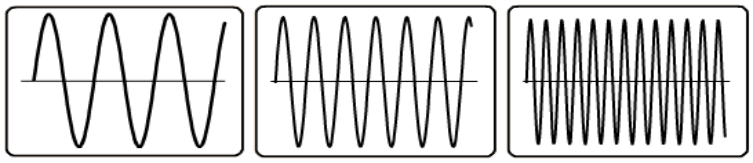
JAWAB SEMUA SOALAN

1. Which of the following component in the electromagnetic spectrum has the shortest wavelength.
Mana di antara komponen berikut dalam spektrum electromagnet mempunyai panjang
gelombang yang paling pendek.

A γ - ray
Sinar -γ
B X-ray
Sinar -X
C Ultraviolet
Ultra ungu
D Microwave
Gelombang micro

2. The diagrams show sound waves from a piano.
Rajah menunjukkan gelombang bunyi dari sebuah piano.



P **Q** **R**

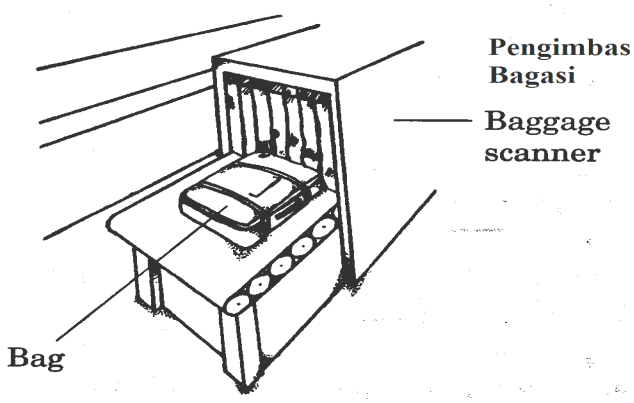
Which of the following statements is true?
Pernyataan yang mana benar?

A P has a higher pitch than Q
P lebih nyaring daripada Q
B Q has a higher pitch than R
Q lebih nyaring daripada R
C R has the highest pitch
R paling nyaring
D P, Q and R have the same pitch
P , Q dan R mempunyai kenyaringan yang sama

3. The food is being cooked by which component of the electromagnet wave ? *Makanan itu dimasak dengan menggunakan komponen elektromagnet yang mana ?*

A Infrared
Inframerah
B Ultraviolet
Ultraungu
C Gamma rays
Sinaran gamma
D Microwaves
Gelombang mikro

4. At an airport, a passenger's bag is placed in the baggage scanner.
Di sebuah lapangan terbang, beg penumpang diletakkan dalam sebuah pengimbas bagasi



The contents in the bag are examined by using
Kandungan dalam beg diimbas dengan menggunakan

A X-ray
Sinar-X
B Gamma rays
Sinar Gama
C Ultraviolet rays
Sinar Ultraungu
D Infrared rays
Sinar Inframerah

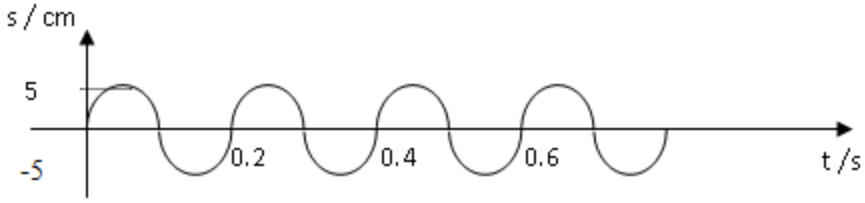
5. Which arrangement below shows the different types of electromagnetic waves in order of increasing frequency?
Mana di antara susunan berikut menunjukkan berbagai jenis gelombang electromagnet disusun dalam turutan menaik dari segi frekuensi?

A. X-rays, radio waves, microwaves
Sinar-X, gelombang radio, gelombang mikro
B. Radio waves, visible light, X-rays
Gelombang radio, cahaya nampak, Sinar-X
C. Gamma rays, radio waves, X-rays
Sinar gamma, gelombang radio, Sinar-X
D. Radio waves, X-rays, visible light
Gelombang radio, Sinar-X, cahaya nampak

6. Which of the following waves is longitudinal wave ?
Antara gelombang berikut, yang manakah gelombang membujur?

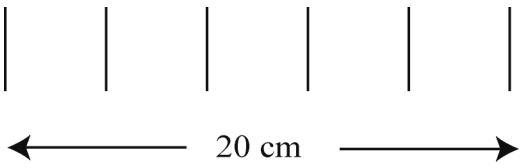
A. Radio wave
Gelombang radio
B. Ultrasonic wave
Gelombang ultrasonik
C. Water wave
Gelombang air
D. Light wave
Gelombang cahaya

7. What is the amplitude of the wave ?
Berapakah nilai amplitud gelombang tersebut ?



A. 5 cm B. 10 cm C. 0.2 cm D. 0.6 cm

8.The diagram below shows the wavefronts produced in a ripple tank. What is the wavelength of the water wave produced?
Rajah di bawah menunjukkan muka gelombang yang terhasil di dalam satu tangki riak. Berapakah panjang gelombang untuk gelombang air yang terhasil ?

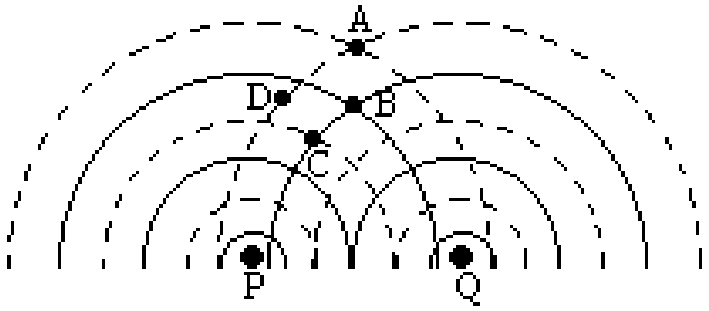


A. 4 cm B. 8 cm C. 10 cm D. 15 cm E. 20 cm

9. What is the difference between a transverse wave and a longitudinal wave ?
Apakah perbezaan di antara gelombang melintang dan gelombang membujur ?

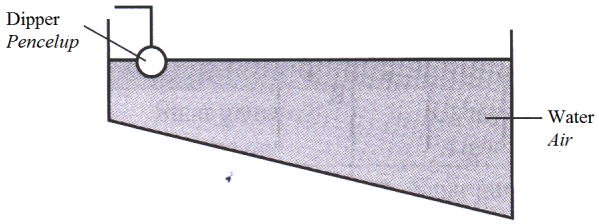
A the amplitude of wave
amplitud gelombang
B the speed of propagation of wave
halaju gelombang merambat
C the period of wave
tempoh gelombang
D the direction of vibration of particles with the direction of the propagation of the wave
arah getaran zarah medium dengan arah rambatan gelombang

10. The diagram below shows an interference pattern of two coherent water waves of sources, P and Q.
Rajah di bawah menunjukkan satu corak interferens disebabkan oleh dua sumber gelombang air, P dan Q yang koheren.



Which of the positions A, B, C and D does the amplitude of waves are zero?
Antara titik berlabel A, B, C dan D yang manakah menunjukkan amplitud gelombang adalah sifar?

11.The diagram below shows a dipper vibrates in a swimming pool with a sloping base
Rajah di bawah menunjukkan suatu pencelup bergetar di dalam kolam renang dengan dasar condong.



Which of the following shows the cross section of the waves on the water surface?

Antara berikut, yang manakah menunjukkan keratan rentas gelombang pada permukaan air ?

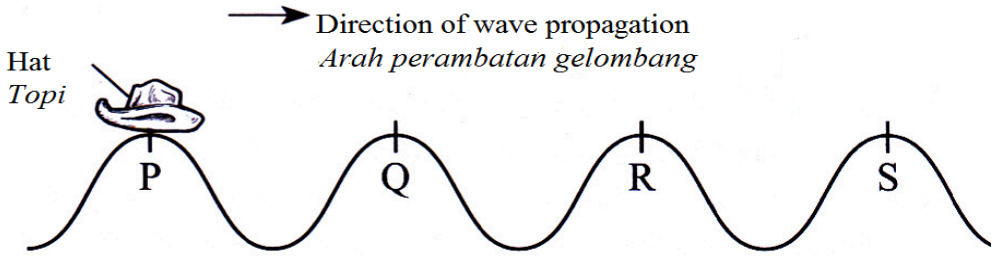
A 

B 

C 

D 

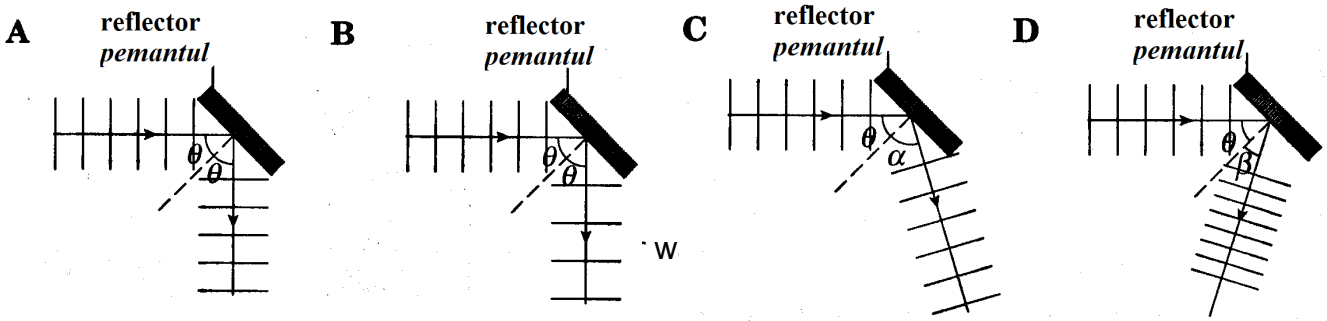
12. Diagram below shows a hat oscillating perpendicularly to the direction of the wave propagation on the water surface.
Rajah di bawah menunjukkan sebuah topi berayun berserenjang dengan arah perambatan gelombang pada permukaan air.



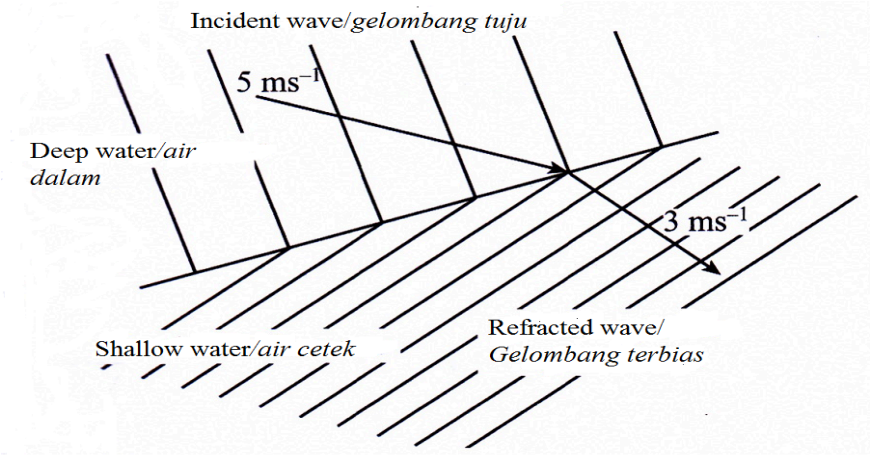
Where will be the hat, if it has made one complete oscillation?
Di manakah topi itu jika ia telah membuat satu ayunan lengkap ?

A. P B. Q C. R D. S

13 . Which diagram shows the correct pattern of reflected water waves?
Rajah manakah yang menunjukkan corak pantul gelombang air yang betul?



14. The diagram below shows the velocity of water wave when it travels from deep region to shallow region.
Rajah di bawah menunjukkan halaju gelombang air apabila ia merambat dari air dalam ke air cetek.



If the wavelength of the water waves in deep water is 3 cm, what is the wavelength of the water waves in shallow water ?
Jika panjang gelombang air di kawasan air dalam ialah 3 cm, apakah panjang gelombang air di kawasan air cetek?

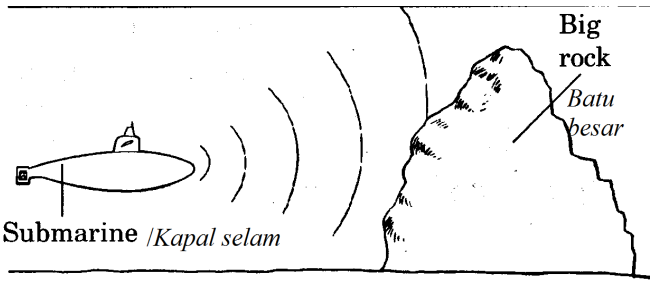
A. 0.16 cm B. 1.8 cm C. 2.0 cm D. 5.0 cm

15. In a Young`s double-slit experiment, the distance between bright fringes and dark fringes is **not** dependent on
*Dalam eksperimen dwicelah Young, jarak di antara pinggir cerah dan pinggir gelap adalah **tidak** bergantung kepada*

A. the colour of light
warna cahaya
B. separation distance between the slits
jarak pemisahan antara celah
C. the intensity of light
keamatan cahaya
D. distance between the sources and the detector plane
jarak antara sumber dan satah pengesan

16. Diagram below shows a submarine transmitting ultrasonic waves directed at a big rock on the sea bed. After 10 seconds, the submarine detects the reflected wave.

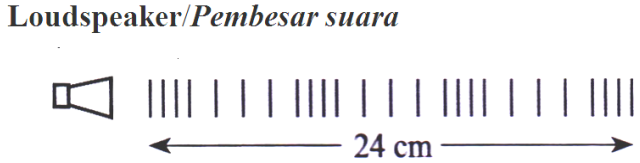
Rajah di bawah menunjukkan satu kapal selam memancarkan gelombang ultrasonic ke arah satu batu besar di dasar laut. Selepas 10 saat, kapal selam mengesan gelombang terpantul.



Calculate the distance of the submarine from the big rock. [Velocity of ultrasonic wave = 1 560 m/s]
Kirakan jarak antara kapal selam dari batu besar [Halaju gelombang ultrasonic = 1560 m/s]

A .3.9 km D. 31.2 km B. 7.8 km E.156.6 km

17. Diagram below shows a series of sound waves produced by a loudspeaker.
Rajah di bawah menunjukkan satu siri gelombang bunyi yang dihasilkan oleh sebuah pembesar suara.



If the frequency of the sound waves is 15 Hz, the speed of the sound waves is
Jika frekuensi gelombang bunyi itu ialah 15 Hz, laju gelombang bunyi ialah

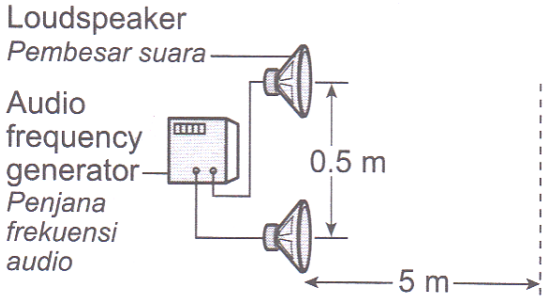
A. 60 cm/s B. 120 cm/s C. 180 cm/s D. 360 cm/s

18. Which of the following sets of velocity, wavelength and frequency of a water wave that travels from a deep region to a shallow region is correct?
Antara set halaju, panjang gelombang dan frekuensi gelombang air yang bergerak dari kawasan dalam ke kawasan cetek, yang manakah betul?

	Frequency *Frekkuensi*	Wavelength *Panjang gelombang*	Velocity *Halaju*
A	No change *Tiada perubahan*	Decreases *Berkurang*	Decreases *Berkurang*
B	No change *Tiada perubahan*	Increases *Bertambah*	Increases *Bertambah*
C	Decreases *Berkurang*	Decreases *Berkurang*	Decreases *Berkurang*
D	No change *Tiada perubahan*	Increases *Bertambah*	Decreases *Berkurang*

19. Diagram below shows the arrangement of apparatus used to study the effect of waves. Given that the distance between two consecutive weak sounds is 1.0 m

Rajah di bawah menunjukkan susunan radas yang digunakan untuk mengkaji kesan interferens gelombang bunyi. Diberi jarak di antara dua bunyi lemah yang berturutan ialah 1.0 m

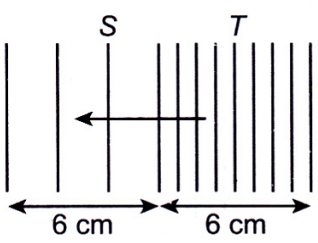


What is the wavelength of the sound wave generated?
Berapakah panjang gelombang bunyi yang dijanakan?

A. 0.05 m B. 0.10 m C. 0.50 m D. 0.75 m

20. Diagram below shows the wavefronts of a plane wave travelling from region T to region S which has a different depth.

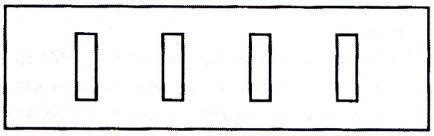
Rajah di bawah menunjukkan muka gelombang suatu gelombang satah yang bergerak dari kawasan T ke kawasan S yang mempunyai kedalaman yang berlainan.



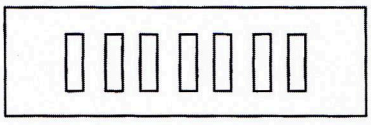
If the speed of the water wave in the region S is 10 cm/s, what is the speed of the water wave in region T ?
Jika laju gelombang air di kawasan S ialah 10 cm/s, berapakah laju gelombang air di kawasan T?

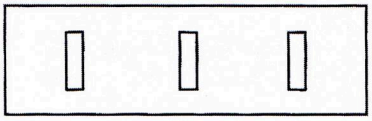
A. 0.75 cm/s B. 2.00 cm/s C. 3.75 cm/s D. 5.00 cm/s

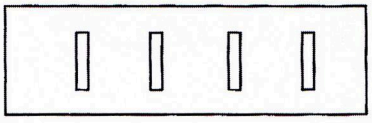
21. Diagram below shows the fringes obtained when red light is used in a Young's double slit experiment.
Rajah di bawah menunujukkan pinggir-pinggir yang diperoleh apabila cahaya merah digunakan dalam eksperimen dwicelah Young.

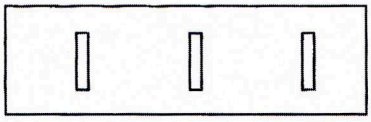


Which of the following fringes are observed when the red light is replaced by the blue light?
Antara yang berikut, yang manakah merupakan pinggir-pinggir yang diperhatikan jika cahaya merah digantikan dengan cahaya biru.

A


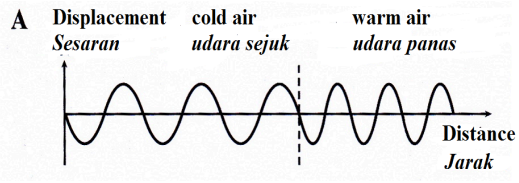
B


C


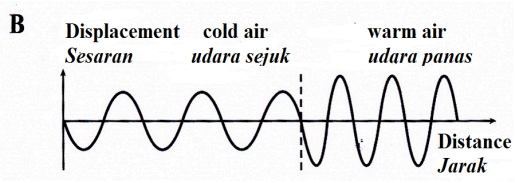
D


22. Which of the following displacement-distance graphs shows sound waves moving from cold air to warm air
Antara graf sesaran-jarak berikut yang manakah mewakili gerakan gelombang bunyi dari udara sejuk ke udara panas

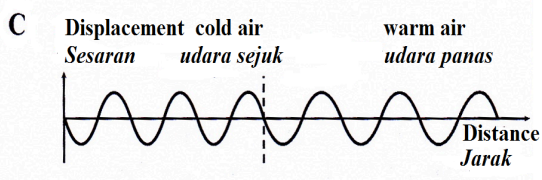
A



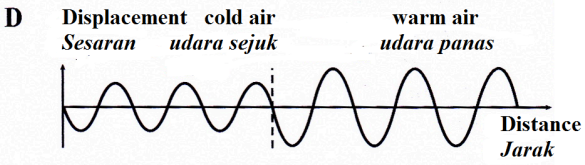
B



C



D



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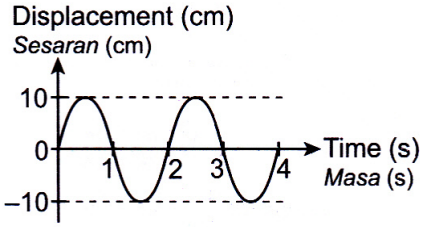
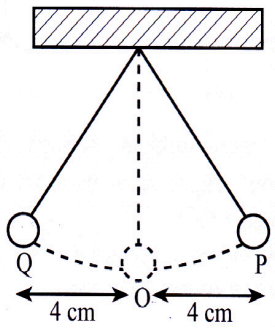
23. Diagram below shows the displacement-time graph of a wave
Rajah di bawah menunjukkan graf sesaran-masa bagi suatu gelombang



If the wavelength of the wave is 3.0 m, what is the speed of the wave?
Jika panjang gelombang ialah 3.0 m, berapakah laju gelombang itu?

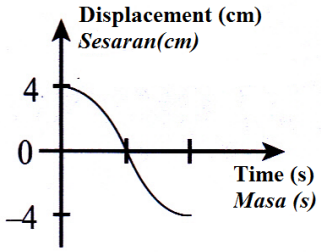
A. 1.5 m/s B. 2.0 m/s C. 2.5 m/s D. 3.0 m/s

24. Diagram below shows a simple pendulum oscillating between P and Q
Rajah di bawah menunjukkan satu bandul ringkas berayun antara P dan Q

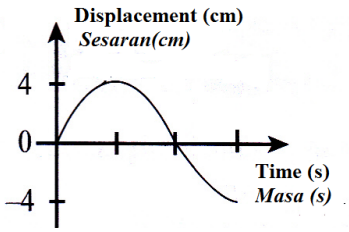


Which of the following displacement-time graphs represents oscillation of the pendulum from O to P and back to Q?
Graf sesaran-masa yang manakah mewakili ayunan bandul dari O ke P dan kembali semula ke Q?

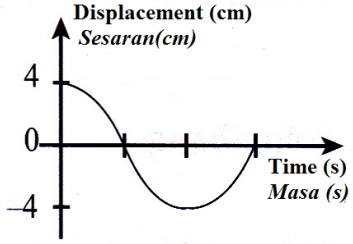
A



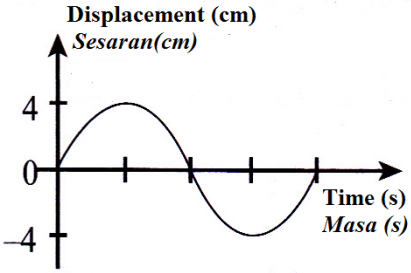
B



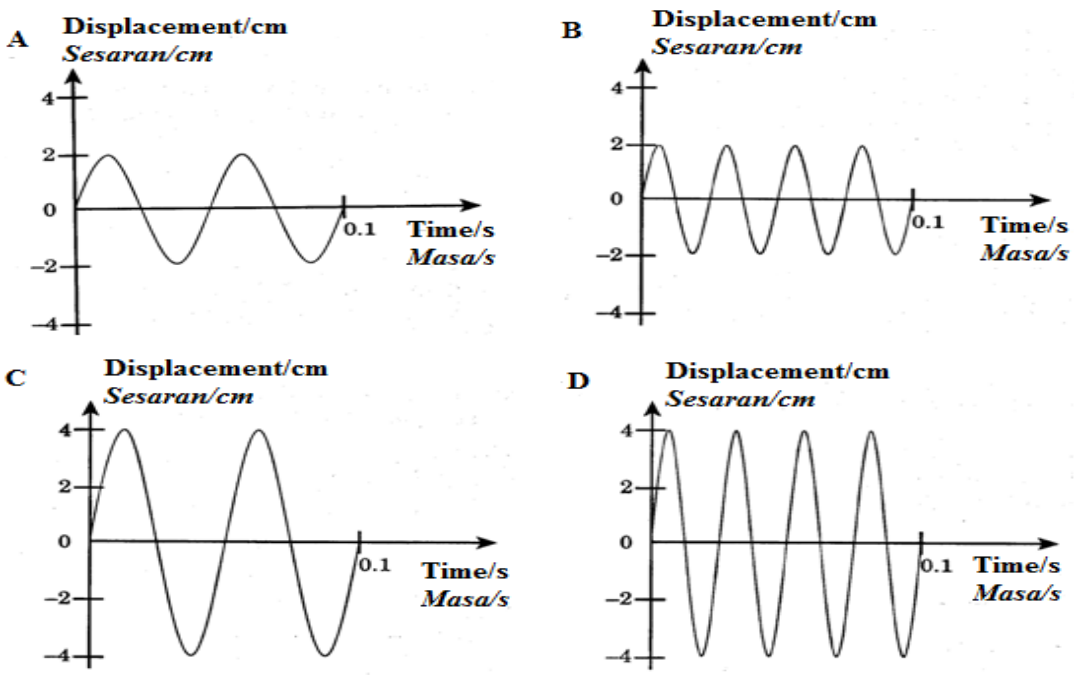
C



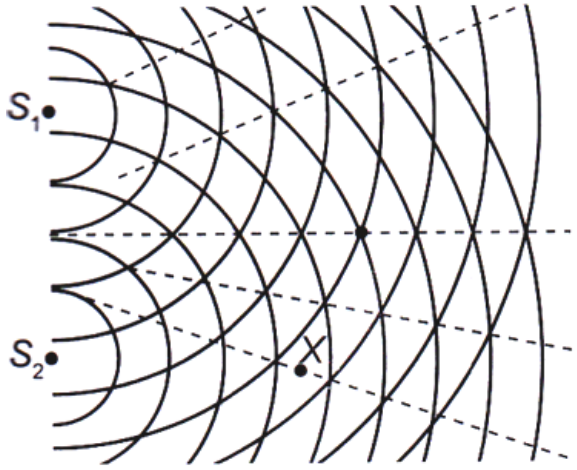
D



25. Which graph represents a wave with amplitude of 4. 0 cm and period of 0.05 s?
Mana di antara graf menunjukkan gelombang beramplitud 4.0 cm dan tempoh 0.05 s?



26. Diagram below shows the interference pattern of water waves from two coherent sources, S_1 and S_2.
Rajah di bawah menunjukkan corak interferens gelombang air daripada dua punca yang coherent S_1, dan S_2.

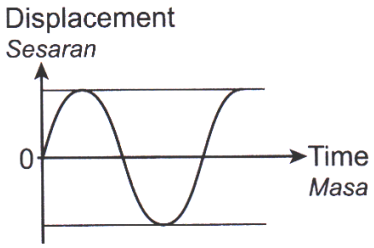


Which of the groups describe the interference at point X correctly?
Kumpulan yang manakah menerangkan interferens pada titik X dengan betul?

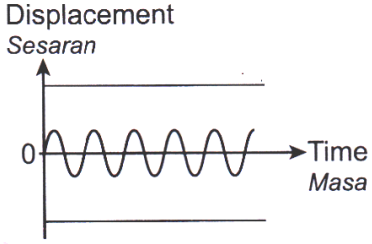
	Wave from source S_1 *Gelombang daripada sumber S_1*	Wave from source S_2 *Gelombang daripada sumber S_2*	Result *Kesan*
A			
B			
C			
D			

27. Which of the following displacement-time graphs is most suitable to represent a loud sound with a low pitch?
Antara graf sesaran-masa berikut, yang manakah paling sesuai mewakili bunyi nyaring dengan kelangsingan yang rendah?

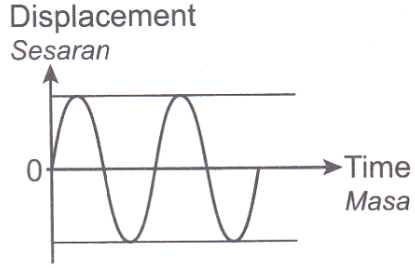
A



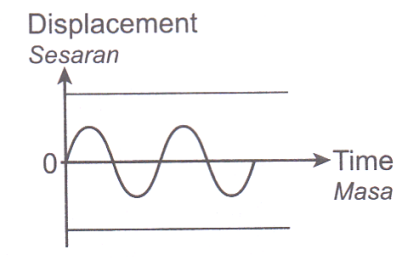
B



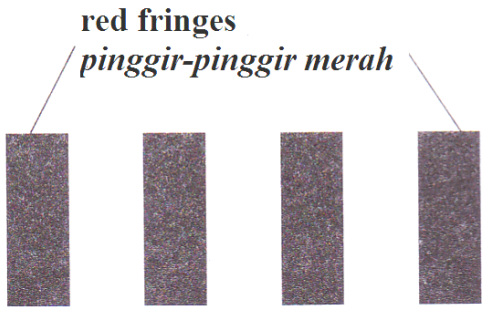
C



D



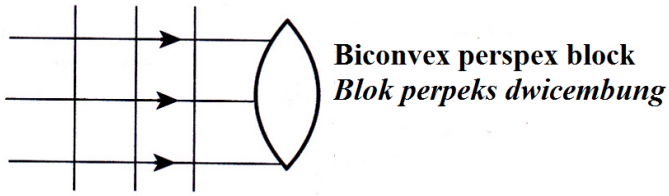
28. Diagram below shows the red fringes formed in a Young's double-slit experiment.
Rajah di bawah menunjukkan pinggir-pinggir merah yang dibentuk oleh eksperimen dwicelah Young.



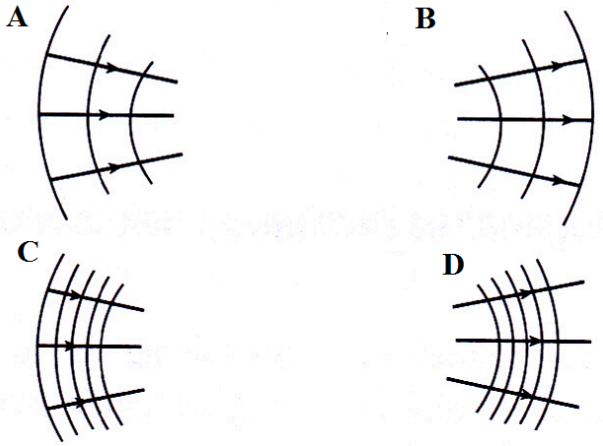
The separation between the fringes can be decreased by
Jarak antara pinggir-pinggir boleh dikurangkan dengan

A decreasing the separation between the slits
mengurangkan jarak antara celah
B increase the separation between the slits
Menambah jarak antara dua celah
C decreasing the intensity of the red light
mengurangkan keamatan cahaya merah
D increasing the distance between the double slit and the screen
menambahkan jarak antara dwicelah dengan skrin

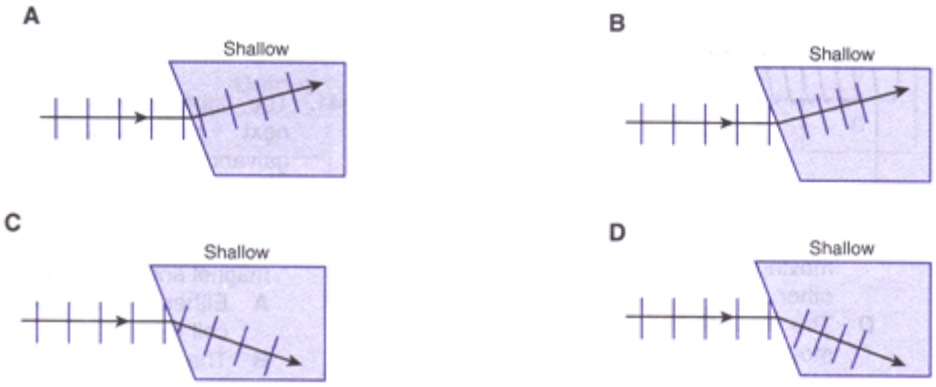
29. Diagram below shows water waves propagating through a biconvex perspex block in a ripple tank
Rajah di bawah menunjukkan gelombang air merambat melalui blok perspeks yang berbentuk dwicembung di dalam tangki riak



Which of the following wave patterns shows the refraction of the water waves after passing through the block?
Antara corak gelombang berikut, yang manakah menunjukkan pembiasan gelombang air selepas melalui blok itu ?



30. Which diagram below shows the correct pattern of refracted water waves?
Rajah manakah yang menunjukkan corak pembiasan gelombang air yang betul?



31 Diagram 2 shows a boy standing in front of a plane mirror.
Rajah 2 menunjukkan seorang budak sedang berdiri di hadapan sebuah cermin satah.

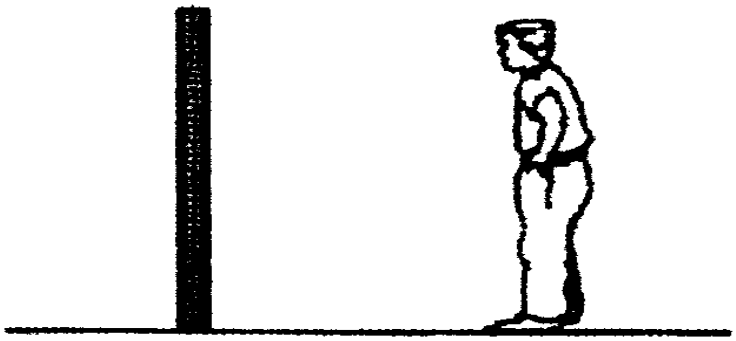


Diagram 2
Rajah 2

Which of the following are the characteristics of the image formed in the mirror ?
Antara berikut yang manakah merupakan sifat-sifat imej yang terbentuk di dalam cermin satah itu?

A. Real, inverted and magnified
Nyata, songsang dan dibesarkan
B. Real, upright and same size
Nyata, tegak dan sama saiz
C. Virtual, inverted and magnified
Maya, songsang dan dibesarkan
D. Virtual, upright and same size
Maya, tegak dan sama saiz

32 Which diagram 3 shows the correct reflection of light by a concave mirror?
Rajah sinar yang manakah menunjukkan pantulan cahaya yang betul oleh sebuah cermin cekung?

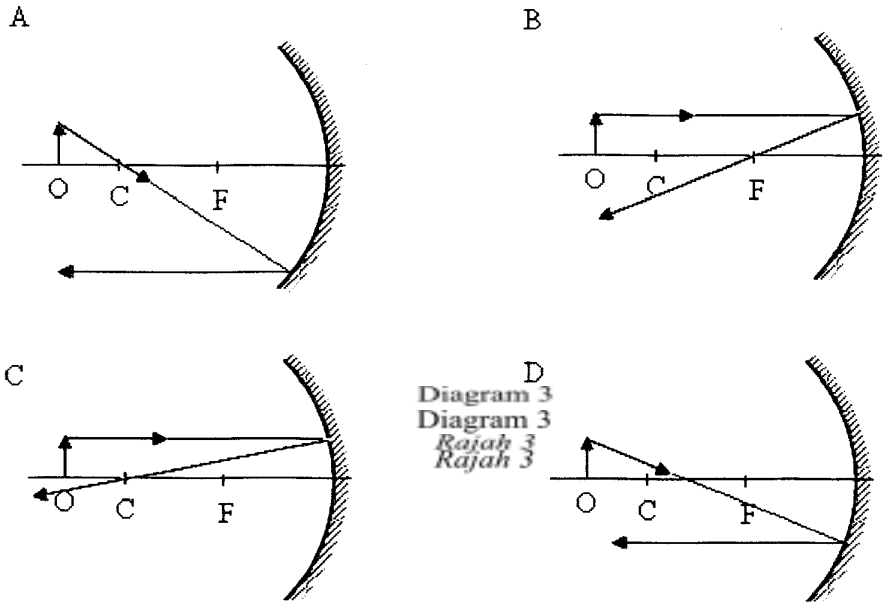


Diagram 3
Diagram 3
Rajah 3
Rajah 3

33 Diagram 4 shows path of light rays reflected by a concave mirror.
Rajah 4 menunjukkan lintasan sinar cahaya dipantulkan oleh sebuah cermin cekung.

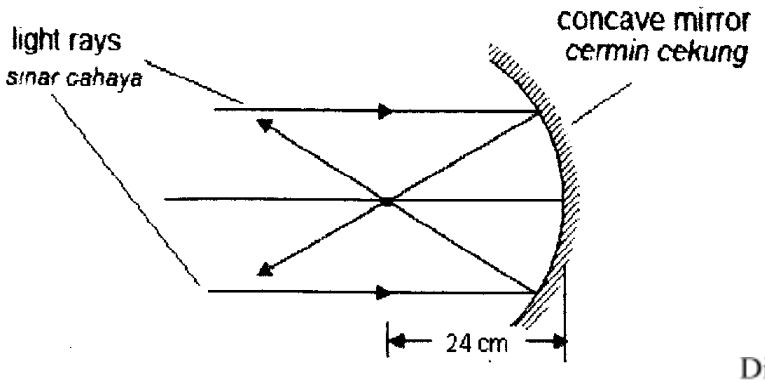
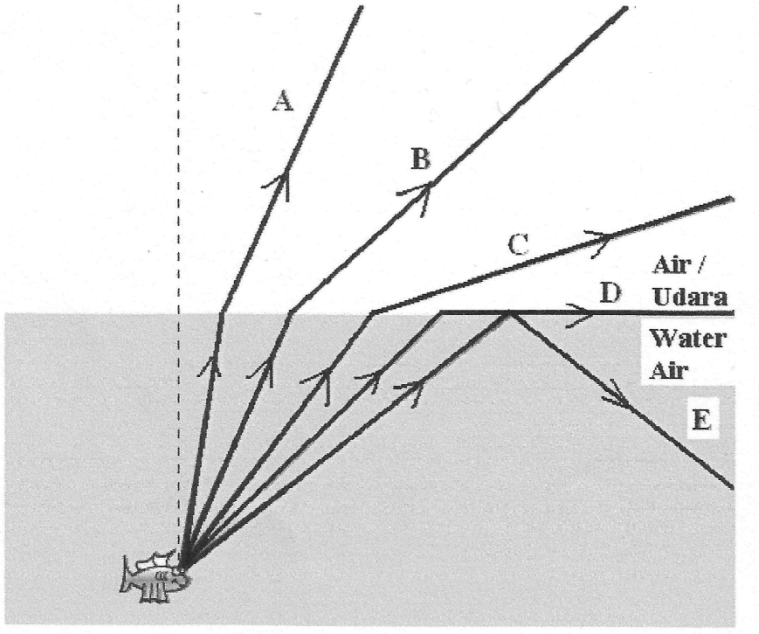


Diagram 4
Rajah 4

What is the focal length, f, of the concave mirror?
Berapakh panjang focus, f, cermin cekung itu?

A. 12 cm
B. 24 cm
C. 36 cm
D. 48 cm

34 Which path of light ray undergoes the phenomenon of total internal reflection?



35 Diagram 5 shows a light ray moving from air into a glass block.
Rajah 5 menunjukkan satu sinar cahaya bergerak dari udara ke dalam sebuah blok kaca.

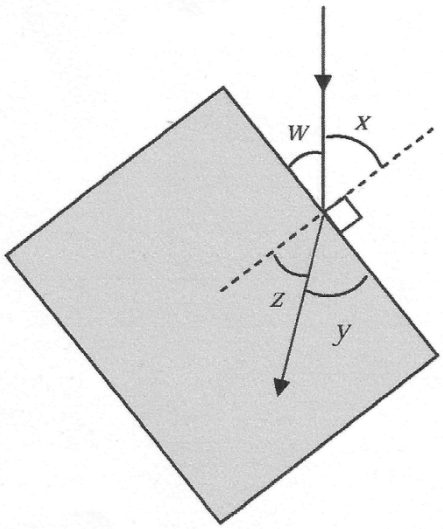


Diagram 5
Rajah 5

Which angle is the angle of incidence and the angle of refraction?
Sudut manakah merupakan sudut tuju dan sudut biasan?

	Angle of incidence/ *Sudut tuju*	Angle of refraction/*Sudut biasan*
A.	*w*	*y*
B.	*w*	*z*
C.	*x*	*y*
D.	*x*	*z*

36 Diagram 6 shows a light ray directed into a glass block.
Rajah 6 menunjukkan satu sinar cahaya ditujukan kepada sebuah bongkah kaca.

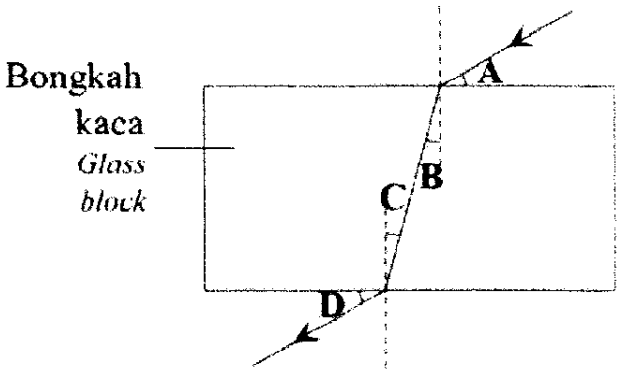


Diagram 6
Rajah 6

Which angle, **A, B, C** or **D** is the angle of refraction.
*Antara sudut **A, B, C** dan **D,** yang manakah merupakan sudut biasan?*

37 Which pair of lenses can be used to construct a telescope?

A. Two concave lenses with focal lengths of 6 cm and 9 cm.

B. Two convex lenses with focal lengths of 10 cm and 80 cm.

C. Two concave lenses with focal lengths of 10 cm and 80 cm.

D. A convex lens with focal lengths of 6 cm and a concave with focal length 9 cm.

38 An observer is able to see an image of a coin when the glass is filled with water as shown in Diagram 7.
Seorang pemerhati dapat melihat imej sekeping duit syiling dalam sebuah gelas yang berisi air seperti ditunjukkan dalam Rajah 7

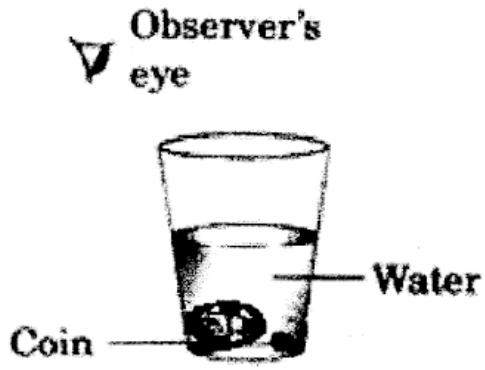


Diagram 7
Rajah 7

Which of the following characteristics of the image is **not true**?
*Manakah antara cirri-ciri imej itu yang **tidak benar** ?*

A. the image is virtual
Imej itu adalah maya

B. the image is bigger
Imej itu lebih besar

C. the image is upright
Imej itu tegak

D. the image is inverted
Imej itu adalah songsang

39 Diagram 8 shows a light ray passing through a glass prism.
Rajah 8 menunjukkan sinar cahaya bergerak melalui satu prima kaca.

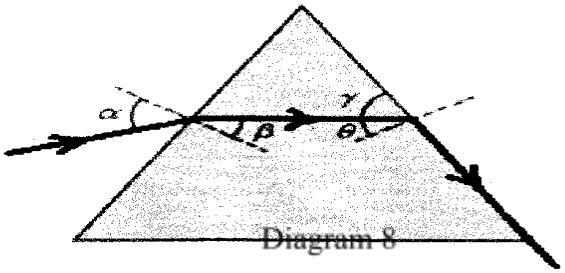


Diagram 8
Rajah 8

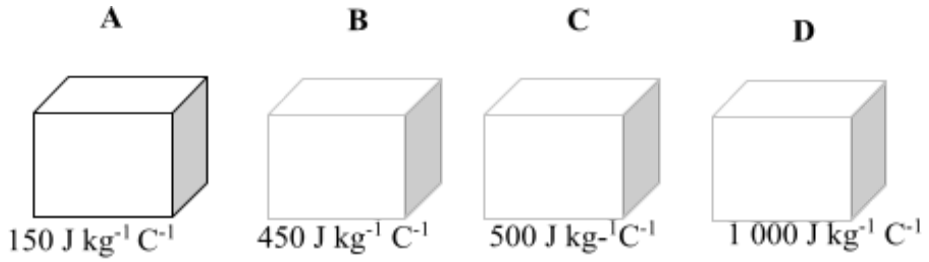
Which angle is known as the critical angle of the prism?
Sudut manakah yang dikenali sebagai sudut genting prima itu

A. **α**
B. **β**
C. **γ**
D. **θ**

40. Which of the following is a unit for a base quantity?
Manakah antara yang berikut adalah unit bagi kuantiti asas?

A Joule
B Minute
C Newton
D Ampere

41 Diagram 5 shows four metal blocks of same mass with their respective specific heat capacity. Same amount of heat is given to each block.
Rajah 5 menunjukkan empat blok logam yang sama jisim dengan muatan haba tentu yang berbeza. Sejumlah haba yang sama dibekalkan kepada setiap blok.



Diagram/ *Rajah 5*

Which of the following blocks **A, B, C and D** will show the highest temperature?
*Antara Blok **A,B, C dan D,** yang manakah akan menunjukkan suhu yang paling tinggi?*

42 A substance is heated at a steady rate. It changes from solid to liquid, and then to gas. The graph below shows how its temperature changes with time.

Sejenis bahan dipanaskan pada kadar yang tetap. Ia berubah daripada pepejal menjadi cecair, dan kemudian gas. Graf berikut menunjukkan bagaimana suhunya berubah terhadap masa.

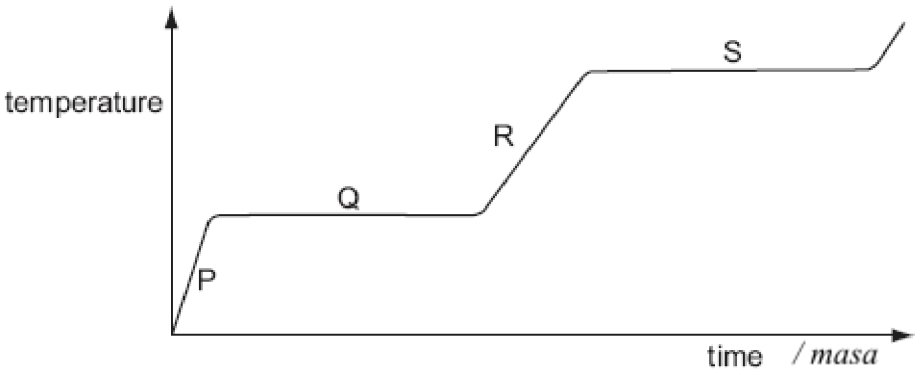


Diagram / *Rajah*
15

Which part of the graph shows a change of state?
Bahagian manakah pada graf yang mewakili keadaaan perubahan fasa?

A P and R
P dan R

B P and S
P dan S

C Q and R
Q dan R

D Q and S
Q dan S

43 Diagram below shows block L and block M of different material in thermal equilibrium .
Rajah di bawah menunjukkan bongkah L dan bongkah M daripada bahan yang berlainan berada dalam keseimbangan termal.

Which of following statements is true?
Manakah pernyataan berikut adalah benar?

A specific heat capacity of L =specfic heat capacity of M
muatan haba tentu L = muatan haba tentu M.
B The net rate of heat transferred is equal
Kadar pemindahan haba bersih adalah sama
C The net rate of heat transferred is zero
Kadar pemindahan haba bersih adalah sifar
D Temperature of L is higher than temperature of M.
Suhu L lebih tinggi daripada suhu M.

44 Which physical quantity does **not** affect pressure in a liquid?
*Manakah kuantiti Fizik yang **TIDAK** mempengaruhi tekanan dalam cecair?*

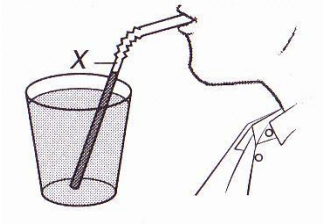
A Density / *Ketumpatan*
B Depth / *Kedalaman*
C Gravitational field strength / *Medan Kekuatan Graviti*
D Surface area / *Luas Permukaan*

45 Which instruments is meant for measuring atmospheric pressure?
Manakah peralatan berikut digunakan bagi mengukur tekanan atmosfera?
A Carburetor
B Siphon
C Fortin's Barometer
D Hydrometer

46 Which of the following statements explains why the wall of a dam is thicker at the bottom?
Manakah antara penyataan berikut menjelaskan mengapa dinding sebuah empangan lebih tebal di bahagian bawah?

A Density of water increases with depth
Ketumpatan air bertambah dengan kedalaman
B Pressure of water increases with depth
Tekanan air bertambah dengan kedalaman
C Surface area of water at the bottom of the dam is smaller
Luas permukaan air di bahagian bawah empangan adalah kurang
D The attraction of gravity increases with depth
Daya tarikan gravity bertambah dengan kedalaman

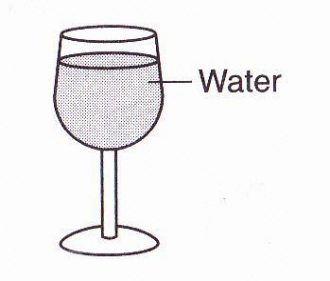
47 Diagram below shows a boy sucking juice from a glass using straw.
Diagram di bawah menunjukkan seorang budak lelaki menyedut jus dari gelas menggunakan penyedut minuman.



Which of the following statements about the pressure of the air in region *X* is true?
Manakah Antara penyataan berikut berkenaan tekanan udara pada kawasan X adalah benar?

A It is more than atmospheric pressure
Ia adalah lebih daripada tekanan atmosfera
B It is equal to atmospheric pressure
Ia adalah sama dengan tekanan atmosfera
C It is less than atmospheric pressure
Ia adalah kurang daripada tekanan atmosfera
D It is a vacuum
Ia adalah vakum

48 Diagram below shows a glass which has a wide base.
Rajah di bawah menunjukkan gelas yang mempunyai permukaan tapak yang luas.

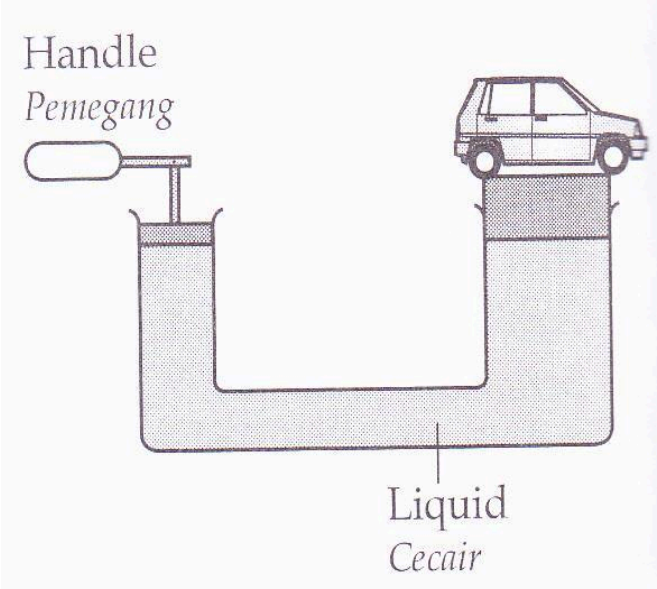


Which of the following physical quantities is minimized because of the wide base area?
Kuantiti fizik yang manakah ialah minimum disebabkan oleh luas permukaan tapak gelas?

A Pressure acting on the floor
Tekanan ke atas lantai
B Mass of the glass and water
Jisim gelas dan air
C Density of the water
Ketumpatan air
D Weight of the glass and water

Berat gelas dan air

49 Diagram below shows a hydraulic jacks in a car wokshop.
Rajah di bawah menunjukkan pam hidraulik di bengkel kereta.



Which principle is used in this pump?
Prinsip yang manakah digunakan pam tersebut?

A Archimedes' principle
Prinsip Archimedes

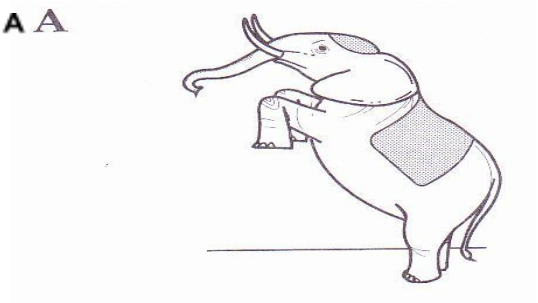
B Pascal's principle
Prinsip Pascal

C Bernoulli's principle
Prinsip Bernoulli

D Principle of conservation of energy
Prinsip keabadian tenaga

50 The following diagrams shows four different postures of an elephant performing in a show. Which posture exerts the maximum pressure on the floor?
Rajah berikut menunjukkan empat postur yang berbeza bagi seekor gajah dalam suatu pertunjukan. Postur yang manakh mengenakan tekanan yang maksimum ke atas lantai?

A A

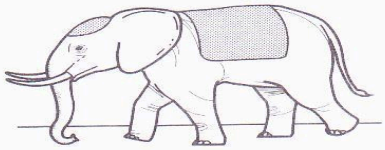


B

B

C

C



D

D