**C** $1.464 \times 10^7$ N

**D** $6.332 \times 10^{11}$ N

10 Manakah antara satelit berikut yang paling sesuai untuk digunakan bagi siaran langsung Piala Dunia FIFA Qatar 2022?

*Which of the following satellites is the most suitable to be used for live broadcast of* 2022 *FIFA World Cup Qatar?*

**A** Satelit geopegùn dengan tempoh orbit 72 jam.
*Geostationary satellite with* 72 *hours orbital period.*

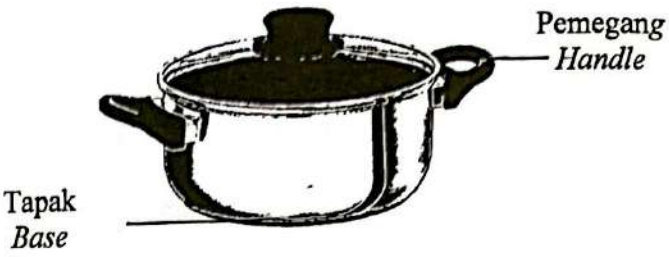
**B** Satelit geopegun dengan tempoh orbit 24 jam.
*Geostationary satellite with* 24 *hours orbital period.*

**C** Satelit bukan geopegun dengan tempoh orbit 24 jam.
*Non-geostationary satellite with* 24 *hours orbital period.*

**D** Satelit bukan geopegun dengan tempoh orbit 18 jam.
*Non-geostationary satellite with orbital period* 18 *hours.*

11 Rajah 7 menunjukkan periuk yang mempunyai tapak Aluminium.

*Diagram 7 shows a pot with Aluminium base.*




Rajah 7
*Diagram 7*

Apakah yang terjadi kepada masa memasak makanan jika tapak periuk tersebut digantikan dengan Kuprum?

[Muatan haba tentu Aluminium = 900 J $kg^{-1}$ $°C^{-1}$]
[Muatan haba tentu Kuprum = 390 J $kg^{-1}$ $°C^{-1}$]

*What happen to the time to cook the food if the base of the pot is replaced with Copper?*

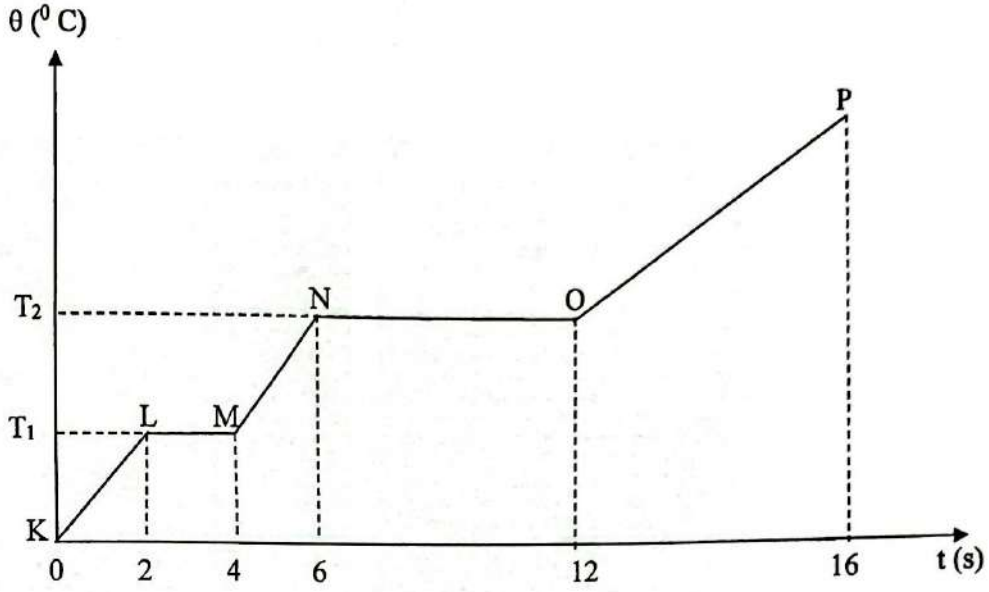
[*Specific heat capacity of Aluminium* = 900 J $kg^{-1}$ $°C^{-1}$]
[*Specific heat capacity of Copper* = 390 J $kg^{-1}$ $°C^{-1}$]

**A** Bertambah
*Increase*

**B** Berkurang
*Decrease*

**C** Kekal sama
*Remain the same*

12 Rajah 8 menunjukkan graf pemanasan suhu, θ melawan masa, t bagi bahan X.
*Diagram 8 shows a heating graph of temperature, θ against time, t for substance X.*




Rajah 8
*Diagram 8*

Pernyataan manakah yang benar?
*Which statement is correct?*

**A** Haba yang dibekalkan semasa NO digunakan untuk mengatasi daya tarikan antara molekul - molekul.
*Heat supplied during* NO *is used to overcome force of attraction between molecules.*

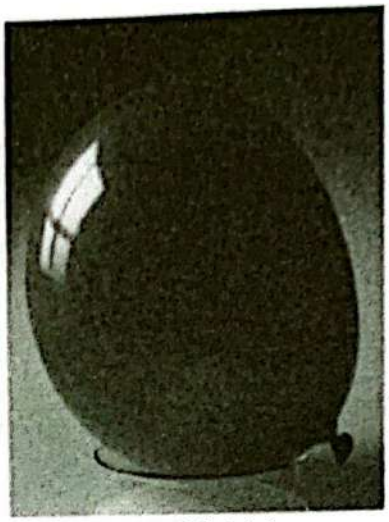
**B** Haba yang dibekalkan semasa LM digunakan untuk meningkatkan suhu bahan.
*Heat supplied during* LM *is used to increase the temperature of the substance.*

**C** Haba yang dibekalkan semasa MN dipanggil haba pendam tentu pelakuran.
*Heat supplied during* MN *is called specific latent heat of fusion.*

**D** Semasa OP, purata tenaga kinetik molekul adalah malar.
*During* OP, *average kinetic energy of molecules are constant.*

13 Rajah 9 (a) menunjukkan sebiji belon diletakkan di atas pinggan.
Rajah 9 (b) menunjukkan belon tersebut selepas cecair nitrogen dituang ke atasnya.

*Diagram* 9 (a) *shows a balloon is put on a plate.*
*Diagram* 9 (b) *shows the balloon after nitrogen liquid was poured over it.*



Rajah 9 (a)
*Diagram* 9 (a)

Rajah 9 (b)
*Diagram* 9 (b)

Hukum Fizik manakah yang menerangkan situasi di atas?
*Which Physics law explains the situation above?*

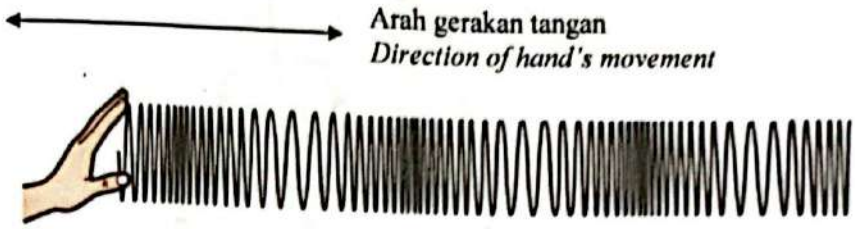
**A** Hukum Lenz
*Lenz's Law*

**B** Hukum Boyle
*Boyle's Law*

**C** Hukum Charles
*Charles' Law*

**D** Hukum Gay-Lussac
*Gay-Lussac's Law*

14 Rajah 10 menunjukkan spring slinki digerakkan ke hadapan dan belakang pada satu hujungnya.
*Diagram* 10 *shows a slinky spring being moved forward and backward at one of its ends.*

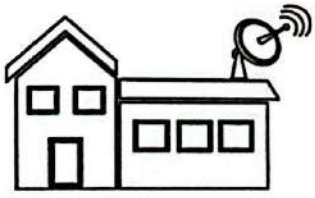



Rajah 10
*Diagram* 10

Situasi yang manakah menghasilkan jenis gelombang yang sama seperti di atas?
*Which of the following situation produce same type of wave as above?*

A

B



C

D

15 Rajah 11 menunjukkan seorang budak lelaki di atas buaian.

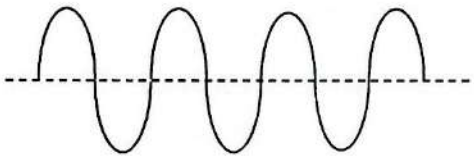
*Diagram* 11 *shows a boy on a swing.*

Rajah 11
*Diagram* 11

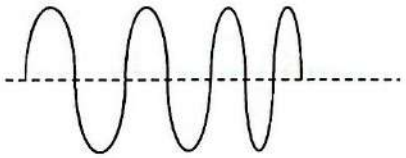
Buaian tersebut mengalami pelembapan.
Jawapan manakah yang betul?

*The swing undergoes damping.*
*Which answer is correct?*

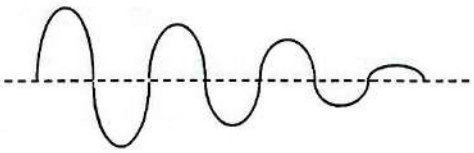
**A**



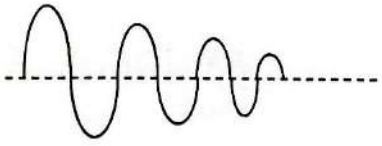
**B**



**C**

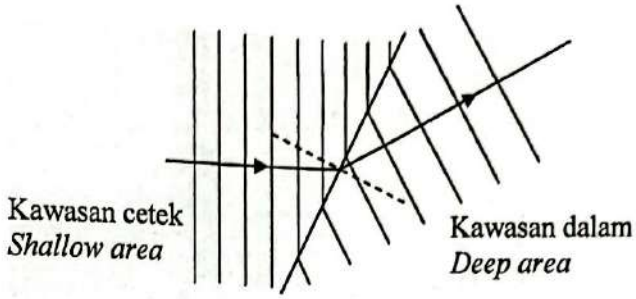


**D**



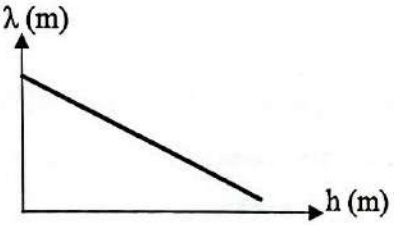
  

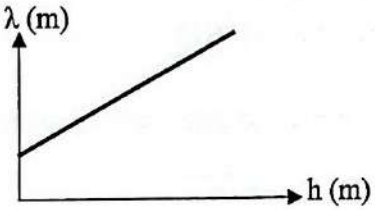
16 Rajah 12 menunjukkan gelombang air merambat dari kawasan cetek ke kawasan dalam.
*Diagram* 12 *shows water waves propogates from shallow area to deep area.*

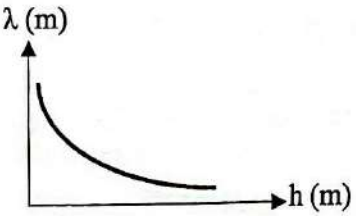


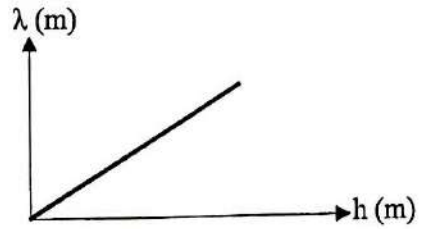

Rajah 12
*Diagram* 12

Graf yang manakah mewakili hubungan antara panjang gelombang, λ dan kedalaman air, h?
*Which graph represents the relationship between wavelength,* λ *and depth,* h *of the water?*

A



B



C



D


17 Rajah 13 menunjukkan hologram pada sekeping kad bank.
*Diagram* 13 *shows hologram on a bank card.*


Rajah 13
*Diagram* 13

Kuantiti manakah yang berubah apabila cahaya melepasi hologram tersebut?
*Which quantity changes when the light pass through the hologram*?

**A** Laju berkurang
*Speed decreases*

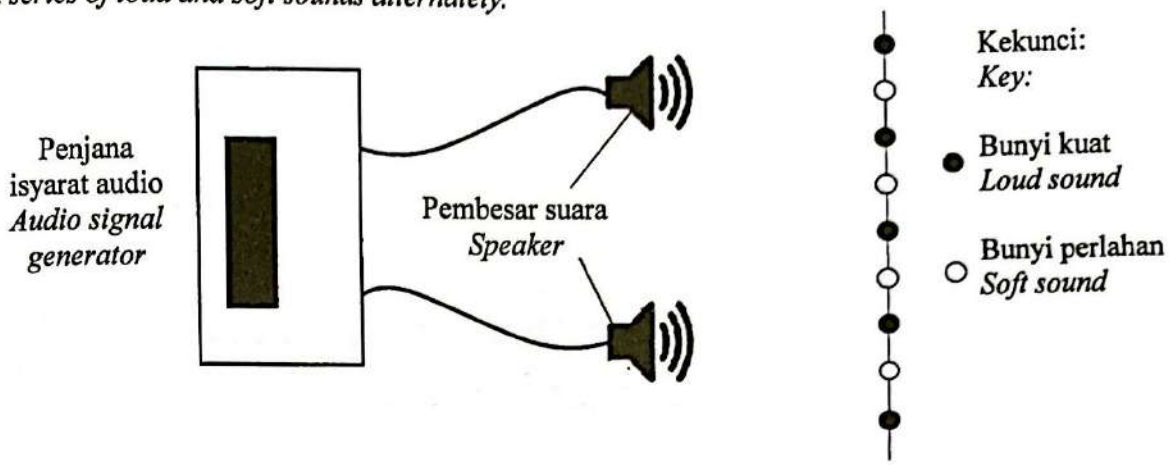
**B** Tenaga berkurang
*Energy decreases*

**C** Frekuensi berkurang
*Frequency decreases*

**D** Panjang gelombang berkurang
*Wavelength decreases*

18 Rajah 14 menunjukkan dua pembesar suara yang disambungkan kepada satu penjana isyarat audio. Pembesar suara menghasilkan siri bunyi kuat dan perlahan berselang seli.

*Diagram* 14 *shows two speakers connected to an audio signal generator. The speakers produced a series of loud and soft sounds alternately.*




Rajah 14
*Diagram* 14

Jarak di antara dua bunyi kuat yang berturutan bertambah apabila
*The distance between two consecutives loud sound increases when*

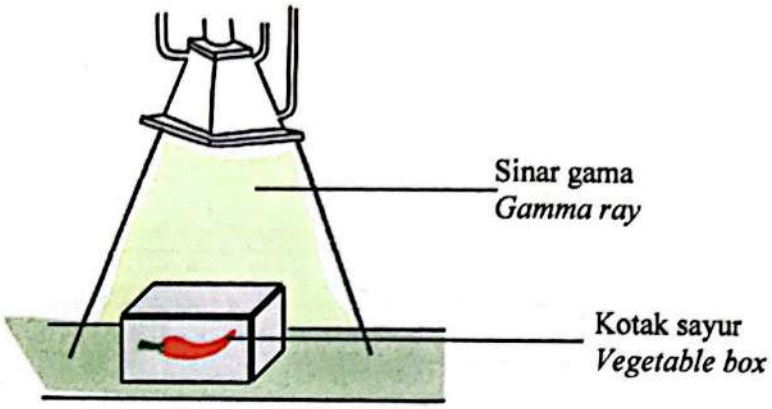
**A** frekuensi bunyi berkurang.
*the frequency of sound decreases.*

**B** panjang gelombang berkurang.
*wavelength decreases.*

**C** jarak di antara dua pembesar suara bertambah.
*the distance between two speakers increases.*

**D** jarak serenjang dari pembesar suara dan kedudukan di mana siri bunyi kuat dan perlahan dihasilkan berkurang.
*the perpendicular distance from the speakers and the position where series of loud and soft sound produced decreases.*

19 Rajah 15 menunjukkan sinar gama digunakan untuk mengekalkan kesegaran sayur.
*Diagram 15 shows gamma ray used to maintain the freshness of vegetables.*




Rajah 15
*Diagram 15*

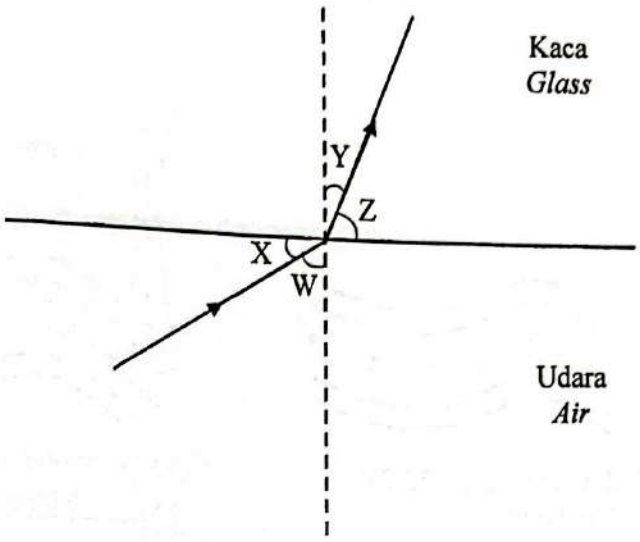
Pasangan ciri manakah yang betul?
*Which pair of characteristics is correct?*

| | **Panjang gelombang** ***Wavelength*** | **Frekuensi** ***Frequency*** |
|---|---|---|
| **A** | Pendek *Short* | Tinggi *High* |
| **B** | Pendek *Short* | Rendah *Low* |
| **C** | Panjang *Long* | Tinggi *High* |
| **D** | Panjang *Long* | Rendah *Low* |

20 Rajah 16 menunjukkan satu sinar cahaya merambat dari udara ke kaca.

*Diagram* 16 *shows a light ray propogates from air to glass.*




Rajah 16
*Diagram* 16

Apakah indeks biasan kaca itu?

*What is the refractive index of the glass?*

**A** $\frac{\sin Y}{\sin W}$

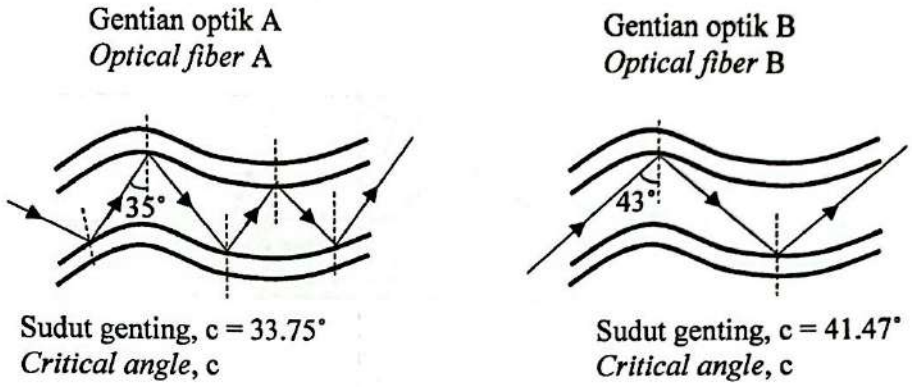
**B** $\frac{\sin W}{\sin Y}$

**C** $\frac{\sin Z}{\sin X}$

**D** $\frac{\sin X}{\sin Z}$

21 Rajah 17 menunjukkan dua kabel gentian optik yang digunakan untuk penghantaran maklumat dalam sistem telekomunikasi.

*Diagram 17 shows two optical fiber cables that are used in transferring information in telecommunication systems.*



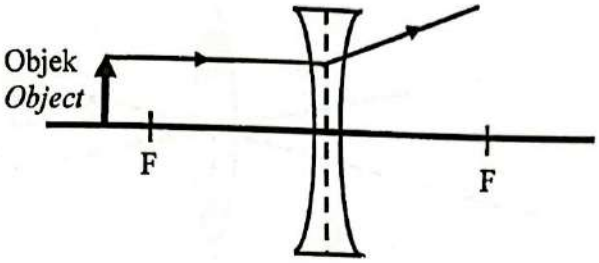

Rajah 17
*Diagram 17*

Pasangan ciri manakah dapat mengurangkan kehilangan maklumat semasa penghantaran?
*Which pair of characteristic can reduce information lost during transmission?*

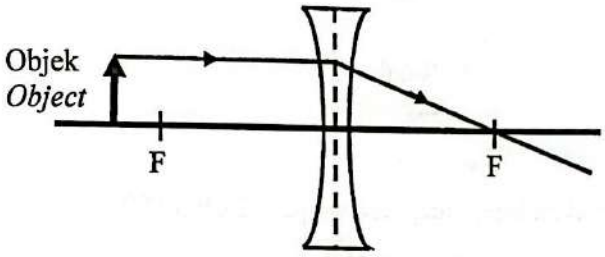
| | **Nilai indeks biasan teras dalam** ***Refractive index of inner core*** | **Pantulan dalam penuh** ***Total internal reflection*** |
|---|---|---|
| **A** | Tinggi *Higher* | Tinggi *Higher* |
| **B** | Rendah *Lower* | Rendah *Lower* |
| **C** | Tinggi *Higher* | Rendah *Lower* |
| **D** | Rendah *Lower* | Tinggi *Higher* |

22 Rajah manakah menunjukkan lintasan sinar cahaya yang betul?
*Which diagram shows the correct path of light ray?*

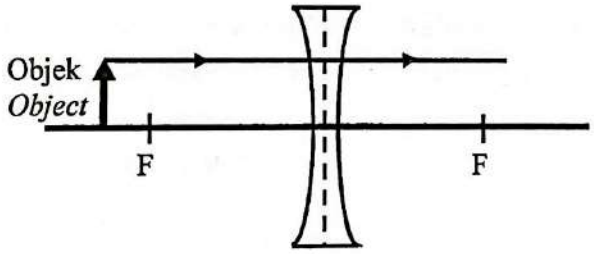
A



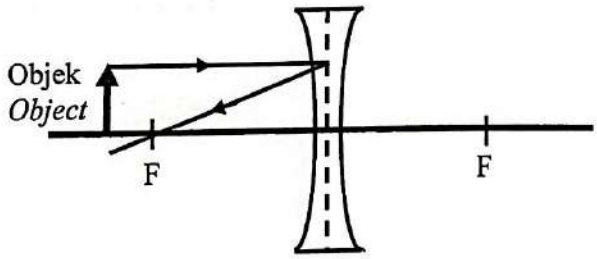

B



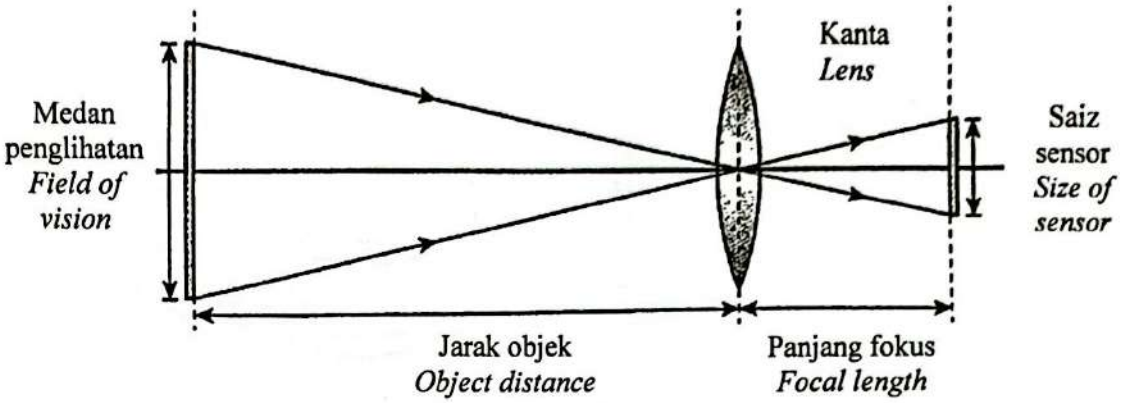

C




D



23 Rajah 18 menunjukkan imej nyata, kecil dan songsang yang terbentuk oleh kanta cembung.
*Diagram* 18 *shows a real, diminished and inverted image formed by convex lens.*




Rajah 18
*Diagram* 18

Alatan manakah yang menghasilkan imej yang sama seperti Rajah 18?
*Which instrument produced image as in Diagram* 18*?*

**A** Teleskop
*Telescope*

**B** Projektor LCD
LCD *Projector*

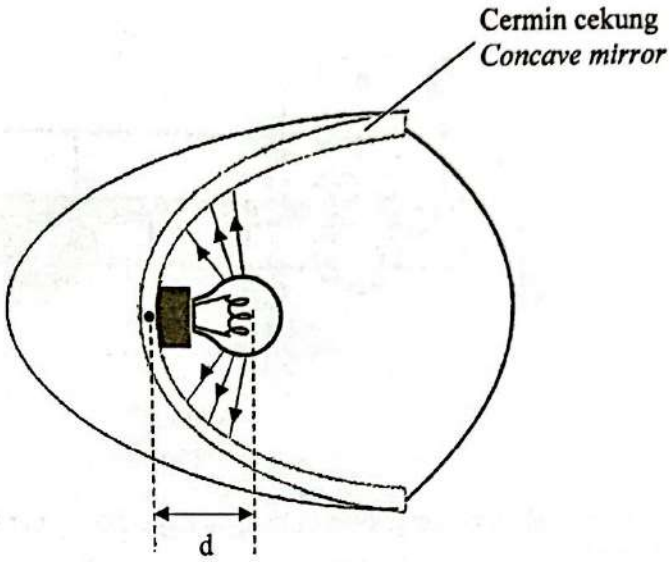
**C** Kamera telefon pintar
*Smartphone camera*

**D** Mikroskop majmuk
*Compound microscope*

24 Rajah 19 menunjukkan keratan rentas cermin cekung bersama mentol yang digunakan pada lampu hadapan kereta. Jarak antara mentol dan kutub cermin sfera adalah d.

*Diagram* 19 *shows a cross sectional area of a concave mirror with bulb used in a car headlight. Distance between bulb and pole of spherical mirror is* d.




Rajah 19
*Diagram* 19

Kedudukan mentol yang manakah menghasilkan pantulan cahaya yang selari?
*At which position bulb will produce parallel reflection of light?*

**A** d < panjang fokus, f
d < *focal length,* f

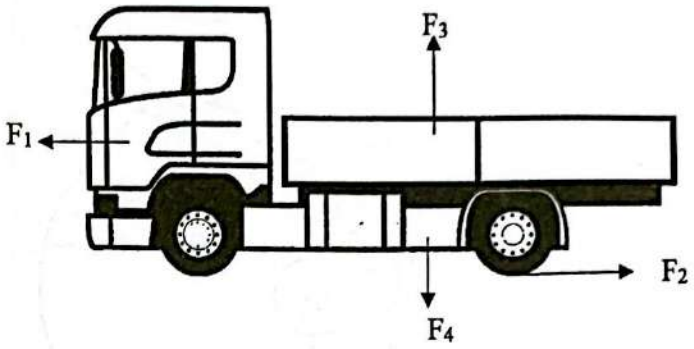
**B** d > panjang fokus, f
d > *focal length,* f

**C** d = panjang fokus, f
d = *focal length,* f

**D** d > dua kali panjang fokus, 2f
d > *two times focal length,* 2f

25 Rajah 20 menunjukkan sebuah lori berada dalam keadaan pegun. $F_1$, $F_2$, $F_3$ dan $F_4$ ialah daya-daya yang bertindak ke atas lori tersebut.

*Diagram* 20 *shows a lorry at rest.* $F_1$, $F_2$, $F_3$ *and* $F_4$ *are the forces acting on the lorry.*




Rajah 20
*Diagram* 20

Persamaan manakah menunjukkan hubungan daya-daya yang betul apabila lori mula bergerak ke hadapan?

*Which equation shows the correct relationship of forces when the lorry starts moving forward?*

**A** $F_1 < F_2$ dan $F_3 = F_4$
$F_1 < F_2$ *and* $F_3 = F_4$

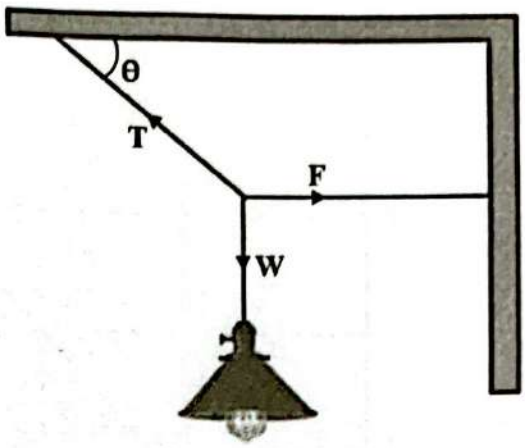
**B** $F_3 < F_4$ dan $F_1 = F_2$
$F_3 < F_4$ *and* $F_1 = F_2$

**C** $F_1 > F_2$ dan $F_3 = F_4$
$F_1 > F_2$ *and* $F_3 = F_4$

**D** $F_3 > F_4$ dan $F_1 = F_2$
$F_3 > F_4$ *and* $F_1 = F_2$

26 Rajah 21 menunjukkan sebuah lampu digantung menggunakan dua tali.
*Diagram 21 shows a lamp hanging from two strings.*




Rajah 21
*Diagram 21*

Persamaan manakah yang betul?
*Which equation is correct?*

**I.** $T + F + W = 0$
**II.** $T = F = W$
**III.** $T\cos\theta = F$
**IV.** $T\cos\theta = W$

**A** I dan II sahaja
I *and* II *only*

**B** I dan III sahaja
I *and* III *only*

**C** II dan IV sahaja
II *and* IV *only*

**D** III dan IV sahaja
III *and* IV *only*

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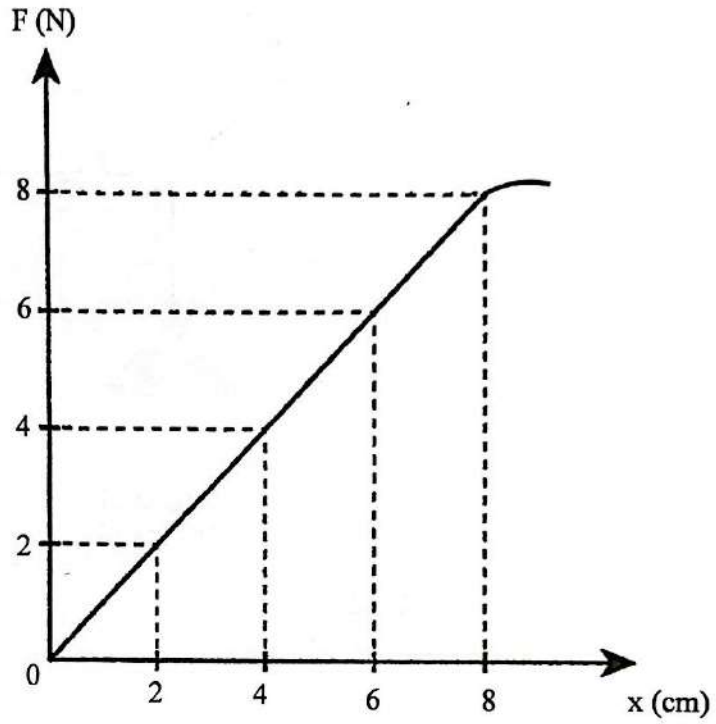
27 Rajah 22 menunjukkan graf daya, F melawan pemanjangan spring, x.
*Diagram 22 shows graph of force, F against extension of spring, x.*




Rajah 22
*Diagram 22*

Tentukan had kenyal bagi spring itu.
*Determine the elastic limit of the spring.*

**A** 2 N

**B** 4 N

**C** 6 N

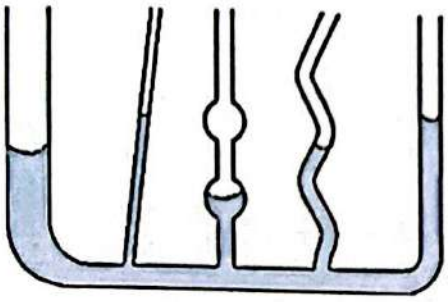
**D** 8 N

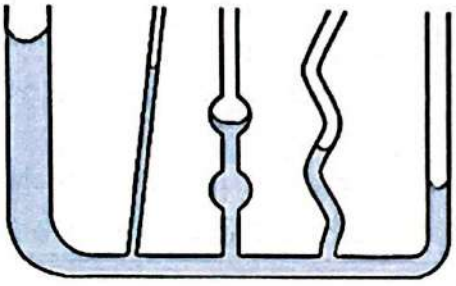
28 Radas aras cecair diisi dengan air berwarna.
*Liquid level apparatus is filled with coloured water.*

Rajah manakah yang betul?
*Which diagram is correct?*

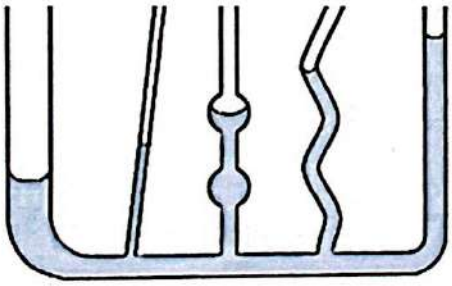
A



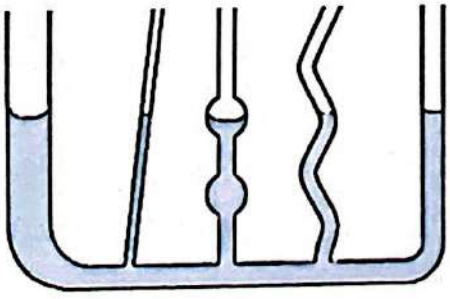
B



C



D



29 Antara berikut, alat manakah digunakan untuk mengukur tekanan atmosfera?
*Which of the following instrument is used to measure the atmospheric pressure?*

I. Manometer
*Manometer*

II. Barometer Aneroid
*Aneroid Barometer*

III. Barometer Fortin
*Fortin Barometer*

IV. Manometer Merkuri
*Mercury Manometer*

**A** I dan II
I *and* II

**B** II dan III
II *and* III

**C** I, II dan IV
I, II *and* IV

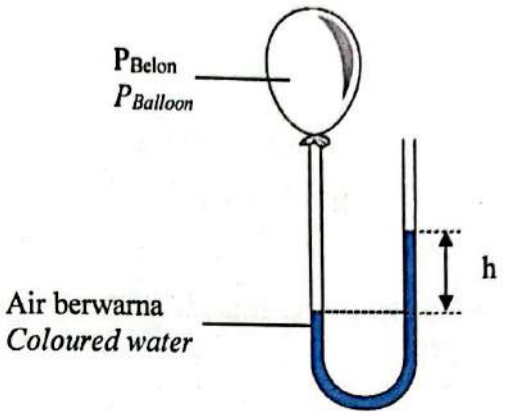
**D** Semua di atas
*All of the above*



30 Rajah 23 menunjukkan satu eksperimen untuk menyiasat tekanan udara, P di dalam belon dan perbezaan ketinggian paras air, h di tiub U.

*Diagram 23 shows an experiment to investigate air pressure,* P *in the balloon and the difference height of water level,* h *in* U*–tube*

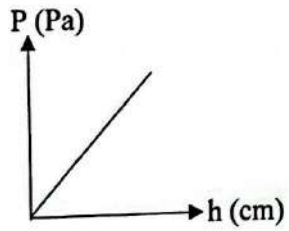



Rajah 23
*Diagram 23*

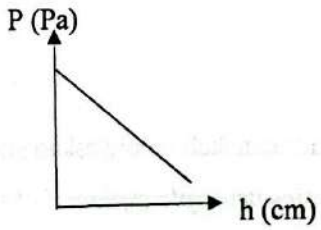
Graf manakah menunjukkan konsep yang betul apabila belon dicucuk dengan jarum?

*Which graph shows a correct concept when the balloon is poked with needle?*

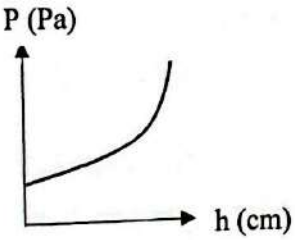
A



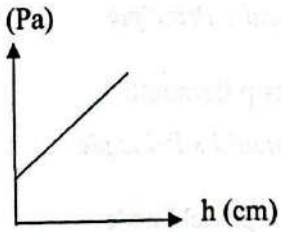

B




C




D

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31 Sebiji bola besi berjisim 0.5 kg tenggelam sepenuhnya dalam air. Berapakah isipadu bola jika berat ketara adalah 3.5 N?

[Ketumpatan air = 1000 kg $m^{-3}$]

*A metal ball of mass* 0.5 kg *is completely immersed in water. What is the volume of ball if the apparent weight is* 3.5 N?

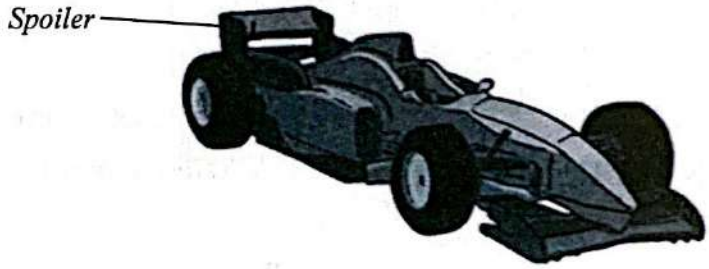
[*Density of water* = 1000 kg $m^{-3}$]

**A** 1.43 X $10^{-4}$ $m^3$ **B** 1.50 X $10^{-4}$ $m^3$

**C** 3.06 X $10^{-4}$ $m^3$ **D** 3.57 X $10^{-4}$ $m^3$

32 Rajah 24 menunjukkan rekaan *spoiler* yang digunakan pada kereta lumba untuk mengekalkan kestabilan pada kelajuan yang tinggi.

*Diagram* 24 *shows a design of spoiler used in a racing car to maintain stability at high speed.*




Rajah 24
*Diagram* 24

Prinsip fizik manakah menjelaskan situasi di atas?

*Which physics principle explain the situation above?*

**A** Prinsip Pascal
*Pascal's Principle*

**B** Prinsip Bernoulli
*Bernoulli's Principle*

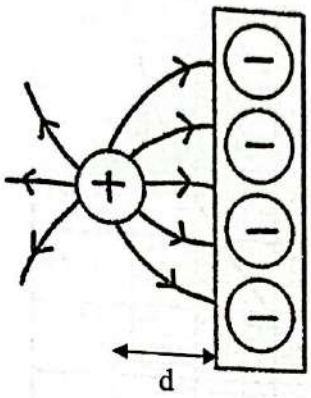
**C** Prinsip Archimedes
*Archimedes' Principle*

**D** Prinsip Keabadian Momentum
*Principle of Conservation of Momentum*

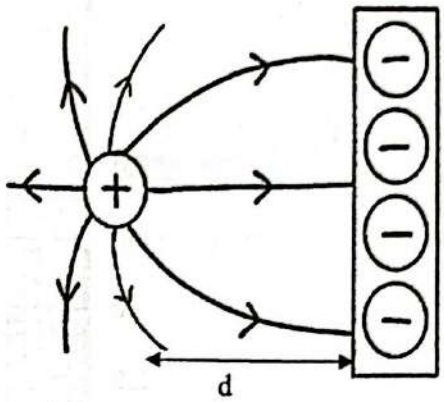
  

33 Diagram 25.1 menunjukkan satu corak medan elekrik.
Diagram 25.2 menunjukkan corak medan elektrik apabila jarak, d bertambah.

*Diagram* 25.1 *shows an electric field pattern.*
*Diagram* 25.2 *shows an electric field pattern when the distance,* d *increases.*




Rajah 25.1
*Diagram* 25.1




Rajah 25.2
*Diagram* 25.2

Mengapakah jarak antara garis-garis medan elektrik bertambah dalam Rajah 25.2?
*Why the distance between electric field lines increases in Diagram* 25.2*?*

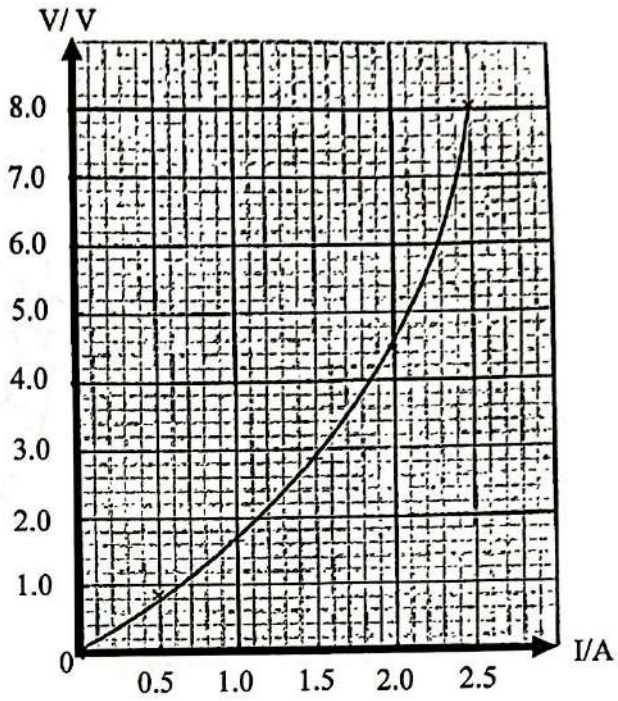
**A** Daya elektrik bertambah.
*Electrical force increases.*

**B** Arus elektrik bertambah.
*Electric current increases.*

**C** Beza keupayaan bertambah.
*Potential difference increases.*

**D** Kekuatan medan elektrik berkurang.
*Strength of electric field decreases.*

34 Rajah 26 menunjukkan graf beza keupayaan, V melawan arus, I bagi sebuah mentol filamen.
*Diagram 26 shows a graph of potential difference, V against current, I for filament bulb.*




Rajah 26
*Diagram 26*

Pernyataan manakah yang betul?
*Which statement is correct?*

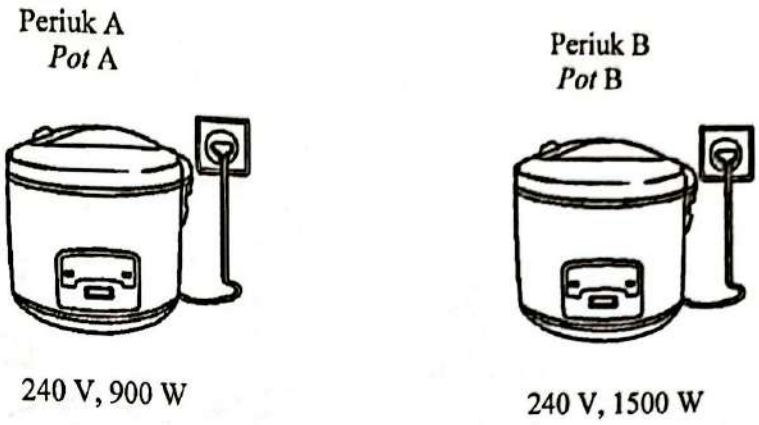
**A** Rintangan sifar.
*Resistance is zero.*

**B** Rintangan seragam.
*Resistance constant.*

**C** Rintangan berkurang.
*Resistance decreases.*

**D** Rintangan bertambah.
*Resistance increases.*

35 Rajah 27 menunjukkan dua periuk nasi yang digunakan untuk memasak 500 g beras.
*Diagram 27 shows two rice cookers used to cook 500 g of rice.*




Rajah 27
*Diagram 27*

Mengapakah nasi dalam periuk B masak lebih cepat?
*Why the rice in pot B cook faster?*

**A** Tenaga yang dibebaskan rendah.
*Energy release is lower.*

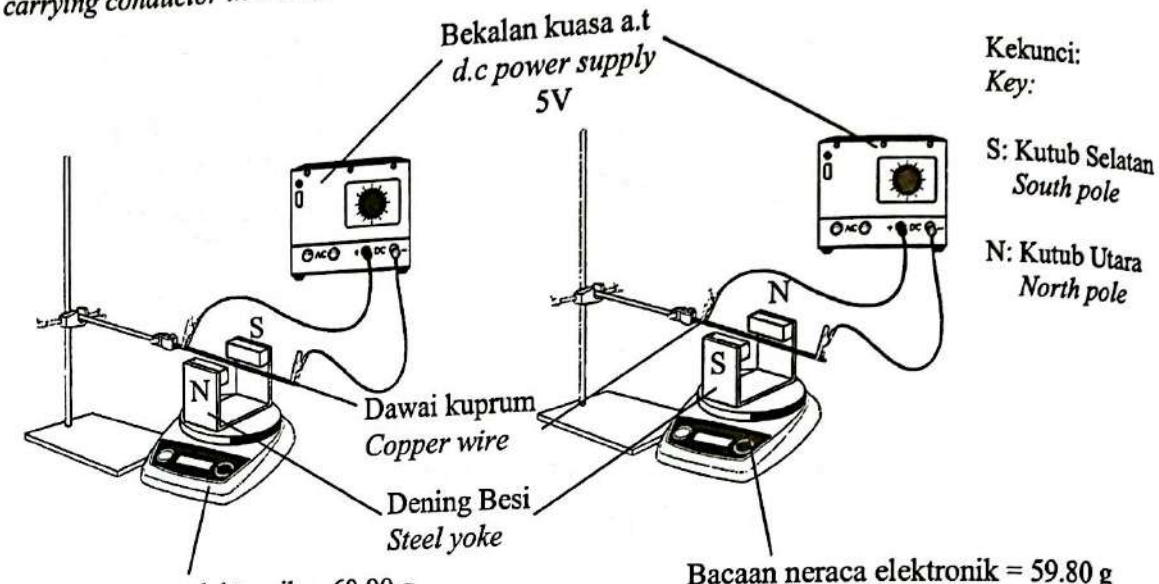
**B** Tenaga yang dibebaskan tinggi.
*Energy release is higher.*

**C** Kadar pembebasan tenaga rendah.
*The rate of energy release is lower.*

**D** Kadar pembebasan tenaga tinggi.
*The rate of energy release is higher.*

36 Rajah 28 (a) dan Rajah 28 (b) menunjukkan satu eksperimen untuk mengkaji magnitud daya yang bertindak ke atas konduktor pembawa arus dalam suatu medan magnet menggunakan neraca elektronik.

*Diagram* 28 (a) and 28 (b) *show an experiment to study magnitude of force acting on a current-carrying conductor in a magnetic field by using electronic balance.*




(a) (b)

Rajah 28
*Diagram* 28

Penyataan manakah yang menerangkan situasi di atas?

*Which statement explains the above situation?*

**A** Apabila daya pada dawai kuprum bertindak ke bawah, bacaan neraca elektronik bertambah.

*When the force acting on the copper wire is downwards, the reading of electronic balance increases.*

**B** Apabila daya pada dawai kuprum bertindak ke atas, bacaan neraca elektronik bertambah.

*When the force acting on the copper wire is upwards, the reading of electronic balance increases.*

**C** Perbezaan bacaan neraca elektronik mewakili jumlah arus elektrik yang mengalir pada konduktor.

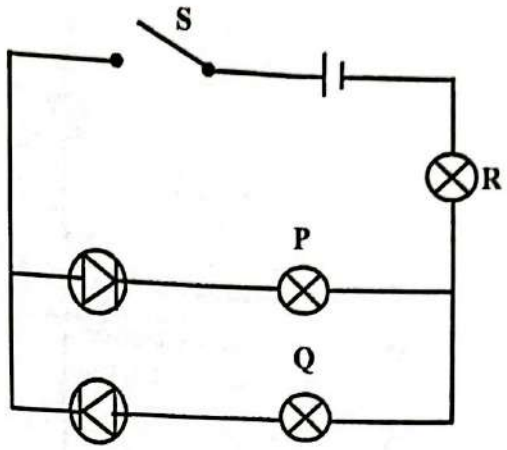
*The difference in reading of electronic balance represent the amount of current flow in the conductor.*

**D** Perbezaan bacaan neraca elektronik mewakili kekuatan medan magnet.

*The difference in reading of electronic balance represent the strength of magnetic field.*

37 Rajah 29 menunjukkan dua diod yang disambungkan secara selari dalam suatu litar.
*Diagram 29 shows two diodes that are connected parallel in a circuit.*




Rajah 29
*Diagram 29*

Apabila suis S ditutup, mentol yang manakah akan menyala?
*When switch S is closed, which bulb will light up?*

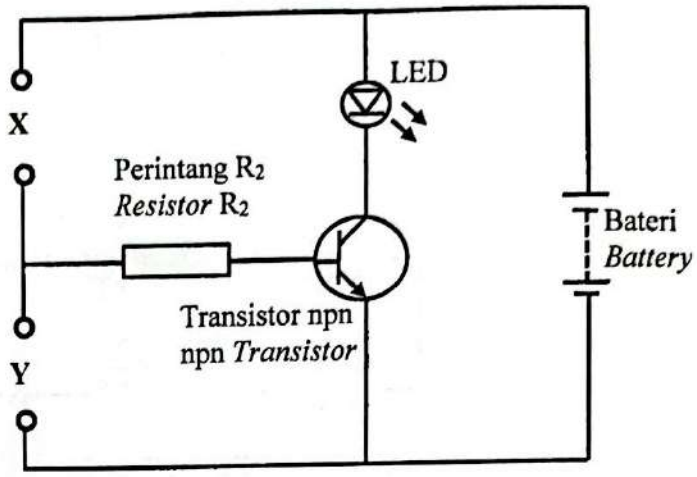
**A** R sahaja
R *only*

**B** P dan Q sahaja
P *and* Q *only*

**C** P dan R sahaja
P *and* R *only*

**D** Q dan R sahaja
Q *and* R *only*

**38** Rajah 30 menunjukkan diod pemancar cahaya (LED) menyala pada waktu siang.
*Diagram* 30 *shows the light-emitting diode* (LED) *lights up during daytime.*




Rajah 30
*Diagram* 30

Antara berikut, manakah yang betul tentang komponen X dan Y?
*Which of the following is correct about components* X *and* Y*?*

| | **Component X** ***Komponen* X** | **Component Y** ***Komponen* Y** |
|---|---|---|
| **A** | Termistor *Thermistor* | Perintang *Resistor* |
| **B** | Perintang R *Resistor* R | Termistor *Thermistor* |
| **C** | Perintang peka cahaya, PPC *Light-dependent resistor,* LDR | Perintang *Resistor* |
| **D** | Perintang *Resistor* | Perintang peka cahaya, PPC *Light-dependent resistor,* LDR |

39 Bahan reaktor nuklear manakah yang akan menyerap neutron yang berlebihan?
*Which nuclear reactor material will absorb excess neutrons?*

A Boron
Boron

B Grafit
Graphite

C Rod uranium
Uranium *rods*

D Air berat
*Heavy water*

40 Bagaimanakah tenaga foton berubah jika panjang gelombang cahaya digandakan?
*How does the energy of a photon change if the wavelength of light is doubled?*

A Tenaga bertambah 4 kali ganda.
*Energy increases 4 times.*

B Tenaga bertambah 2 kali ganda.
*Energy increases 2 times.*

C Tenaga berkurang separuh.
*Energy is reduced to half.*

D Tenaga tidak berubah.
*Energy unchanged.*

**KERTAS SOALAN TAMAT**
***END OF QUESTION PAPER***