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PROGRAM GEMPUR KECEMERLANGAN
SIJIL PELAJARAN MALAYSIA 2018
ANJURAN
MAJLIS PENGETUA SEKOLAH MALAYSIA
NEGERI PERLIS

PEPERIKSAAN PERCUBAAN SPM 2018 4531/1

FIZIK
Kertas 1
Ogos 2018
1 ¼ jam **Satu jam lima belas minit**

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIBERITAHU

MAKLUMAT UNTUK CALON

1. This question paper consists of 50 questions.
   Kertas soalan ini mengandungi 50 soalan

2. Answer all question
   *Jawab **semua** soalan*

3. Blacken **only** one space for each question
   *Hitamkan **satu** ruangan sahaja bagi setiap soalan*

4. A list formulae is provided on page 2
   Satu senarai rumus disediakan di halaman 2

Kertas soalan ini mengandungi 26 halaman bercetak

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

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

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

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

4. Momentum = mv

5. $F = ma$

6. Kinetic energy = $\frac{1}{2}mv^2$

7. Gravitational potential energy = mgh

8. Elastic potential energy = $\frac{1}{2}Fx$

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

10. Pressure, $P = \rho hg$

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

12. Heat, $Q = mc\theta$

13. $\frac{PV}{T} = \text{constant}$

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

15. $n = \frac{1}{\sin c}$

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

18. $v = f\lambda$

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

20. $f = \frac{1}{T}$

21. V = IR

22. E = IR + Ir

23. $E = mc^2$

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

25. e = 1.6×10^{-19} C

1 Which value is equal to 3 500 000 W ?
Nilai manakah yang sama dengan 3 500 000 W ?

A 3.5 kW C 35 kW

B 3.5 MW D 35 MW

2 Which of the following is a vector quantity ?
Antara yang berikut, yang manakah kuantiti vektor ?

A Force / *Daya* C Mass / *Jisim*

B Energy / *Tenaga* D Speed / *Laju*

3 Diagram 1 shows a strip of ticker tape.
Rajah 1 menunjukkan satu keratan pita detik.

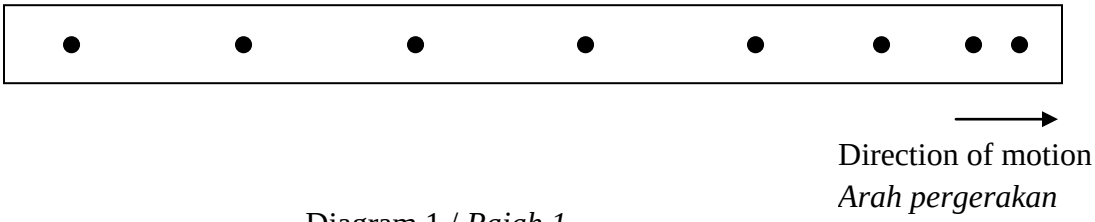

Diagram 1 / *Rajah 1*

Which statement describes the motion shown by the ticker tape?
Pernyataan manakah menghuraikan gerakan yang ditunjukkan oleh pita detik itu?

A Acceleration
Pecutan

B Deceleration
Nyahpecutan

C Uniform velocity followed by deceleration
Halaju seragam diikuti dengan nyahpecutan

D Acceleration followed by uniform velocity
Pecutan diikuti dengan halaju seragam

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

A

C

B

D

5 Diagram 2(a) shows an empty bottle rolling when a train started to move forward.
Diagram 2(b) shows the same empty bottle rolling in the opposite direction when the train stopped suddenly.
Rajah 2(a) menunjukkan sebiji botol kosong bergolek apabila keretapi mula bergerak ke hadapan.
Rajah 2(b) menunjukkan keadaan botol kosong yang sama bergolek dalam arah bertentangan apabila keretapi itu berhenti secara tiba-tiba.

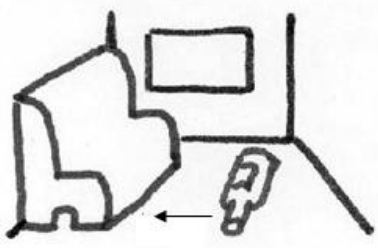


Diagram 2(a) / *Rajah 2(a)*

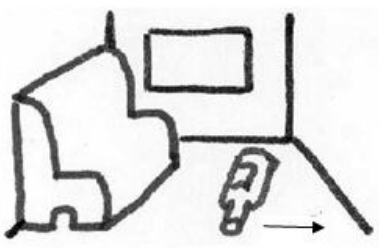


Diagram 2(b) / *Rajah 2(b)*

This situation is due to
Situasi ini adalah disebabkan oleh

A Inertia
Inersia

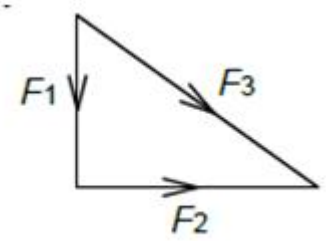
B Acceleration
Pecutan

C Impulse
Impuls

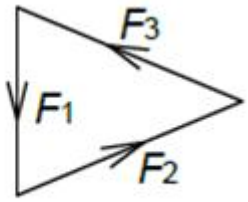
D Impulsive force
Daya impuls

6 Which of the following vector diagram shows three forces in the state of equilibrium?
Yang manakah antara rajah vektor berikut menunjukkan tiga daya dalam keadaan keseimbangan?

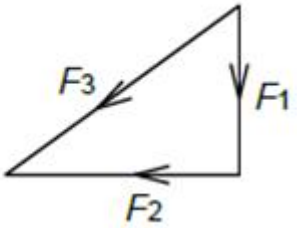
A



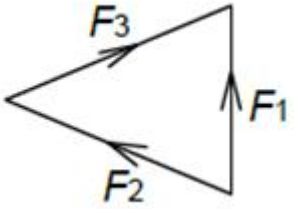
C



B



D

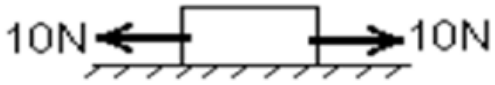


7 Unit for impulse is same with unit for
Unit impuls adalah sama dengan unit

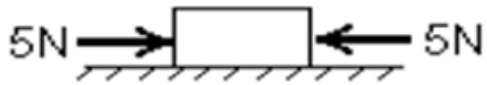
A	Force *Daya*	C	Energy *Tenaga*
B	Power *Kuasa*	D	Momentum *Momentum*

8 Which of the following object will accelerate ?
Objek manakah yang berikut, akan memecut ?

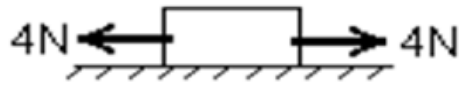
A



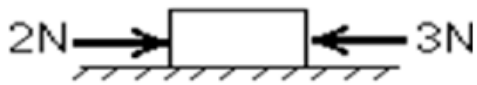
B



C



D



9 A metal ball experience free fall from a high position on earth. Which of the following quantities will increase ?
Sebiji bola besi jatuh bebas dari kedudukan yang tinggi di bumi. Antara berikut, kuantiti yang manakah akan bertambah ?

A Velocity
Halaju

B Weight
Berat

C Acceleration due to gravity
Pecutan graviti

D Potential energy
Tenaga keupayaan

10 Diagram 3 shows a toy car at three different positions on a smooth track
Rajah 3 menunjukkan sebuah kereta mainan pada tiga kedudukan berbeza di atas sebuah landasan yang licin

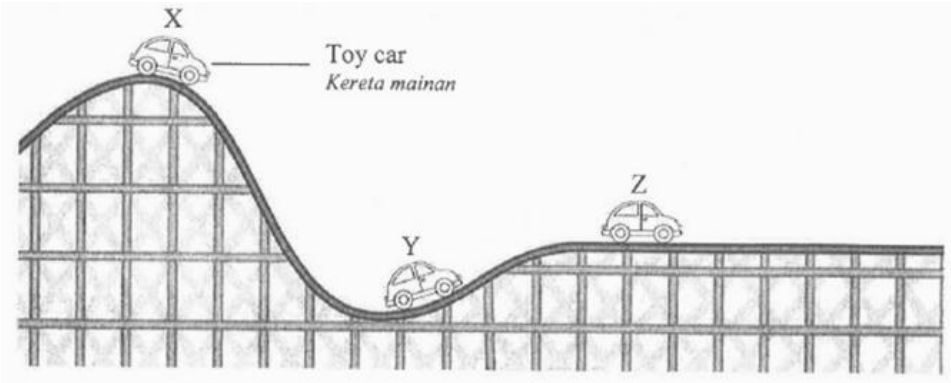


Diagram 3 / *Rajah 3*

Which of the following statement is correct ?
Antara pernyataan berikut yang manakah betul ?

A The kinetic energy of the toy car is maximum at X
Tenaga kinetik kereta mainan adalah maksimum di X

B The total energy of the toy car at Z is equal to at Y
Jumlah tenaga kereta mainan pada Z sama dengan pada Y

C The total energy of the toy car at X is greater than at Y
Jumlah tenaga kereta mainan pada X lebih besar berbanding pada Y

D Gravitational potential energy of the toy car is maximum at Y
Tenaga keupayaan graviti kereta mainan adalah maksimum pada Y

11 Diagram 4 shows a force extension graph for a spring which is loaded
(Assume that the expansion of the spring does not exceed the elasticity)
Rajah 4 menunjukkan graf daya-pemanjangan bagi satu spring berbeban
(Anggapan bahawa pemanjangan spring tidak mengatasi had elastik)

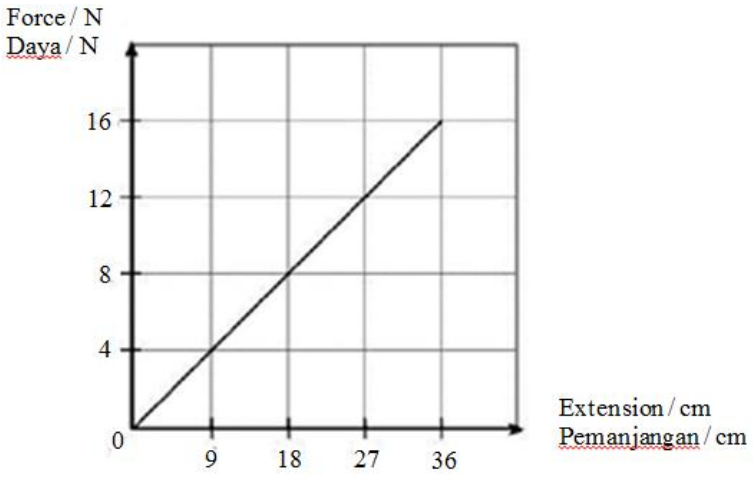


Diagram 4/*Rajah 4*

How much elastic potential energy is stored in the spring when its extension is 36 cm ?
Berapakah tenaga keupayaan kenyal yang disimpan apabila pemanjangan adalah 36 cm ?

A 360.00 J C 3.66 J

B 288.00 J D 2.88 J

12 Diagram 5 shows some fishes in an aquarium
Rajah 5 menunjukkan beberapa ekor ikan di dalam akuarium

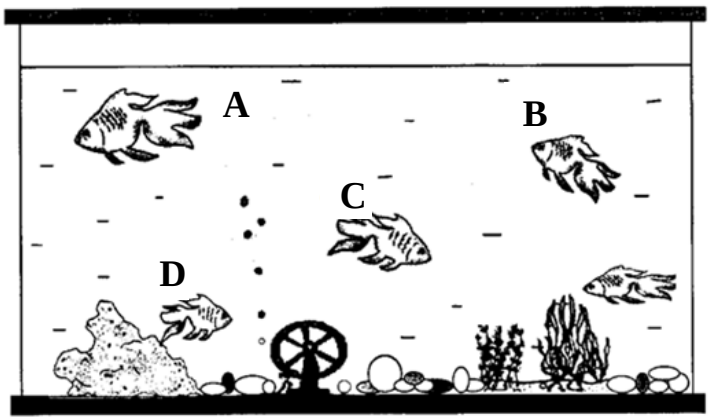


Diagram 5/*Rajah 5*

Which fish experiences the lowest pressure ?
Ikan yang manakah mengalami tekanan paling rendah?

13 Diagram 6 shows two identical bricks X and Y placed in two different ways on a sandy ground were pressed by an identical force, F.
Rajah 6 menunjukkan dua bongkah bata X dan Y yang serupa diletakkan dalam dua keadaan berbeza di atas tanah berpasir sedang ditekan dengan daya yang serupa, F.

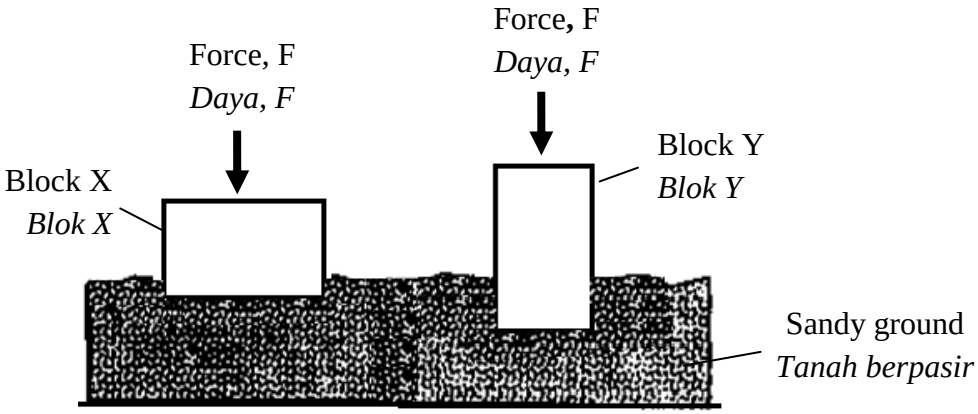


Diagram 6/*Rajah 6*

What is the factor that causes brick Y to sink more into the sand?
Apakah faktor yang menyebabkan bata Y lebih tenggelam ke dalam pasir?

A Force / *Daya*
B Weight of the block / *Berat blok*
C Pressure / *Tekanan*
D Density of the block / *Ketumpatan blok*

14 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*

15 Diagram 7 shows two barometers filled with liquid X and liquid Y respectively.
Rajah 7 menunjukkan dua barometer yang masing-masing diisi dengan cecair X *dan cecair* Y.

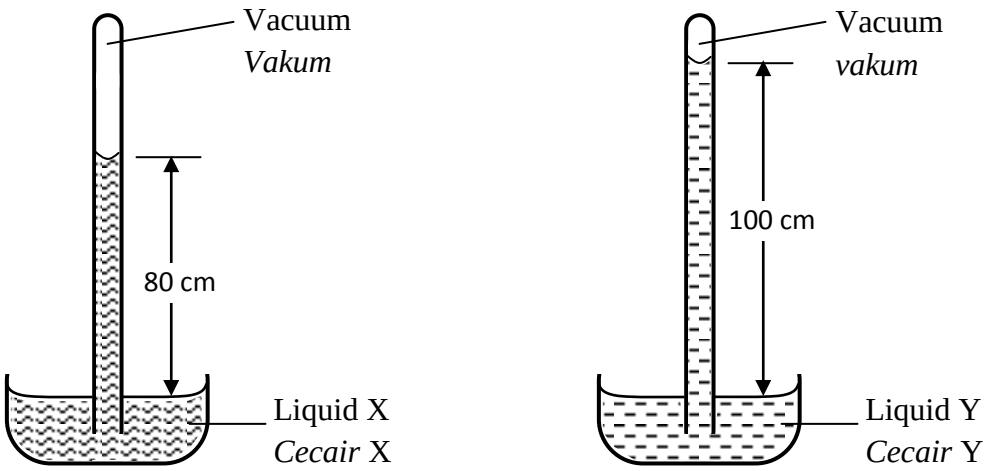


Diagram 7 / *Rajah 7*

The density of liquid X is 12 000 kg m^{-3}.
What is the density of liquid Y?
Ketumpatan cecair X *ialah* 12 000 kg m^{-3}.
Berapakah ketumpatan cecair Y?

A 2 400 kg m^{-3}

B 9 600 kg m^{-3}

C 12 180 kg m^{-3}

D 15 000 kg m^{-3}

16 What concept is used when a mercury thermometer measures temperature ?
Apakah konsep yang digunakan semasa termometer merkuri mengukur suhu ?

A Vaporisation
Pengewapan

B Fusion
Pelakuran

C Heat capacity
Muatan haba

D Thermal equilibrium
Keseimbangan terma

17 Diagram 8 shows two ping pong balls are getting closed to each others when air blown.
Rajah 8 menunjukkan dua bola ping pong menjadi dekat di antara satu sama lain apabila udara di tiupkan

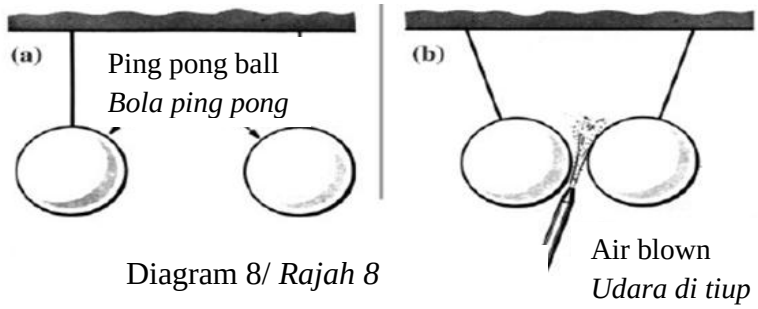


Diagram 8/ *Rajah 8*

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

A Elektric static Principle
Prinsip elektrik statik

B Bernoulli's Principle
Prinsip Bernoulli

C Pascal's Principle
Prinsip Pascal

D Archimedes Principle
Prinsip Archimedes

18 Diagram 9 shows ice cubes floating on a glass of ice
Rajah 9 menunjukkan ketulan ais yang terapung di dalam segelas air

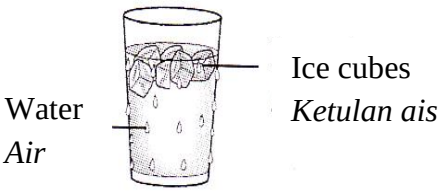


Diagram 9/*Rajah 9*

Which of the following statements is correct?
Antara pernyataan berikut, yang manakah betul?

A Weight of ice cubes = Weight of water displaced
Berat ketulan ais = Berat air yang disesarkan

B Weight of ice cubes < Weight of water displaced
Berat ketulan ais < Berat air yang disesarkan

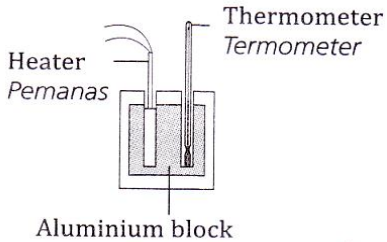
C Volume of ice cubes = Volume of water displaced
Isipadu ketulan ais = isipadu air yang disesarkan

D Density of ice cubes = density of water
Ketumpatan ketulan ais = ketumpatan air

19 Four similar heaters of same power are used to heat four types of metal blocks of equal mass as shown in the next diagrams. Which metal block will show the lowest rise in temperature after 5 minutes heating time?

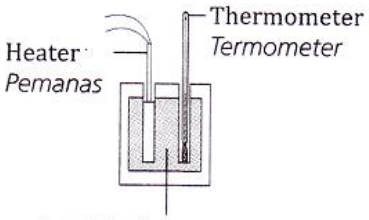
Empat buah pemanas yang serupa yang mempunyai kuasa yang sama digunakan untuk memanaskan empat jenis blok logam yang mempunyai jisim yang sama seperti yang ditunjukkan dalam rajah berikut. Logam yang manakah menunjukkan kenaikan suhu yang paling perlahan selepas pemanasan selama 5 minit?

A



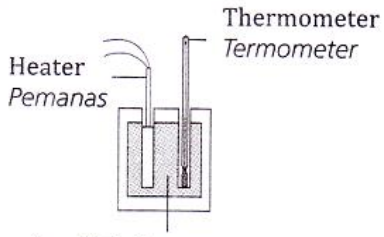
Aluminium block
[Specific heat capacity,
$c = 900\ J\ kg^{-1}\ °C^{-1}$]
Blok aluminium
[Muatan haba tentu,
$c = 900\ J\ kg^{-1}\ °C^{-1}$]

C



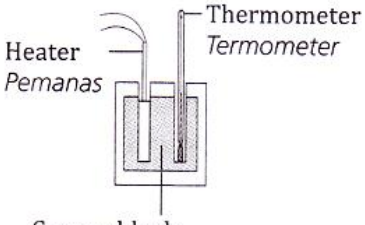
Iron block
[Specific heat capacity,
$c = 450\ J\ kg^{-1}\ °C^{-1}$]
Blok ferum
[Muatan haba tentu,
$c = 450\ J\ kg^{-1}\ °C^{-1}$]

B



Lead block
[Specific heat capacity,
$c = 130\ J\ kg^{-1}\ °C^{-1}$]
Blok plumbum
[Muatan haba tentu,
$c = 130\ J\ kg^{-1}\ °C^{-1}$]

D



Cooper block
[Specific heat capacity,
$c = 400\ J\ kg^{-1}\ °C^{-1}$]
Blok kuprum
[Muatan haba tentu,
$c = 400\ J\ kg^{-1}\ °C^{-1}$]

20 The air pressure in the tyre of a car is 210 kPa at an initial temperature of 25 ^{0}C. After a long journey the air temperature has increased to 35 ^{0}C.

What is the air pressure in the tyre after the journey ?

Tekanan udara di dalam tayar sebuah kereta ialah 210 kPa pada suhu awal 25 ^{0}C. Selepas suatu perjalanan yang jauh suhu udara itu meningkat kepada 35 ^{0}C.

Berapakah tekanan udara di dalam tayar selepas perjalanan tersebut ?

A 150 kPa C 294 kPa

B 217 kPa D 437 kPa

21 There is no rise in temperature when heat is supplied to change water to steam.
Which of the following explains this observation?
Suhu tidak meningkat apabila haba dibekalkan untuk menukarkan air kepada stim.
Antara yang berikut yang manakah menerangkan pemerhatian tersebut?

A The heat is used to exert pressure on molecules.
Haba digunakan untuk mengenakan tekanan pada molekul-molekul.

B The heat is used to increase the vibrations of molecules.
Haba digunakan untuk meningkatkan getaran molekul-molekul.

C The heat is used to increase the kinetic energy of molecules.
Haba digunakan untuk meningkatkan tenaga kinetik molekul-molekul.

D The heat is used to overcome the attractive forces between molecules.
Haba digunakan untuk mengatasi daya tarikan antara molekul-molekul.

22 Diagram 10 shows thumbtack is placed in front of a plane mirror.
Rajah 10 menunjukkan sebiji paku tekan yang diletakkan di hadapan sebuah cermin satah.

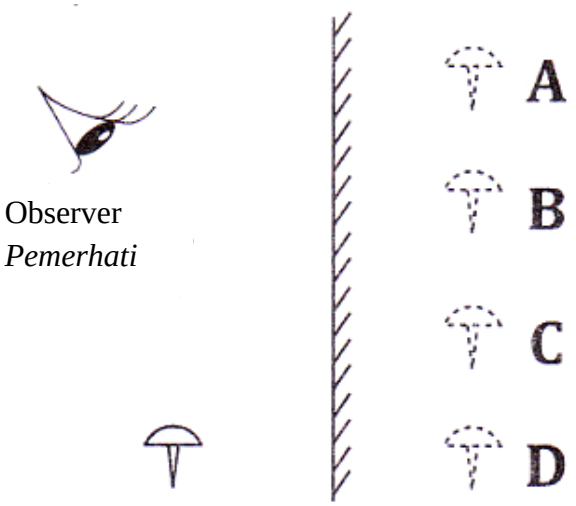


Diagram 10/ Rajah 10

At which position, A, B, C or D is the image of the thumbtack as seen by the observer?
Pada kedudukan yang manakah, A, B, C atau D imej paku tekan dilihat oleh pemerhati tersebut?

23 Diagram 11 shows a ray of light travels through a glass block.
Rajah 11 menunjukkan sinar cahaya melalui blok kaca

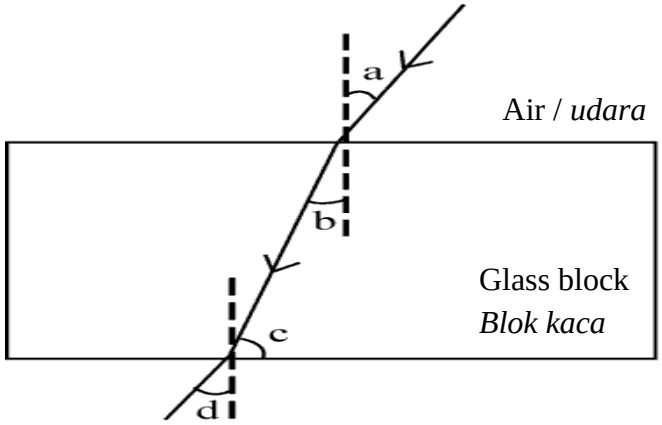


Diagram 11/*Rajah 11*

What is the refractive index?
Apakah indeks biasan kaca tersebut?

A $\frac{\sin a}{\sin b}$ C $\frac{\sin a}{\sin d}$

B $\frac{\sin b}{\sin a}$ D $\frac{\sin d}{\sin c}$

24 Diagram 12, shows a ray, X, is directed into a glass block. The critical angle of the glass is 42^{o}. Which direction does the light travels from point Y ?
Gambar 12, rajah menunjukkan sinar X ditujukan ke dalam blok kaca. Sudut genting kaca ialah 42^{0}. Ke manakah arah sinar merambat dari titik Y?

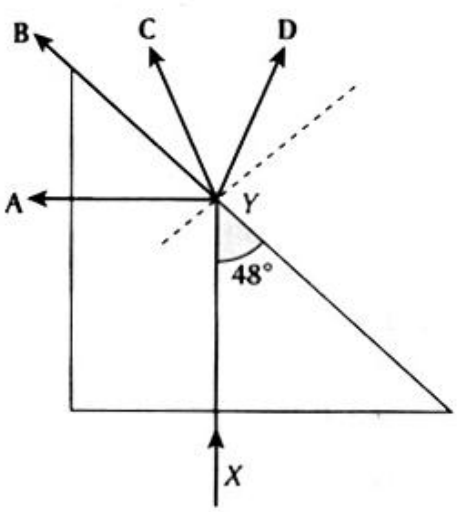


Diagram 12/*Rajah 12*

25 Diagram 13 shows an object in front of a convex lens and its image.
Rajah 13 menunjukkan suatu objek di hadapan sebuah kanta cembung dan imejnya.

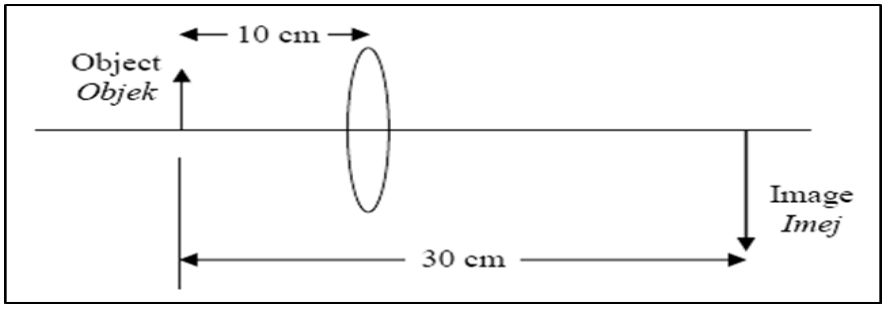


Diagram 13/*Rajah 13*

What is the focal length of the lens?
Berapakah panjang fokus kanta itu?

A 20.00 cm C 6.67 cm

B 7.50 cm D 0.15 cm

26 Diagram 14 shows the displacement – time graph of an oscillating spring.
Rajah 14 menunjukkan graf sesaran – masa bagi suatu ayunan spring.

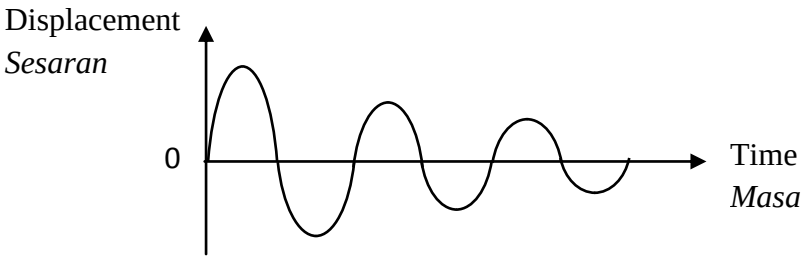


Diagram 14 / *Rajah 14*

The spring is undergoing
Spring itu sedang mengalami

A damping
pelembapan

B resonance
Resonans

C forced oscillation
ayunan paksaan

D interference
interferens

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27 Diagram 15 shows a sound wave reflected from a barrier. Compare with the incident wave, the reflected wave has
Rajah 15 *menunjukkan satu gelombang bunyi dipantulkan daripada satu penghalang. Berbanding dengan gelombang tuju, gelombang terpantul mempunyai*

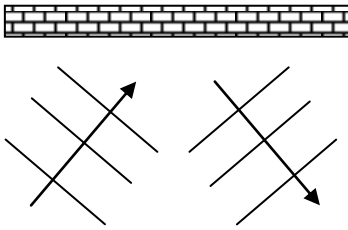


Diagram15
Rajah 15

A a smaller velocity
halaju yang lebih kecil

B a bigger amplitude
amplitud yang lebih besar

C the same frequency
frekuensi yang sama

D a shorter wavelength
jarak gelombang yang lebih pendek

28 Diagram 16 shows the seabed near the shore. Which of the following changes happened when the waves approaches the shore ?
Rajah 16 menunjukkan lantai lautan berhampiran pantai. Perubahan manakah berlaku apabila gelombang itu menghampiri pantai ?

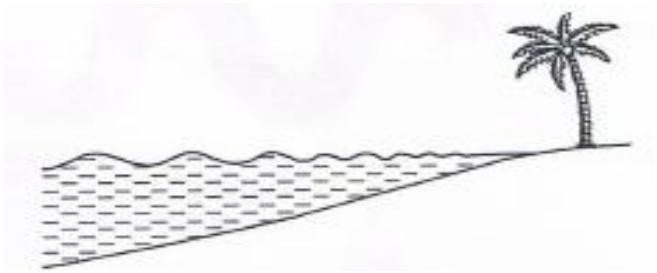


Diagram 16 / *Rajah 16*

	Velocity halaju	Frequency Frekuensi	Wavelength Panjang gelombang
A	Decrease Berkurangan	Increase Bertambah	Constant Tetap
B	Decrease Berkurangan	Constant Tetap	Decrease Berkurangan
C	Increase Bertambah	Constant Tetap	Decrease Berkurangan
D	Constant Tetap	Increase Bertambah	Decrease Berkurangan

29 In an experiment of light using green light of wavelength 5×10^{-7} m, two consecutive bright fringes formed on the screen ore 0.40 mm apart.
When the experiment is repeated using monochromatic light, L, two consecutive bright fringes formed 0.48 mm are apart.
Dalam satu eksperimen interferens cahaya menggunakan cahaya hijau dengan panjang gelombang 5×10^{-7} m, jarak antara dua jalur cerah bersebelahan yang terbentuk pada skrin adalah 0.40 mm. Apabila eksperimen diulang menggunakan cahaya monokromatik L, jarak antara dua jalur cerah bersebelahan yang terbentuk pada skrin adalah 0.48 mm

What is the wavelength of monochromatic light, L ?
Apakah panjang gelombang cahaya monokromatik, L ?

A 2.4×10^{-7} m C 5.0×10^{-7} m

B 4.2×10^{-7} m D 6.0×10^{-7} m

30 Which of the following factors affect the pitch of a sound?
Faktor yang manakah berikut mempengaruhi kelangsingan bunyi?

A Amplitude
Amplitud

B Frequency
Frekuensi

C Speed
Kelajuan

D Wavelength
Panjang gelombang

31 Which of the following is the correct arrangement of electromagnetic spectrum in the increasing order of their frequency?
Antara susunan gelombang elektromagnet berikut, yang manakah disusun mengikut tertib frekuensi bertambah?

A X- ray, radio wave, microwave
Sinar x, gelombang radio, gelombang mikro

B radio wave , visible light, X- ray
Gelombang radio, cahaya nampak, sinar x

C γ- ray, radio wave, X- ray
Sinar gamma, gelombang radio, sinar x

D radio wave , X- ray, visible light
Gelombang radio, sinar x, cahaya nampak

32 Diagram 17 shows the setup of the apparatus to study the pattern of the magnetic field produced by the current in a straight wire.
Rajah 17 menunjukkan susunan radas bagi mengkaji pola medan magnet yang dihasilkan oleh arus yang mengalir dalam satu dawai lurus.

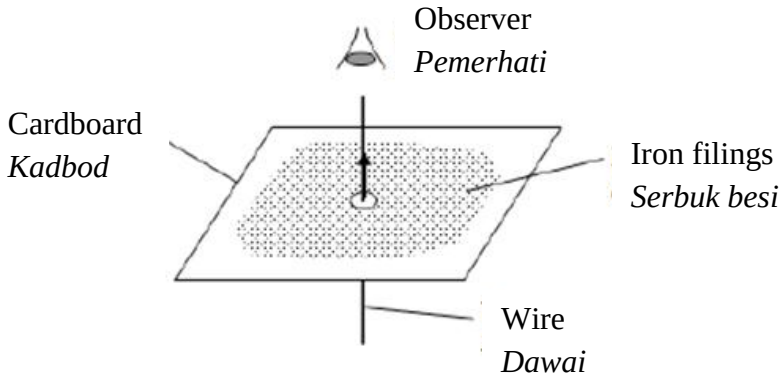
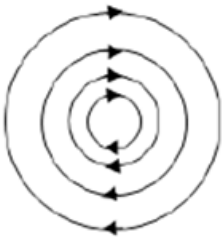


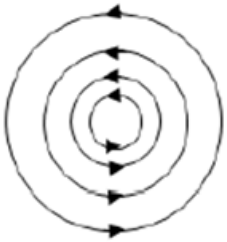
Diagram 17 / *Rajah 17*

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 ?

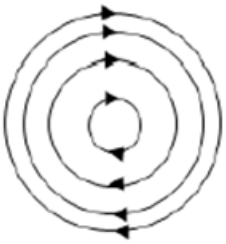
A



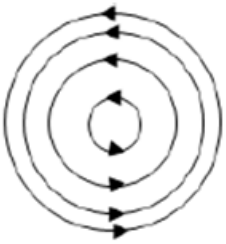
C



B



D



33 Diagram 18 shows a parallel circuit R_1 is not equal to R_2.
Rajah 18 menunjukkan satu litar selari. R_1 tidak sama dengan R_2.

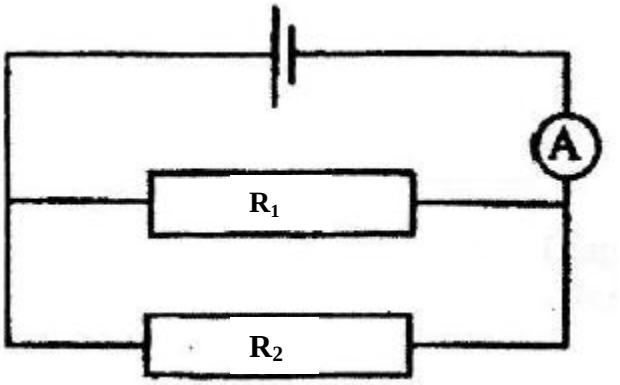


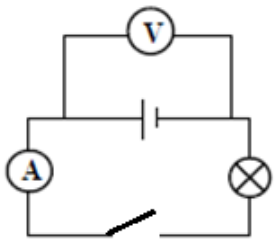
Diagram 18 / *Rajah 18*

Which physical quantity must be the same for both R_1 and R_2 ?
Kuantiti fzik yang manakah mesti sama untuk kedua-dua R_1 dan R_2 ?

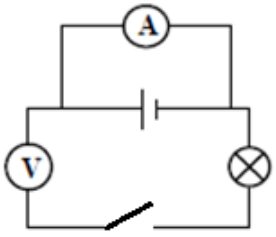
A	Power *Kuasa*	C	Voltage *Voltan*
B	Curent *Arus*	D	Energy *Tenaga*

34 Which circuit can be used to determine the electromotive force of a battery?
Litar yang manakah boleh digunakam untuk menentukan daya gerak elektrik?

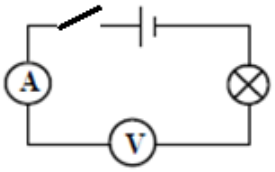
A



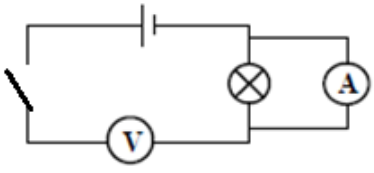
B



C



D



35 Which of the following electrical appliances consumed the most energy?
Antara alatan elektrik berikut yang manakah menggunakan paling banyak tenaga?

A

Blender
240 V 300 W
10 minutes

Blender
240 V 300 W
10 minit

C

Kettle
240 V 600 W
15 minutes

Cerek
240V 600 W
15 minit

B

Fan
240 V 200 W
3 hours

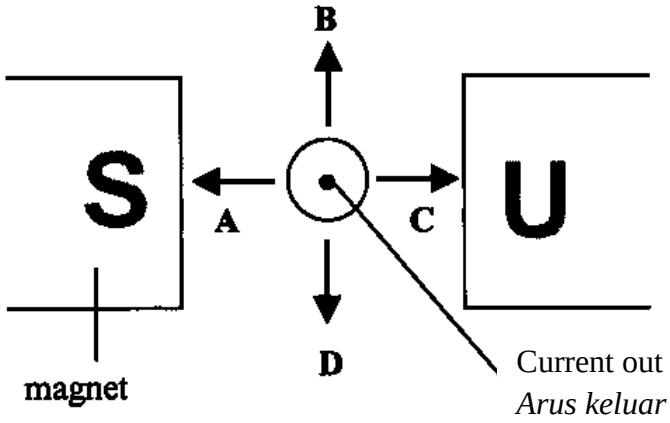
Kipas
240 V 200 W
3 jam

D

Oven
240 V 1500W
20 minutes

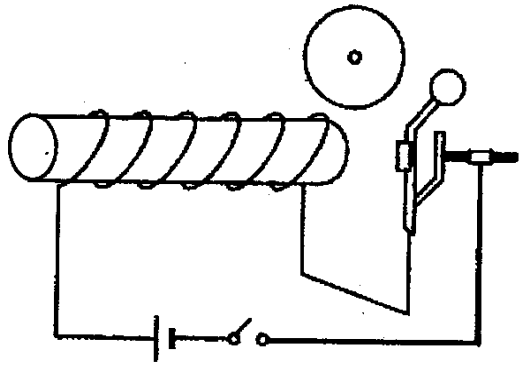
Ketuhar
240V 1500W
20 minit

36 The diagram shows a current-carrying conductor placed between two magnetic poles.
Gambar rajah menunjukkan satu konduktor berarus di antara dua kutub magnet.



Of the marked directions **A**, **B**, **C** and **D**, which shows the direction of motion of the conductor?
Antara arah **A, B, C** *and* **D**, *yang manakah adalah arah gerakan bagi konduktor tersebut?*

37 The diagram shows an electric bell circuit.
Rajah menunjukkan litar suatu loceng elektrik.



Which of the following **does not** effect the loudness sound of the bell when the switch is closed?
*Manakah yang berikut **tidak** mempengaruhi kekuatan bunyi loceng apabila suis ditutup?*

A Reverse the polarity of the dry cell
Menukarkan kekutuban sel kering.

B Increase the number of dry cells.
Menambahkan bilangan sel kering.

C Increase the number of turns in the coil.
Menambahkan bilangan lilitan gegelung.

D The presence of soft iron core.
Kehadiran teras besi lembut.

38 The function of a transformer in an electrical energy transmission system is to
Fungsi sebuah transformer dalam sistem penghantaran tenaga elektrik adalah untuk

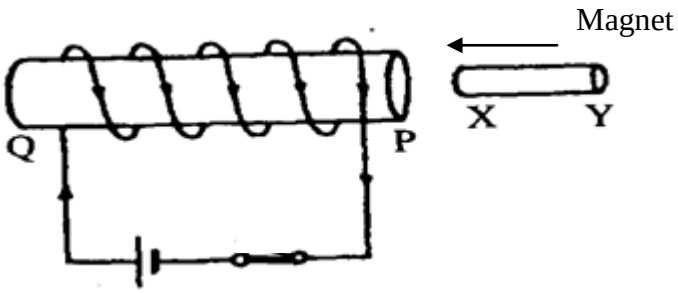
A Increase the power
Meningkatkan kuasa

B Reduce the resistance
Merendah rintangan

C Change the voltage
Mengubah voltan

D Speed up the time of transmission
Mempercepatkan masa penghantaran

39 The diagram shows the situation when the switch is on. Which of the following pairs of poles is correct?.
Rajah menunjukkan situasi apabila suis di tutup. Manakah antara pasangan kutub adalah betul



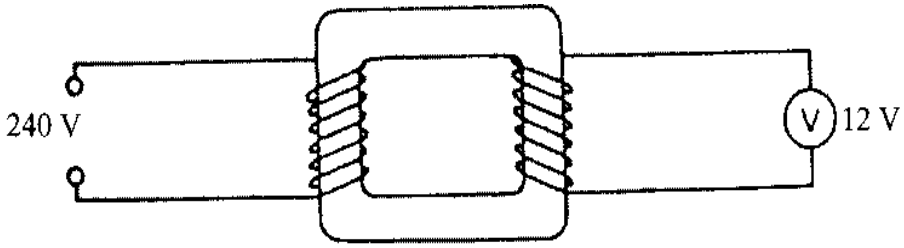
A P is north and X is north
P utara dan X utara

B P is south and X is south
P selatan dan X selatan

C P is north and X is south
P utara dan X selatan

D Q is north and X is north
Q utara dan X utara

40 The diagram shows a transformer used to change an input voltage of 240 V to 12 V.
Gambar rajah menunjukkan sebuah transformer digunakan untuk menukarkan voltan input 240 V kepada 12 V.



If the primary coil has 1200 turns, how many turns must the secondary coil have?
Jika gegelung primer mempunyai 1200 lilitan, berapakah bilangan lilitan yang diperlukan untuk gegelung sekunder?

A 24000 C 600

B 12000 D 60

41 Which of the following is the characteristic of the National Grid Network in electricity transmission?
Manakah yang berikut adalah ciri Rangkaian Grid Nasional dalam penghantaran tenaga elektrik?

A During non peak hours, some power stations can be closed to cut cost.
Semasa bukan waktu puncak, sebahagian stesen kuasa boleh ditutup untuk menjimatkan kos.

B During non peak hours of electricity usage, the operation of some power stations can not be stopped for repair and maintenances purposes.
Semasa penggunaan elektrik pada bukan waktu puncak, sebahagian stesen kuasa tidak boleh diberhentikan untuk tujuan pembaikkan dan penyelenggaraan..

C When one power station breaks down, the whole country's electricity supply will be affected.
Apabila sebuah stesen kuasa rosak, keseluruhan bekalan elektrik negara akan terganggu.

D During peak hours of electricity usage, the electricity can be transmitted at low potential difference.
Semasa penggunaan elektrik pada waktu puncak tenaga elektrik boleh diagihkan pada beza keupayaan rendah.

42 Diagram 19 shows the crystalline structure of silicon which is doped by adding impurity atom, p to form a semiconductor.
Rajah 19 menunjukkan struktur hablur silicon yang didopkan dengan atom bendasing, p untuk membentuk satu semikonduktor.

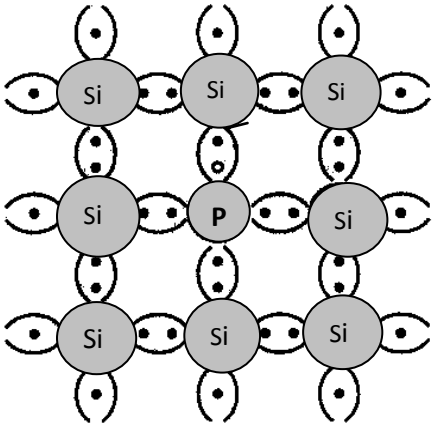


Diagram 19/*Rajah 19*

The impurity atom, p is
Atom bendasing, p ialah

A monovalent atom.
atom monovalens

B divalent atom.
atom dwivalens.

C trivalent atom.
atom trivalens.

D tetravalent atom.
atom tetravalens.

43 Thermionic emission involves
Pancaran termionik melibatkan

A the ionization of the surrounding air by heat.
pengionan udara persekitaran oleh haba.

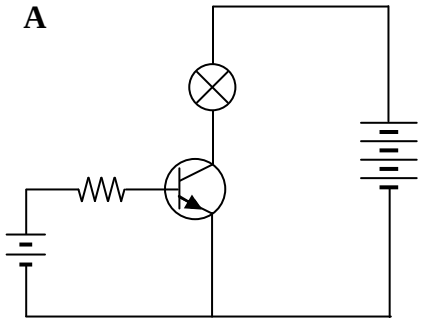
B the release of electron from the surface of the heated metal.
pembebasan elektron dari permukaan logam yang dipanaskan.

C the deflection of an electron beam by the Y-plate.
pesongan sinar elektron oleh plat-Y.

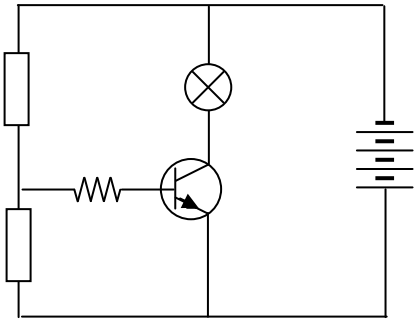
D the forming of a bright spot when the electrons strike the fluorescent screen.
pembentukan bintik cerah apabila elektron melanggar skrin ber pendaflour.

44 Which circuit will **not** light up the bulb?
*Litar yang manakah **tidak** akan menyalakan mentol?*

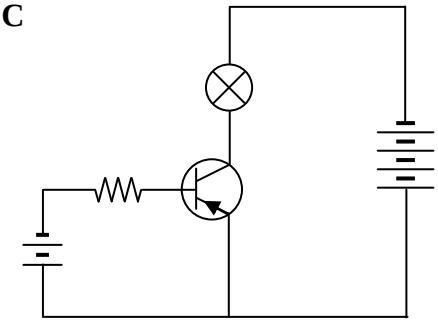
A



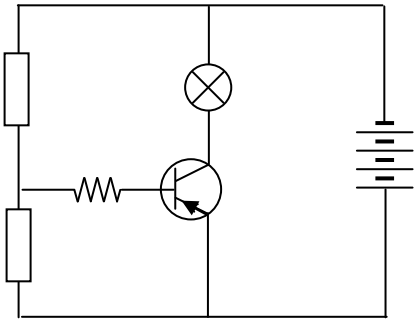
B



C



D



45 Diagram 20 shows a logic gate P and its truth table.
Rajah 20 menunjukkan sebuah get logic P dan jadual kebenarannya

Diagram 20/*Rajah 20*

Input		Output
J	**K**	**X**
0	0	1
0	1	1
1	0	1
1	1	0

Name the logic gate P.
Namakan get logic P.

A OR gate
Get ATAU

B AND gate
Get DAN

C NAND gate
Get TAKDAN

D NOR gate
Get TAKATAU

46 Which of the following statement is a characteristic of gamma radiation?
Antara pernyataan berikut yang manakah sifat sinaran gamma?

A It has positif charge
Mempunyai cas positif

B It has a lower penetrating power than alpha
Kuasa penembusan yang lebih rendah daripada alfa

C It has a higher ionizing power than alpha
Kuasa pengionan lebih tinggi daripada alfa

D It is an electromagnetic wave
Sejenis gelombang elektromagnet

47 Diagram 21 is a graph which shows the decay curve of a radioaktive material
Rajah 21 ialah graf yang menunjukkan lengkung pereputan suatu bahan radioaktif

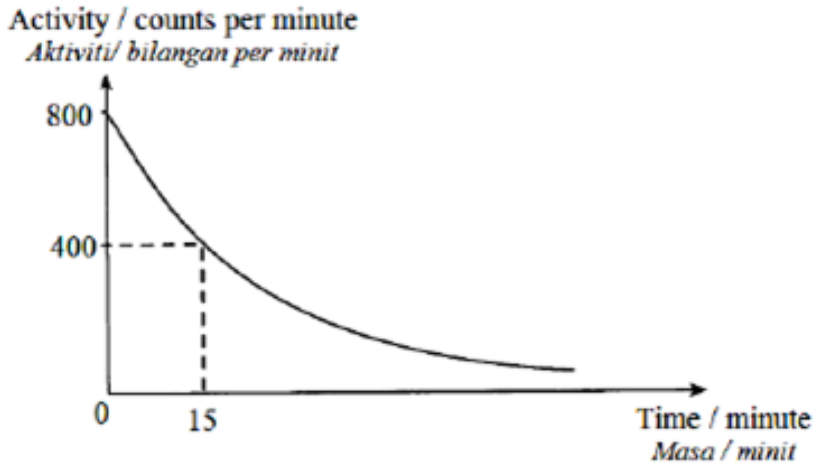


Diagram 21/*Rajah 21*

If the initial of the radioaktif material is 800 count per minute, What is the activity after 1 hour ?
Jika aktiviti awal bahan radioaktif itu ialah 800 bilangan per minit, berapakah aktivitinya selepas 1 jam ?

A 400 C 200

B 100 D 50

48 In a nuclear fission reaction, the mass defect is 0.02u. What is the energy released?
Dalam satu tindakbalas pembelahan nuklear, cacat jisim yang terhasil ialah 0.02u. Berapakah tenaga yang dibebaskan?
[Halaju cahaya = 3×10^{8} ms^{-1}, $1u = 1.66 \times 10^{-27}$ kg]
[Speed of light = 3×10^{8} ms^{-1}, $1u = 1.66 \times 10^{-27}$ kg]

A 1.80×10^{17} J C 2.99×10^{-12} J

B 6.00×10^{6} J D 9.96×10^{-21} J

49 Which radioisotope is most suitable to be used to detect leakage in underground water pipes?
Radioisotop manakah yang paling sesuai untuk digunakan untuk mengesan kebocoran paip air di dalam tanah?

	Radioisotope *Radioisotop*	Half-life *Separuh hayat*
A	J	30 seconds *30 saat*
B	K	13 hours *13 jam*
C	L	4 months *4 bulan*
D	M	5 years *5 tahun*

50 Lead and concrete are suitable to be used as a container of radioactive waste because
Plumbum dan konkrit adalah sesuai digunakan sebagai bekas sisa radioaktif kerana

A are easily available
Mudah didapati

B have high melting point
Mempunyai takat lebur yang tinggi

C are able to withstand radiation of radioactive
Dapat menahan sinaran radioaktif

D have long half life
Mempunyai setengah hayat yang panjang

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