SULIT
1511/1
Sains
Kertas 1
Ogos 2012
1 ¼ jam

PROGRAM PENINGKATAN PRESTASI AKADEMIK SPM TAHUN 2012

SAINS

Kertas 1

Satu jam lima belas minit

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIBERITAHU

1. *Kertas soalan ini adalah dalam dwibahasa.*
2. *Setiap soalan dimulai dengan soalan Bahasa Inggeris dan diikuti dengan terjemahannya dalam Bahasa Melayu.*

INFORMATION FOR CANDIDATES

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

MAKLUMAT UNTUK CALON

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

Kertas soalan ini mengandungi 27 halaman bercetak

1. Diagram 1 shows a structure of human brain.Which part **A,B,C** or **D** is a cerebellum?
*Rajah 1 menunjukkan struktur otak manusia. Antara **A,B,C** dan **D** yang manakah serebelum?*

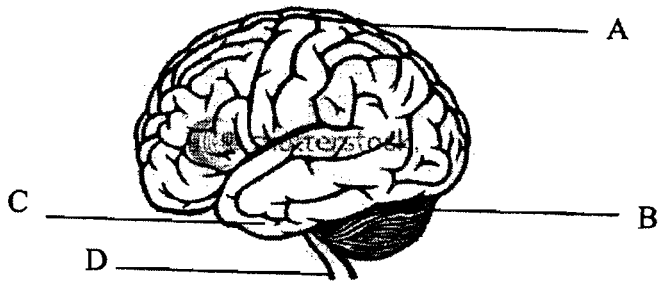


Diagram 1
Rajah 1

2 Aminah picks some flowers. What type of action involved?
Aminah memetik beberapa kuntum bunga. Apakah jenis tindakan yang terlibat?

A A reflex action
Tindakan refleks
B A capillary action
Tindakan kapilari
C A voluntary action
Tindakan terkawal
D An involuntary action
Tindakan luar kawal

3 The following statement is an impulse pathway.
Pernyataan berikut adalah satu laluan impuls.

Stimulus →	receptor →	medulla oblongata →	efector
Rangsangan	*reseptor*	*medulla oblongata*	*efektor*

Which of the reaction involves the above impuls pathway?
Tindakan manakah terlibat dalam laluan impuls di atas?

A Reading
Membaca
B Knee jerk
Sentakan lutut
C Peristalsis
Peristalsis
D Reducing the size of pupils
Mengecilkan saiz anak mata

4 Diagram 2 shows one of the human endocrine gland.
Rajah 2 menunjukkan satu daripada kelenjar endokrin manusia.

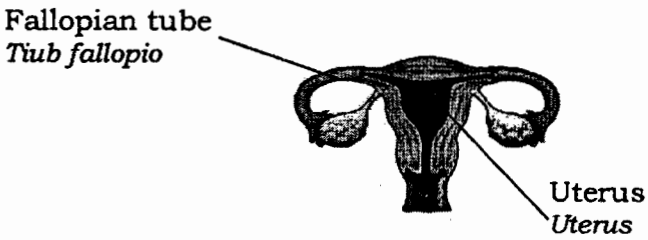


Diagram 2
Rajah 2

Name the gland?
Namakan kelenjar tersebut?

A Ovary
Ovari
B Adrenal
Adrenal
C Pituitary
Pituitari
D Pancreas
Pankreas

5 Diagram 3 shows the development stages of a baby.
Which development stage, **A**,**B**,**C** or **D** represents meiosis?

Rajah 3 menunjukkan peringkat perkembangan seorang bayi.
Peringkat perkembangan manakah **A**,**B**,**C** dan **D** *mewakili meiosis?*

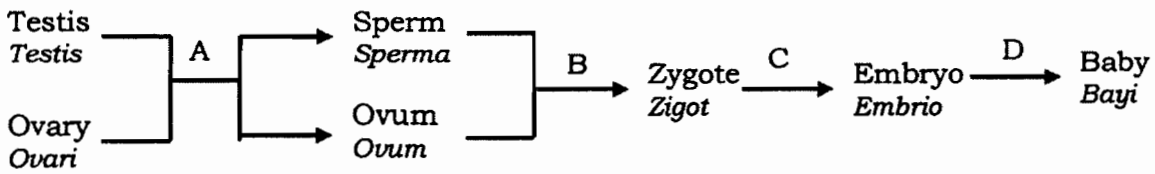


Diagram 3
Rajah 3

6 Diagram 4 shows a cross breeding of two rats.
Rajah 4 menunjukkan kacuk silang bagi dua ekor tikus

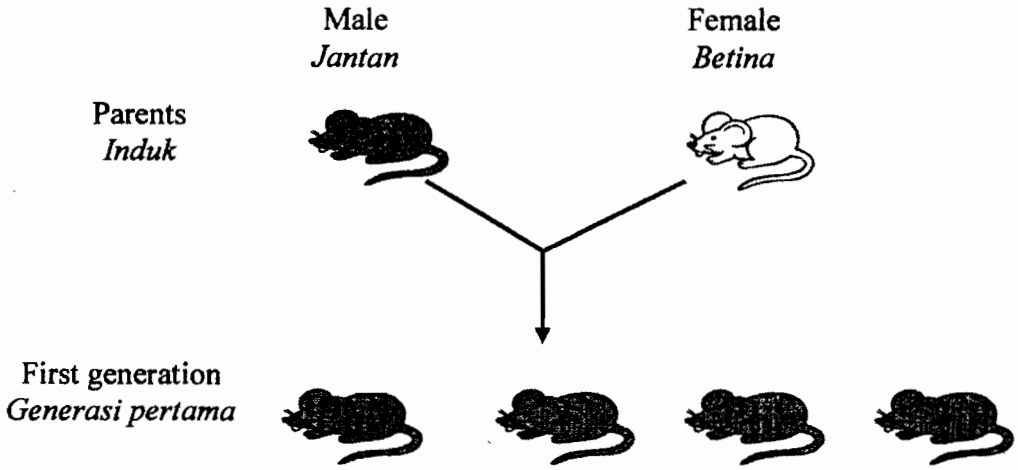


Diagram 4
Rajah 4

B represents the dominant gene for black fur
B mewakili gen dominan untuk warna bulu hitam

b represents the recessive gene for white fur
b mewakili gen resesif untuk warna bulu putih

What are the genotype of the parents?
Apakah genotip bagi kedua-dua induk itu?

	Male *Jantan*	Female *Betina*
A	BB	BB
B	BB	bb
C	Bb	Bb
D	bb	Bb

7 Sex of a child is determined by
Jantina anak ditentukan oleh

A number of chromosomes
bilangan kromosom
B ovum's sex chromosome
kromosom seks ovum
C sperm's sex chromosome
kromosom seks sperma
D chromosome of ovum cell
kromosom sel ovum

8 Diagram 5 shows a change of state of matter when iodine crystals are heated.
Rajah 5 menunjukkan satu perubahan keadaan jirim apabila hablur iodin dipanaskan.

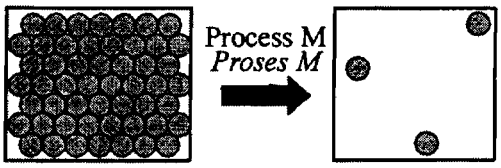


Diagram 5
Rajah 5

What is process M?
Apakah proses M?

A Melting
Peleburan
B Sublimation
Pemejalwapan
C Evaporation
Penyejatan
D Condensation
Kondensasi

9 Table 1 shows four elements K, L, M, and Q.
Jadual 1 menunjukkan empat unsur K, L, M dan Q.

Element *Unsur*	Nucleon number *Nombor nukleon*	Proton *number* *Nombor proton*
K	12	6
L	13	7
M	14	7
Q	16	8

Table 1
Jadual 1

Which elements are isotopes?
Unsur manakah adalah isotop?

A K and L
K dan L
B K and Q
K dan Q
C L and M
L dan M
D M and Q
M dan Q

10 Table 2 shows the physical properties of substances K and L.
Jadual 2 menunjukkan sifat fizikal bahan K dan L.

Substance *Bahan*	Melting point (°C) *Takat lebur (°C)*	Electrical conductivity *Kekonduksian elektrik*	
		Solid state *Keadaan pepejal*	Molten state *Keadaan leburan*
K	115	No *Tidak*	No *Tidak*
L	800	No *Tidak*	Yes *Ya*

Table 2
Jadual 2

What are substance K and L?
Apakah bahan K dan L?

	K	L
A	Sodium chloride *Natrium klorida*	Sulphur *Sulfur*
B	Iron *Besi*	Sodium chloride *Natrium klorida*
C	Iron *Besi*	Sulphur *Sulfur*
D	Sulphur *Sulfur*	Sodium chloride *Natrium klorida*

11 Diagram 6 shows a symbol in Periodic Table.
Rajah 6 menunjukkan simbol pada Jadual Berkala.

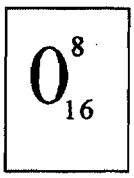


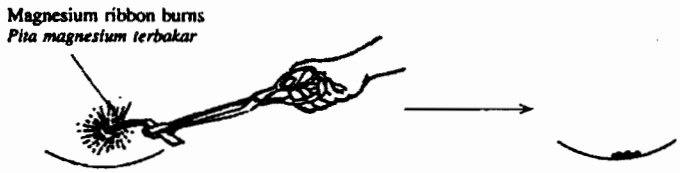
Diagram 6
Rajah 6

The number 16 refers to
Nombor 16 merujuk kepada

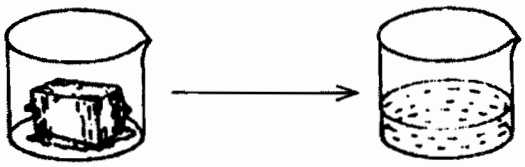
A proton number
nombor proton
B nucleon number
nombor nukleon
C number of electron
bilangan elektron
D number of neutron
bilangan neutron

12 Which of the following involves chemical change?
Antara berikut yang manakah melibatkan perubahan kimia?

A



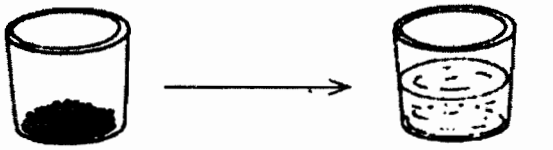
B



Ice
Ais

Water
Air

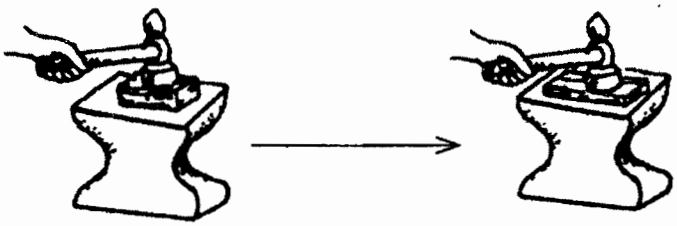
C



Sugar
Gula

Sugar solution
Larutan gula

D



Iron block
Bongkah besi

Iron sheet
Kepingan besi

13 Diagram 7 shows a chemical reaction.
Rajah 7 menunjukkan suatu tindak balas kimia.

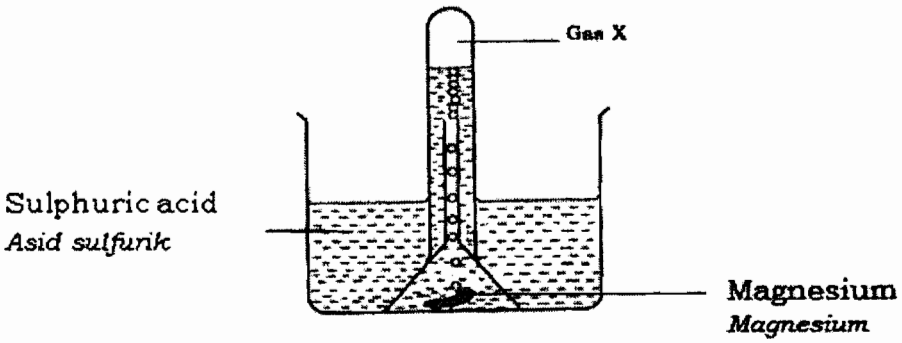


Diagram 7
Rajah 7

Gas X
Gas X

A turns lime water cloudy
menukarkan air kapur menjadi keruh
B turns moist blue litmus paper to red
menukarkan kertas litmus biru kepada merah
C rekindles the glowing wooden splinter
menyalakan kayu uji berbara
D Produces a 'pop' sound when tested with a lighted wooden splinter
menghasilkan bunyi 'pop' apabila diuji dengan kayu uji menyala

14 Diagram 8 shows a cell.
Rajah 8 menunjukkan suatu sel.

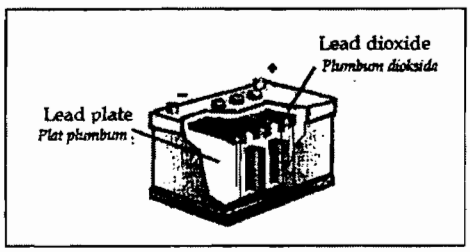


Diagram 8
Rajah 8

What is the advantage of the cell?
Apakah kelebihan sel tersebut?
A Light
Ringan
B Cheap
Murah
C Rechargable
Boleh dicas semula
D Low voltage
Voltan rendah

15 Why bleach is kept in an opaque bottle?
Mengapakah bahan peluntur disimpan di dalam botol legap?

A Easy to carry
Mudah dibawa
B Avoid sunlight
Mengelakkan cahaya matahari
C Prevent oxidation
Mencegah pengoksidaan
D Prevent reaction with water vapour
Mencegah tindakbalas dengan wap air

16 The information below shows characteristics of ray Y.
Maklumat di bawah menunjukkan sifat sinar Y.

- Able to penetrate a piece of paper
Boleh menembusi sehelai kertas
- Reflect towards positive plat in an electric field
Terpesong ke plat positif dalam medan elektrik

What is ray Y?
Apakah sinar Y?

A X-ray
Sinar-X
B Beta ray
Sinaran beta
C Alpha ray
Sinaran alfa
D Gamma ray
Sinaran gama

17 Diagram 9 shows a nuclear reaction.
Rajah 9 menunjukkan satu tindakbalas nuklear.

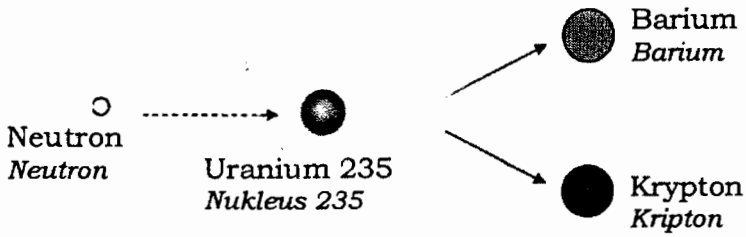


Diagram 9
Rajah 9

Name the reaction.
Namakan tindakbalas itu.

A Nuclear fission
Pembelahan nukleus
B Nuclear fusion
Pelakuran nukleus
C Physical change
Perubahan fizikal
D Reversible reaction
Tindakbalas berbalik

18 Which radioisotope is used to study the absorbtion of fertilizer by plant?
Radioisotop manakah digunakan untuk mengkaji penyerapan baja oleh tumbuhan?

A Iodine-131
Iodin-131
B Sodium-24
Natrium-24
C Carbon-14
Karbon-14
D Phosphorus-32
Fosforus-32

19 What is the characteristic of the image formed by a plane mirror?
Apakah ciri imej yang dibentuk oleh cermin satah?

A Real
Nyata
B Inverted
Songsang
C Laterally inverted
Songsang sisi
D Bigger than the object
Lebih besar daripada objek

20 A man with a green attire stands under a yellow lighted lamp. His attire will appear
Seorang lelaki berpakaian hijau berdiri di bawah lampu bercahaya kuning. Pakaian lelaki itu akan kelihatan

A red
merah
B green
hijau
C black
hitam
D yellow
kuning

21 Which phenomenon is caused by light dispersion?
Fenomena manakah disebabkan oleh penyebaran cahaya?

A Formation of rainbow
Pembentukan pelangi
B Bottom of a pool appears shallow
Dasar kolam kelihatan cetek
C Sky appears blue during the noon
Langit kelihatan biru pada waktu tengah hari
D Red colour appears red in magenta light.
Warna merah kelihatan merah di bawah cahaya magenta

22 What is the colour produced when red and yellow pigments are mixed?
Apakah warna yang terhasil apabila pigmen merah dan kuning dicampurkan?

A Blue
Biru
B Black
Hitam
C Green
Hijau
D Orange
Jingga

23 The following information shows elements found in an alloy.
Maklumat berikut menunjukkan unsur-unsur dalam suatu aloi.

- Iron
  Besi
- Chromium
  Kromium
- Nickel
  Nikel
- Carbon
  Karbon

Name the alloy.
Namakan aloi itu.

A Brass
Loyang
B Bronze
Gangsa
C Duralumin
Duralumin
D Stainless steel
Keluli nirkarat

24 The following word equation shows a chemical reaction.
Persamaan perkataan berikut menunjukkan suatu tindakbalas kimia.

X + hydrogen ⟶ Ammonia
X + hidrogen *Ammonia*

What is X?
Apakah X?

A Oxygen
Oksigen
B Chlorine
Klorin
C Nitrogen
Nitrogen
D Carbon dioxide
Karbon dioksida

25 The release of carbon dioxide from burning of fossil fuel will cause
Pembebasan gas karbon dioksida daripada pembakaran bahan api fosil akan menyebabkan

A acid rain
hujan asid
B global warming
pemanasan global
C ozone depletion
penipisan lapisan ozon
D reduce of soil fertility
kesuburan tanah berkurang

26 Microorganism P is used in the making of bread.
Which other product needs microorganisms P?
Mikroorganisma P digunakan di dalam pembuatan roti.
Produk lain yang manakah memerlukan mikroorganisma P?

A Wine
Wain
B Vinegar
Cuka
C Cheese
Keju
D Yoghurt
Yogurt

27 The following information shows the characteristics of a microorganism.
Maklumat berikut menunjukkan ciri-ciri suatu mikroorganisma.

- Parasitic
  Parasit
- Form crystals outside living cell
  Membentuk hablur di luar sel hidup

What is the microorganism?
Apakah mikroorganisma tersebut?

A 

B 

C 

D 

28 Name the disease that spreads through coughing and sneezing?
Namakan penyakit yang tersebar melalui batuk dan bersin?

A Cholera
Kolera
B Hepatitis B
Hepatitis B
C Tuberculosis
Tuberculosis
D Dengue fever
Demam denggi

29 Diagram 10 shows the life cycle of a housefly.
Rajah 10 menunjukkan kitar hidup seekor lalat.

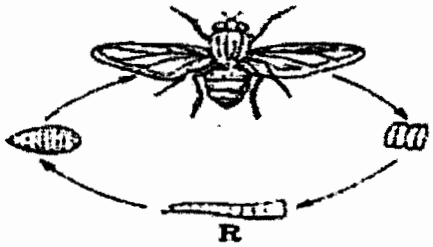


Diagram 10
Rajah 10

What is the suitable condition at stage R?
Apakah keadaan yang sesuai pada peringkat R?

A Dark and damp
Gelap dan lembap
B Dark and dry
Gelap dan kering
C Dry and smelly
Kering dan berbau
D Dry and smelly
Kering dan berbau

30 Which of the types of food has the lowest calorific value ?
Jenis makanan yang manakah mempunyai nilai kalori yang paling rendah?

A 

Butter
Mentega

B 

Chocolate
Coklat

C 

Mineral water
Air mineral

D 

Orange juice
Jus oren

31 The following statement show the nutrient needed by plants.
Pernyataan berikut menunjukkan nutrien yang diperlukan oleh tumbuhan.

P – Nitrogen
Nitrogen
Q – Calcium
Kalsium
R – Manganese
Mangan
S -- Molybdenum
Molibdenum

Which of the following pairs of nutrients are correct?
Antara pasangan nutrien berikut yang manakah betul?

	Macronutrient *Makronutrien*	Micronutrient *Mikronutrien*
A	P and Q *P dan Q*	R and S *R dan S*
B	P and R *P dan R*	Q and S *Q dan S*
C	P and S *P dan S*	Q and R *Q dan R*
D	R and S *R dan S*	P and Q *P dan Q*

32 Table 3 shows the calorific value of three types of food.
Jadual 3 menunjukkan nilai kalori bagi tiga jenis makanan.

Food *Makanan*	Calorific value (kJ/100 g) *Nilai kalori (kJ/ 100g)*
Eggs *Telur*	600
Meat *Daging*	1010
Rice *Nasi*	1470

Table 3
Jadual 3

Amin eats 250g egg, 150g meat and 200g rice.What is the total calorific value taken?.
Amin makan 250g telur, 150g daging dan 200g nasi. Berapakah jumlah nilai kalori yang diambilnya?

A 3080 kJ
B 4825 kJ
C 4850 kJ
D 5955 kJ

33 Diagram 11 shows a water cycle.
Rajah 11 menunjukkan kitaran air.

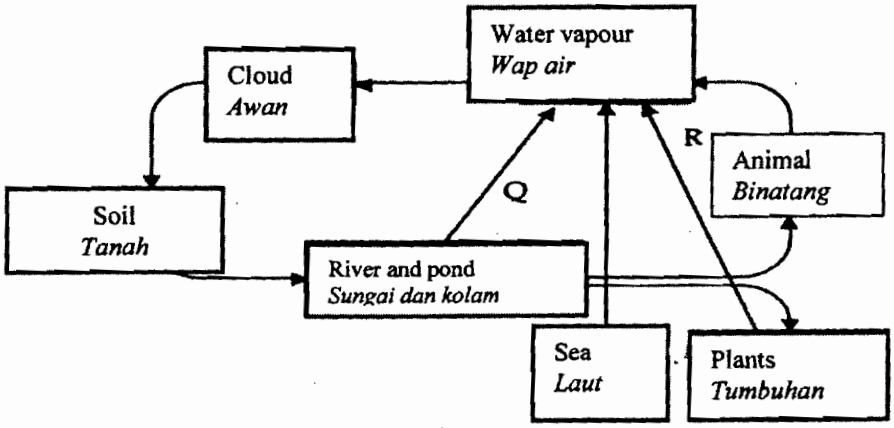


Diagram 11
Rajah 11

What are processes Q and R?
Apakah proses Q dan R?

	Q	R
A	Transpiration *Transpirasi*	Condensation *Kondensasi*
B	Evaporation *Penyejatan*	Transpiration *Transpirasi*
C	Transpiration *Transpirasi*	Evaporation *Penyejatan*
D	Condensation *Kondensasi*	Respirasi *Respirasi*

34 A farmer finds out that the palm fruit in his estate is being eaten by rats. Which natural method can be used to overcome this problem?
Seorang petani mendapati buah kelapa sawit di ladangnya dimakan oleh tikus. Kaedah semula jadi yang manakah boleh digunakan untuk mengatasi masalah ini?

A Rearing owls
Memelihara burung hantu
B Using pesticide
Menggunakan pestisid
C Placing rat traps
Memasang perangkap tikus
D Cutting down all the trees and planting new ones
Menebang semua pokok dan menanam pokok baru.

35 Table 4 shows the change of gas Q by plants in the meadow during the day and night .
Jadual 4 menunjukkan pertukaran gas Q oleh tumbuhan di padang rumput pada waktu siang dan malam.

Plant *Tumbuhan*	Day *Siang*		Night *Malam*	
	Absorb gas Q *Menyerap gas Q*	Release gas Q *Membebaskan gas Q*	Absorb gas Q *Menyerap gas Q*	Do not release gas Q *Tidak membebaskan gas Q*

Table 4
Jadual 4

What is gas Q?
Apakah gas Q?

A Carbon dioxide
Karbon dioksida
B Hydrogen
Hidrogen
C Nitrogen
Nitrogen
D Oxygen
Oksigen

36 Which of the following food contains saturated fats?
Makanan yang manakah mengandungi lemak tepu?

A Sugar
Gula
B Butter
Mentega
C Fruits
Buah-buahan
D Corn oil
Minyak jagung

37 Diagram 12 shows an experiment to produce ethanol.
Rajah 12 menunjukkan eksperimen untuk menghasilkan etanol.

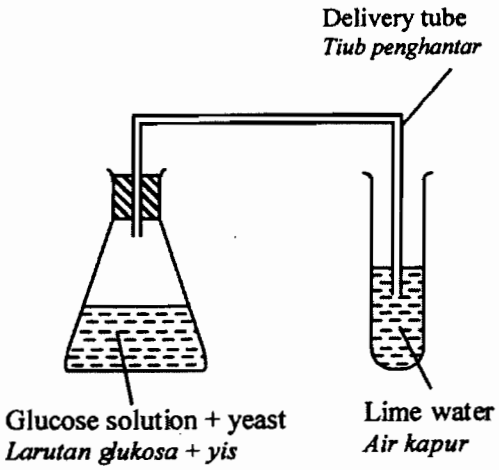


Diagram 12
Rajah 12

What is the process involved?
Apakah proses yang terlibat?

A Distillation
Penyulingan
B Fermentation
Penapaian
C Esterification
Pengesteran
D Filtration
Penurasan

38 Diagram 13 shows the cleansing action of soap molecules.
Rajah 13 menunjukkan tindakan pencucian molekul sabun.

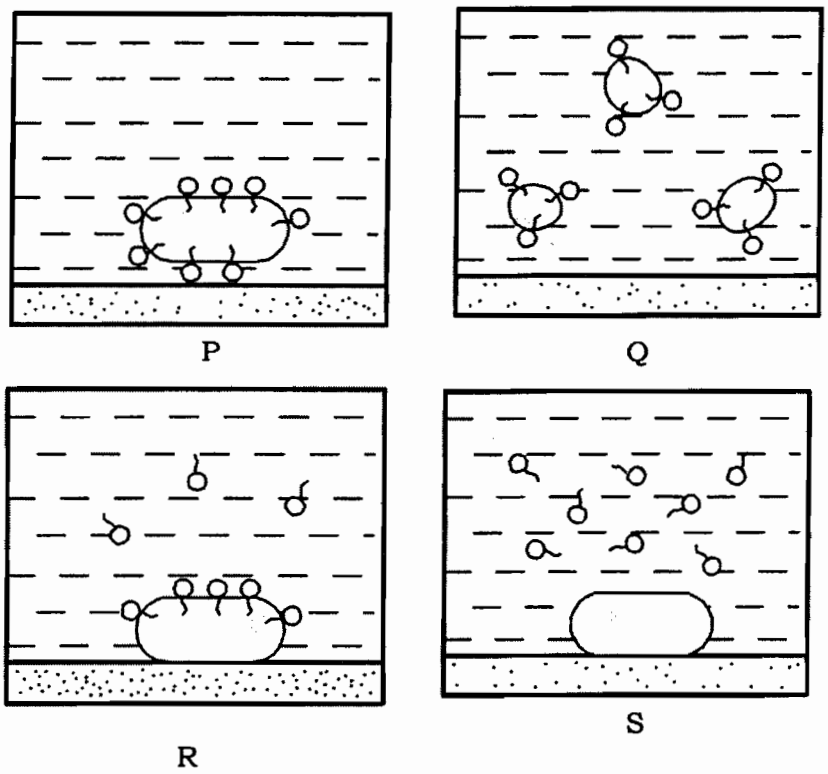
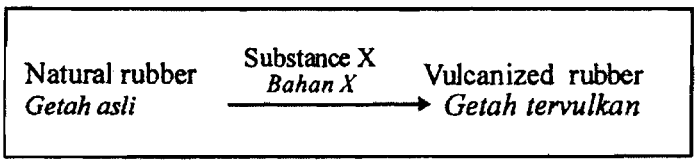


Diagram 13
Rajah 13

Which sequence is correct?
Urutan manakah yang betul?

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

39 The following information shows a process to produce vulcanized rubber.
Maklumat di bawah menunjukkan satu proses untuk menghasilkan getah tervulkan.



What is substance X
Apakah bahan X?

A Sulphur
Sulfur
B Alcohol
Alkohol
C Organic acid
Asid organik
D Sodium chloride
Natrium klorida

40 A larger container ship often takes over an hour to slow down to a stop after its engine is shut off. Which of the following explain the situation of the cointainer ship?
Sebuah kapal kargo biasanya mengambil masa lebih daripada satu jam untuk berhenti selepas enjinnya dimatikan. Antara yang berikut, yang manakah menerangkan situasi kapal kargo tersebut?

A Large inertia
Inersia besar
B High upthrust
Daya tujah tinggi
C High acceleration
Pecutan tinggi
D Large momentum
Momentum besar

41 Which shoe exerts the highest pressure when worn by the same woman?
Kasut manakah menghasilkan tekanan paling tinggi jika dipakai oleh wanita yang sama?

A 

B 

C 

D 

42 Diagram 14 shows a Bernoulli tube.
Rajah 14 menunjukkan tiub Bernoulli.

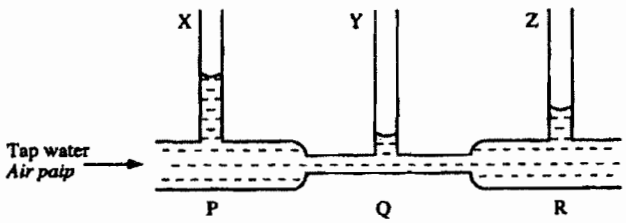


Diagram 14
Rajah 14

Which of the following statement is correct?
Pernyataan berikut, yang manakah betul?

A Highest pressure at X.
Tekanan paling tinggi di X.
B Highest pressure at Y.
Tekanan paling tinggi di Y.
C Lowest pressure at X.
Tekanan paling rendah di X.
D Lowest pressure at Z.
Tekanan paling rendah di Z.

43 A fisherman caught fishes in a large quantity. What is the process to maintain the freshness of the fishes in two weeks?
Seorang nelayan telah menangkap ikan dalam kuantiti yang banyak. Apakah proses untuk mengekalkan kesegaran ikan dalam masa dua minggu?

A Cooling
Pendinginan
B Freezing
Penyejukbekuan
C Dehydration
Pendehidratan
D Vacumm packaging
Pembungkusan vakum

44 What is the function of preservatives in food processing?
Apakah fungsi pengawet dalam pemprosesan makanan?

A Extend the shelf life
Meningkatkan ketahanan makanan
B Make the food tastier
Menambahkan kelazatan makanan
C Enhance the flavour of food
Menambahkan rasa makanan
D Remove the natural colour of the food
Menghilangkan warna asli makanan

45 Diagram 15 shows the breeding of two different types of oil palm.
Rajah 15 menunjukkan pembiakbakaan jenis kelapa sawit yang berbeza.

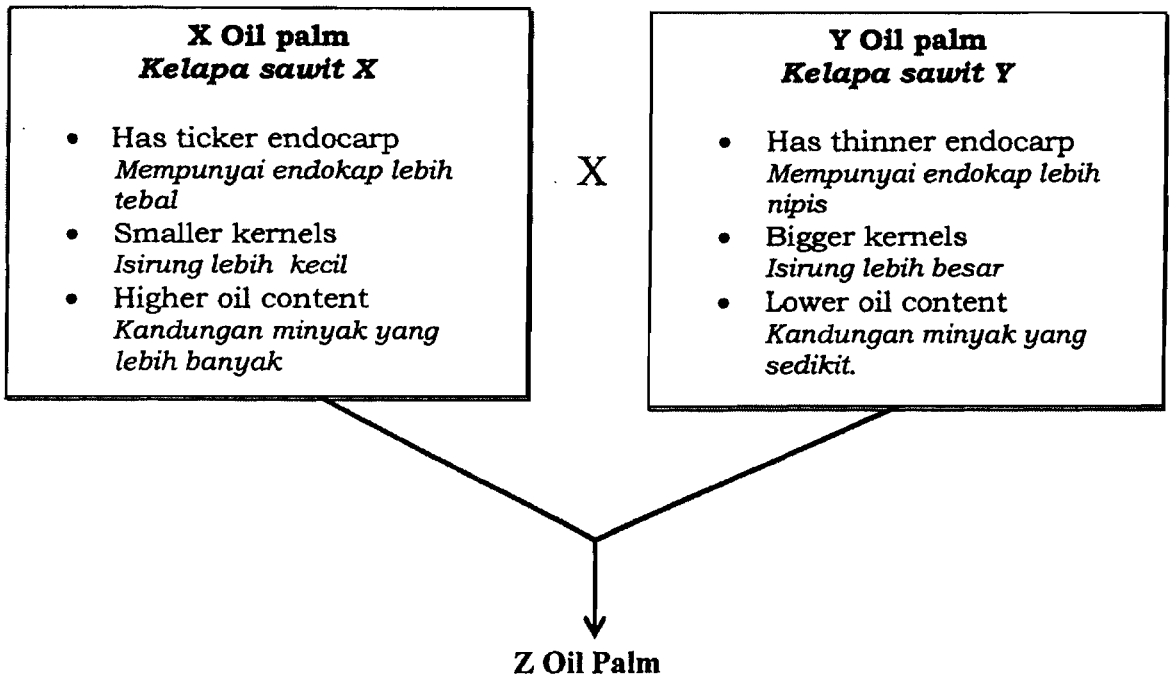


Diagram 15
Rajah 15

What is the characteristics of Z oil palm?
Apakah ciri-ciri kelapa sawit Z ?

	Kernel ***Isirung***	**Endocarp** ***Tempurung***	**Oil content** ***Kandungan minyak***
A	Smaller *Kecil*	Thicker *Tebal*	Lower *Rendah*
B	Smaller *Kecil*	Thicker *Tebal*	Higher *Tinggi*
C	Bigger *Besar*	Thinner *Nipis*	Lower *Rendah*
D	Bigger *Besar*	Thinner *Nipis*	Higher *Tinggi*

46 The information shows the uses of synthetic rubber.
Maklumat menunjukkan kegunaan getah sintetik.

- Tyre
  Tayar
- Soles of shoes
  Tapak kasut

Name the synthetic rubber.
Namakan getah sintetik itu.

A Thiokol
Tiokol
B Neoprene
Neoprena
C Butyl rubber
Getah butil
D Styrene butadiene
Stirena butadiena

47 Which of the following is true about synthetic polymer and their uses?
Antara berikut yang manakah benar tentang polimer sintetik dan kegunaannya?

	Synthetic polymer *Polimer sintetik*	Uses *Kegunaan*
A	Polyethene *Politena*	Contact lense *Kanta lekap*
B	Polyvinyl Chloride (PVC) *Polivinil Klorida (PVC)*	PVC water host *Paip air PVC*
C	Polystyrene *Polistirena*	Rain coat *Baju hujan*
D	Perspex *Perspeks*	Feeding bottle *Botol susu*

48 What type of wave is used in mobile phone?
Apakah jenis gelombang yang digunakan dalam telefon mudah alih?

A Radiowaves
Gelombang radio
B Sound wave
Gelombang bunyi
C Infrared waves
Gelombang infra merah
D Ultra violet waves
Gelombang ultra ungu

49 Diagram16 shows a wave form.
Rajah 16 menunjukkan suatu bentuk gelombang.

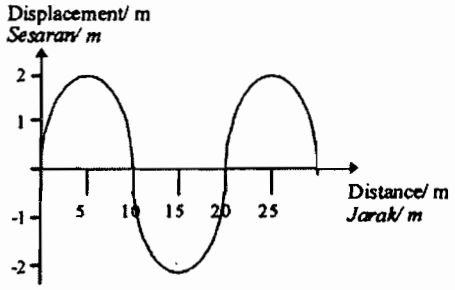


Diagram 16
Rajah 16

What is the wave length of the wave?
Berapakah panjang gelombang bagi gelombang tersebut?
A 5 m
B 10 m
C 20 m
D 30 m

50 Diagram 17 shows a type of communication system
Rajah 17 menunjukkan sejenis sistem komunikasi.

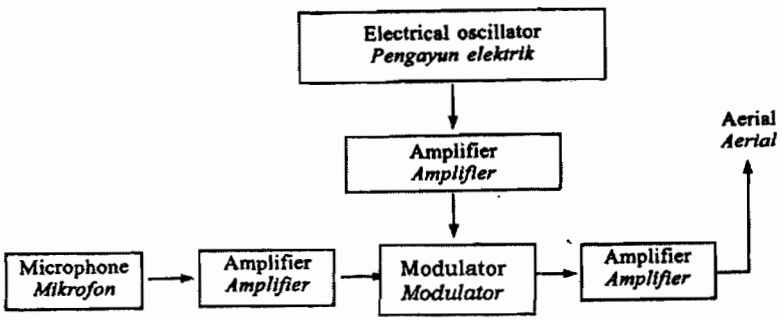


Diagram 17
Rajah 17

Name the system?
Namakan sistem itu?
A Radio receiver system
Sistem penerima radio
B Radio transmission system
Sistem pemancar radio
C Satelite communication system
Sistem telekomunikasi satelit
D Telephone communication system
Sistem komunikasi telefon

END OF QUESTION PAPER
KERTAS SOALAN TAMAT

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1511/2(PP)

MARKING SCHEME (PAPER 1)

QUESTION NO	ANSWER	QUESTION NO	ANSWER
1	B	26	A
2	C	27	B
3	C	28	C
4	A	29	A
5	A	30	C
6	B	31	A
7	C	32	D
8	B	33	B
9	C	34	A
10	D	35	D
11	B	36	B
12	A	37	B
13	D	38	C
14	C	39	A
15	B	40	A
16	B	41	A
17	A	42	A
18	D	43	B
19	C	44	A
20	B	45	D
21	A	46	D
22	D	47	B
23	D	48	B
24	C	49	C
25	B	50	B

SULIT
1511/2
Sains
Kertas 2
Ogos 2012

Nama : ..... Tingkatan : .....

MPSM

PROGRAM PENINGKATAN PRESTASI AKADEMIK SPM TAHUN 2012

SAINS

Kertas 2

Dua jam tiga puluh minit

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIBERITAHU

1. *Tulis nama dan tingkatan di ruangan yang disediakan di bahagian atas muka surat ini.*
2. *Calon dibenarkan menjawab keseluruhan atau sebahagian soalan sama ada dalam bahasa Melayu atau bahasa Inggeris.*
3. *Jawab semua soalan dalam **Bahagian A dan Bahagian B.** Bagi **Bahagian C,** jawab **Soalan 10** dan mana-mana **satu** daripada **Soalan 11** atau **Soalan 12.***
4. *Tulis jawapan pada ruangan jawapan yang disediakan pada kertas soalan. Kertas tulis tambahan sekiranya digunakan, perlu diikat bersama dengan buku soalan ini.*
5. *Langkah mengira hendaklah ditunjukkan.*
6. *Markah bagi setiap ceraian soalan ditunjukkan di dalam kurungan [ ].*
7. *Rajah tidak dilukis mengikut skala **kecuali** dinyatakan.*
8. *Penggunaan kalkulator saintifik yang tidak boleh diprogramkan adalah dibenarkan.*

Untuk Kegunaan Pemeriksa		
Bahagian	Soalan	Markah
A	1	
	2	
	3	
	4	
B	5	
	6	
	7	
	8	
	9	
C	10	
	11	
	12	
Jumlah		

Kertas soalan ini mengandungi 21 halaman bercetak

SECTION A
[20 marks]
Answer **all** questions.
*Jawab **semua** soalan*

1 Diagram 1.1 shows an experiment to study the formation of an image by a plane mirror. An object is placed in front of the plane mirror.
Rajah 1.1 menunjukkan satu eksperimen bagi mengkaji pembentukan imej pada cermin satah. Satu objek diletakkan di hadapan cermin satah itu.

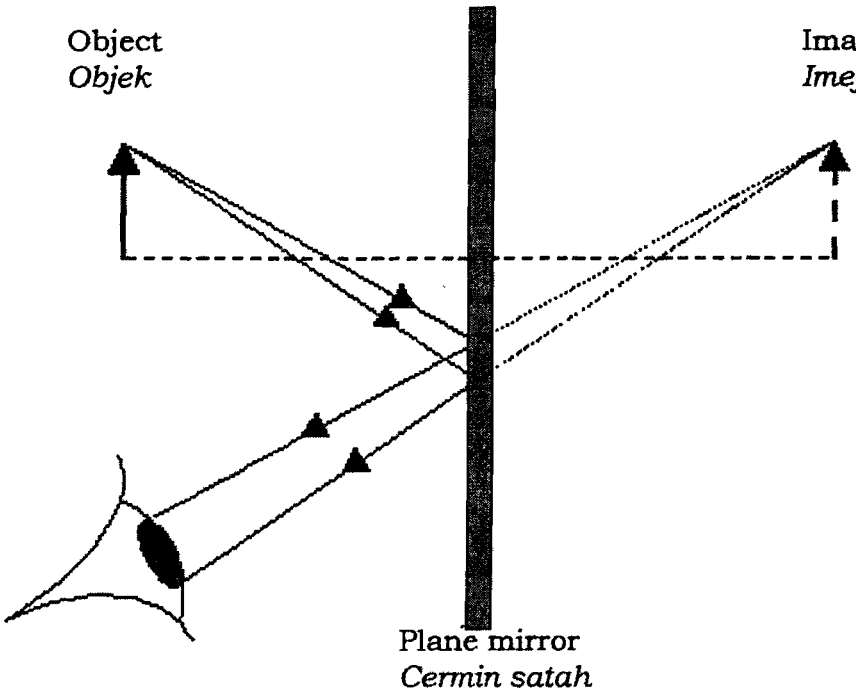


Diagram 1.1
Rajah 1.1

(a) Measure the height of image.
Ukur ketinggian imej.

..... cm [1 *mark*]

(b) Base on Diagram 1.1, state **one** characteristic of the image formed.
*Berdasarkan Rajah 1.1, nyatakan **satu** ciri imej yang terbentuk..*

.....
[1 *mark*]

(c) Diagram 1.2 shows the word seen on a vehicle.
Rajah 1.2 menunjukkan perkataan yang dilihat pada sebuah kenderaan.

(i) State the word seen by a driver through his front car's mirror.
Nyatakan perkataan yang dilihat oleh seorang pemandu melalui cermin hadapan keretanya.

.....

(ii) Base on your answer in1(c)(i), state the characteristic of the image formed.
Berdasarkan jawapan anda dalam 1(c)(i), nyatakan ciri imej yang terbentuk.

.....

[2 *marks*]

(d) Mark (√) in Table 1 below, the device which uses plane mirror.
Tandakan (√) pada Jadual 1 di bawah, alatan yang menggunakan cermin satah.

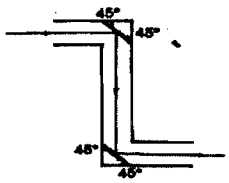
		
Periscope *Periskop*	Microscope *Mikroskop*	Telescope *Teleskop*

Table 1
Jadual 1

[1 *mark*]

2 Diagram 2 shows an experiment to study the effect of yeast on the height of dough. The height of dough are recorded every 20 minutes for 2 hours.
Rajah 2 menunjukkan suatu eksperimen untuk mengkaji kesan yis ke atas ketinggian doh. Ketinggian doh direkodkan setiap 20 minit selama 2 jam.

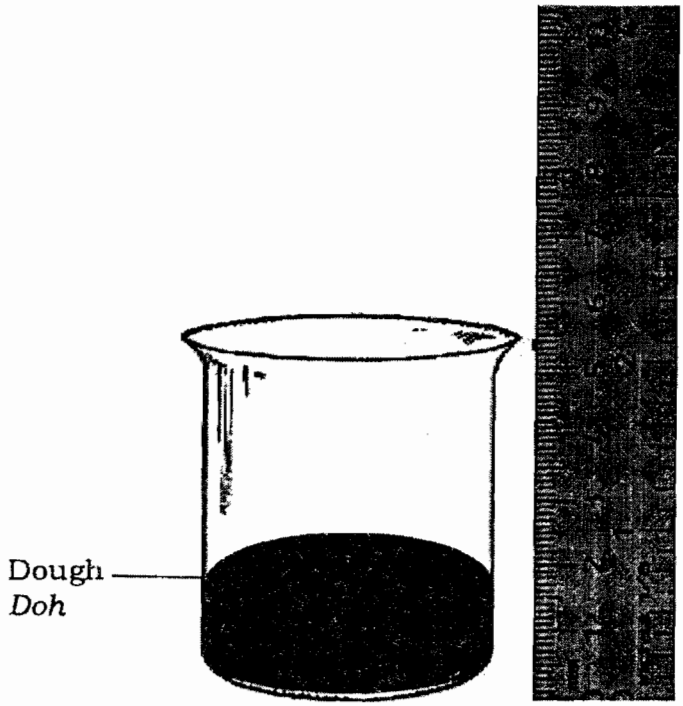


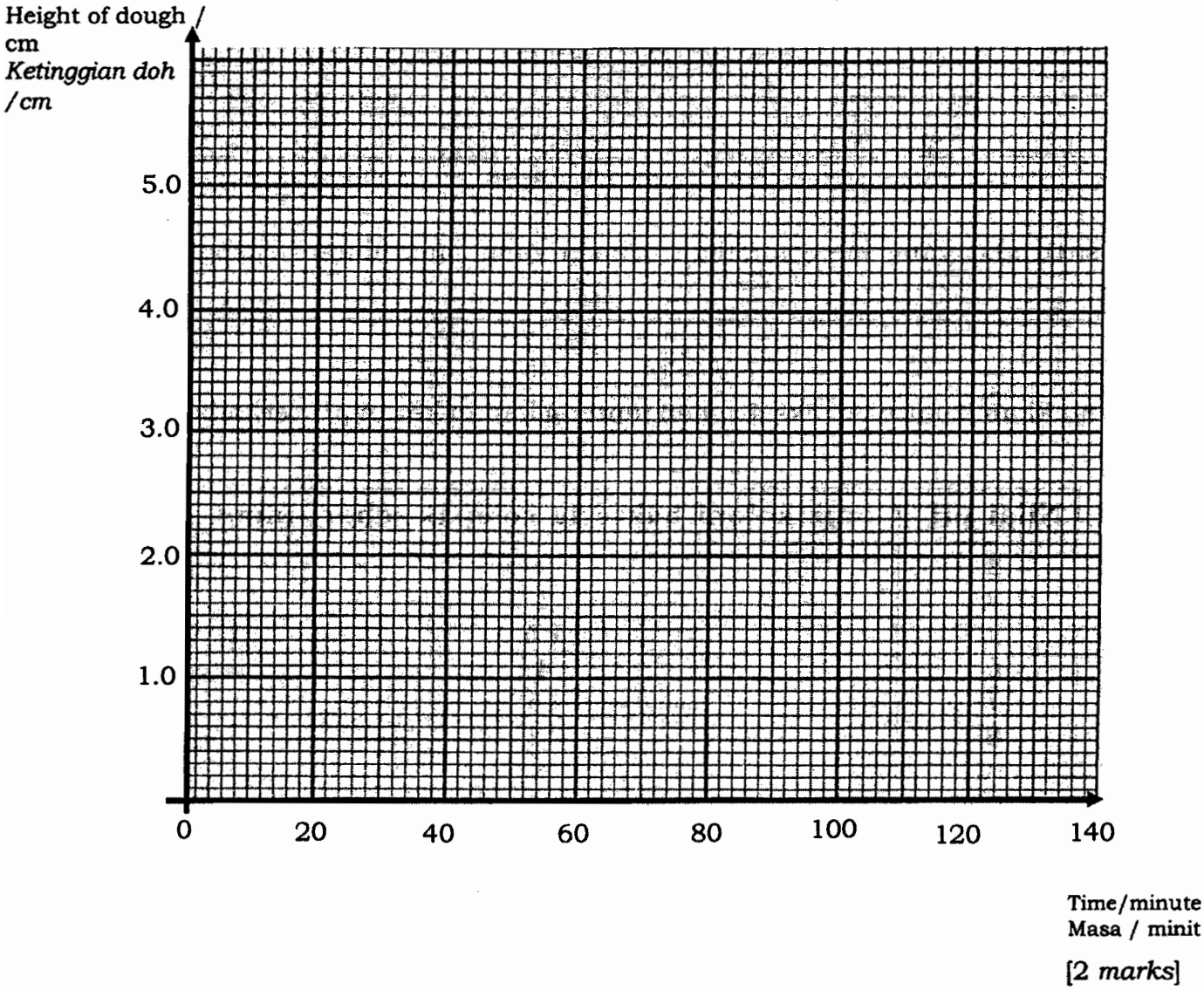
Diagram 2
Rajah 2

The result of this experiment is recorded in Table 2.
Keputusan eksperimen ini direkodkan dalam Jadual 2.

Times (minute) *Masa (minit)*	0	20	40	60	80	100	120
Height of dough (cm) *Ketinggian doh (cm)*	2.0	3.6	4.7	.....	4.9	5.0	5.0

Table 2
Jadual 2

(a) (i) Based on Table 2, draw a graph of the height of dough against time.
Berdasarkan Jadual 2 ,lukiskan graf ketinggian doh melawan masa.



[2 *marks*]

(ii) Based on the graph, state the height of dough on the 60th minutes.
Berdasarkan graf nyatakan ketinggian doh pada minit ke-60.

.....

[1 *mark*]

(b) What is the relationship between the height of dough in the first 80 minutes ?
Apakah hubungan di antara ketinggian doh dan masa dalam 80 minit pertama?

.....

.....

[1 *mark*]

(c) Predict the height of the dough on the 140th minutes.
Ramalkan ketinggian doh pada minit yang ke-140.

.....

[1 *mark*]

3 Diagram 3 shows an experiment to determine the calorific value of three types of food. The foods are completely burnt.
Rajah 3 menunjukkan satu eksperimen untuk menentukan nilai kalori bagi tiga jenis makanan. Makanan dibakar dengan lengkap.

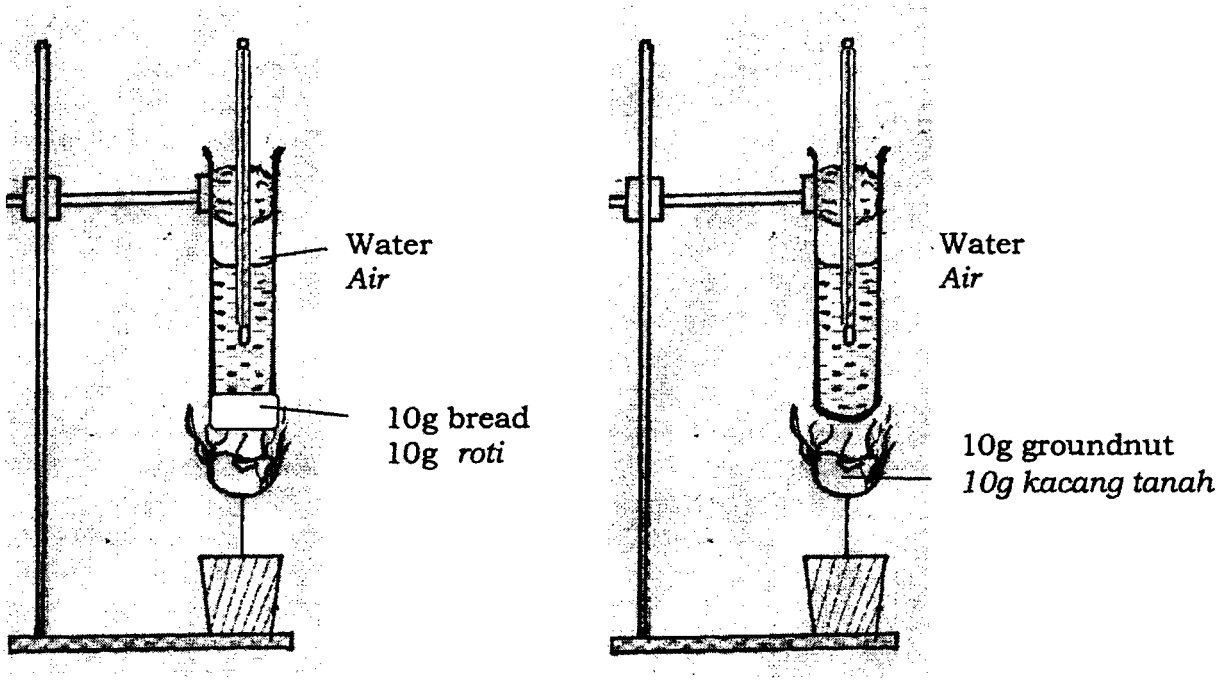


Diagram 3
Rajah 3

The highest temperature of water is recorded. The result of the experiment is shown in Table 3.
Suhu tertinggi air dicatatkan.Keputusan eksperimen itu ditunjukkan dalam Jadual 3.

Type of food *Jenis makanan*	Rise of water temperature/° C *Kenaikan suhu air /°C*
Bread *Roti*	15
Groundnut *Kacang tanah*	23

Table 3
Jadual 3

(a) State the variables in this experiment.
Nyatakan pembolehubah dalam eksperimen ini.

(i) Manipulated variable:
Pembolehubah dimanipulasi:

.....

[1 *mark*]

(ii) Constant variable:
Pembolehubah dimalarkan:

.....

[1 *mark*]

(b) State the hypothesis for this experiment.
Nyatakan hipotesis untuk eksperimen ini.

.....

.....

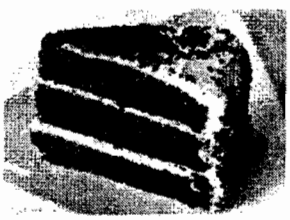
[1 *mark*]

(c) Based on this experiment, state the operational definition for calorific value.
Berdasarkan eksperimen ini, nyatakan definisi secara operasi bagi nilai kalori.

.....

[1 *mark*]

(d) Tick (√) the food which has higher calorific value than the groundnut.
Tandakan (√) makanan yang mempunyai nilai kalori yang lebih lebih tinggi daripada kacang tanah .

		
Watermelon *Tembikai*	Cheese cake *Kek keju*	Cooked rice *Nasi*

[1 *mark*]

4 Diagram 4.1 and Diagram 4.2 show an experiment to study the relationship between the mass of an object and inertia. Time taken for both tins to stop swinging is recorded.
Rajah 4.1 dan Rajah 4.2 menunjukkan satu eksperimen mengkaji hubungan diantara jisim objek dengan inersia. Masa yang diambil untuk kedua-dua tin berhenti berayun dicatatkan.

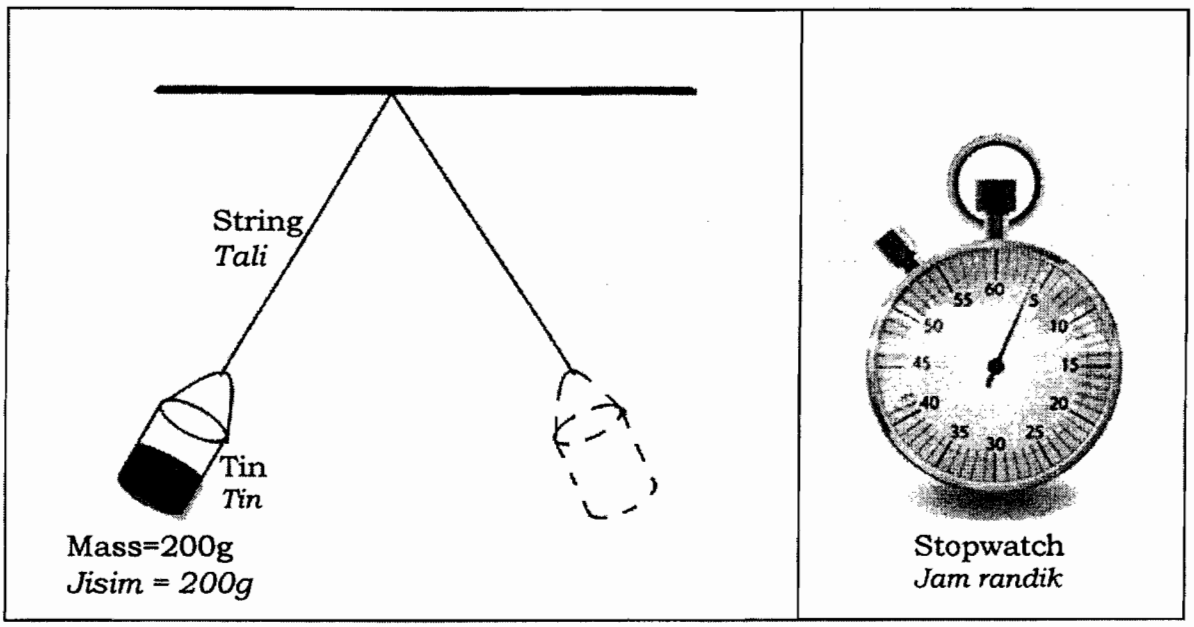


Diagram 4.1
Rajah 4.1

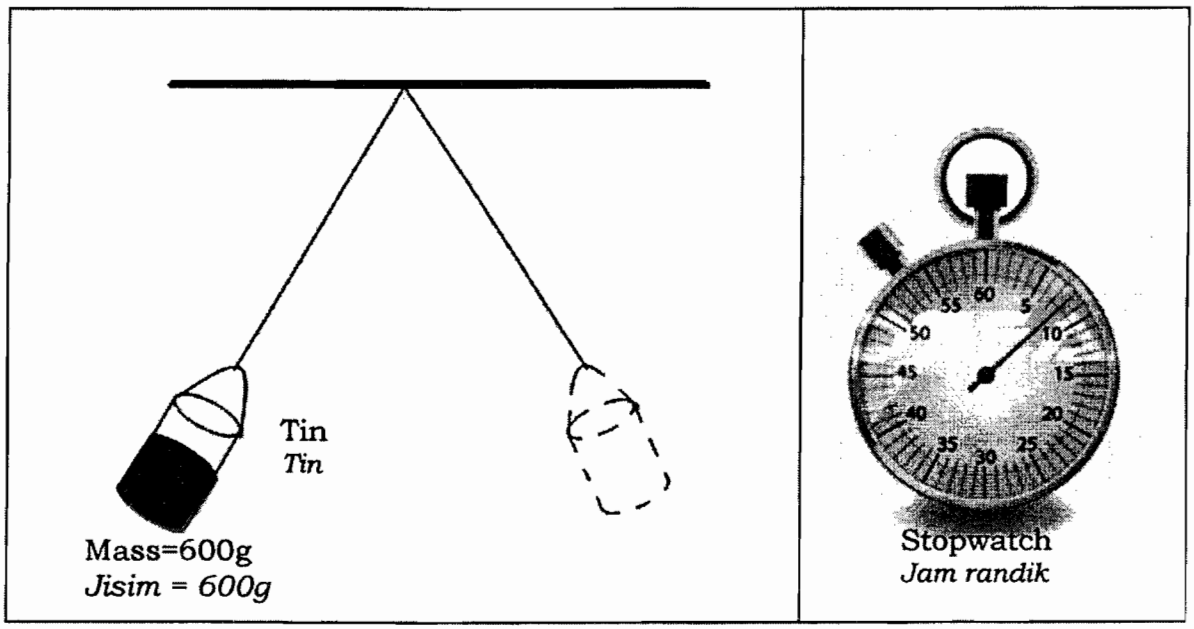


Diagram 4.2
Rajah 4.2

(a) (i) Based on Diagram 4.2, complete Table 4.
Berdasarkan Rajah 4.2, lengkapkan Jadual 4.

Mass of object (g) *Jisim objek(g)*	*Time* taken for tin to stop swinging (min) *Masa tin berhenti berayun (min)*
200	4
600	.....

Table 4
Jadual 4

(ii) State the observation on the stopwatch reading based on Diagram 4.1 and Diagram 4.2.
Nyatakan pemerhatian pada bacaan jam randik berdasarkan Rajah 4.1 dan Rajah 4.2

.....

.....

(iii) State the inference that can be made based on the observation in 4(a)(ii).
Nyatakan inferens yang dapat dibuat berdasarkan pemerhatian di 4(a)(ii).

.....

.....

[3 *marks*]

(b) State **one** responding variable in this experiment.
*Nyatakan **satu** pembolehubah bergerakbalas dalam eksperimen ini.*

.....

[1 *mark*]

(c) State the operational definition for inertia.
Nyatakan definisi secara operasi bagi inersia.

.....

[1 *mark*]

SECTION B
[30 marks]
Answer **all** questions
*Jawab **semua** soalan*

5 Diagram 5.1 shows the endocrine glands.
Rajah 5.1 menunjukkan kelenjar-kelenjar endokrin.

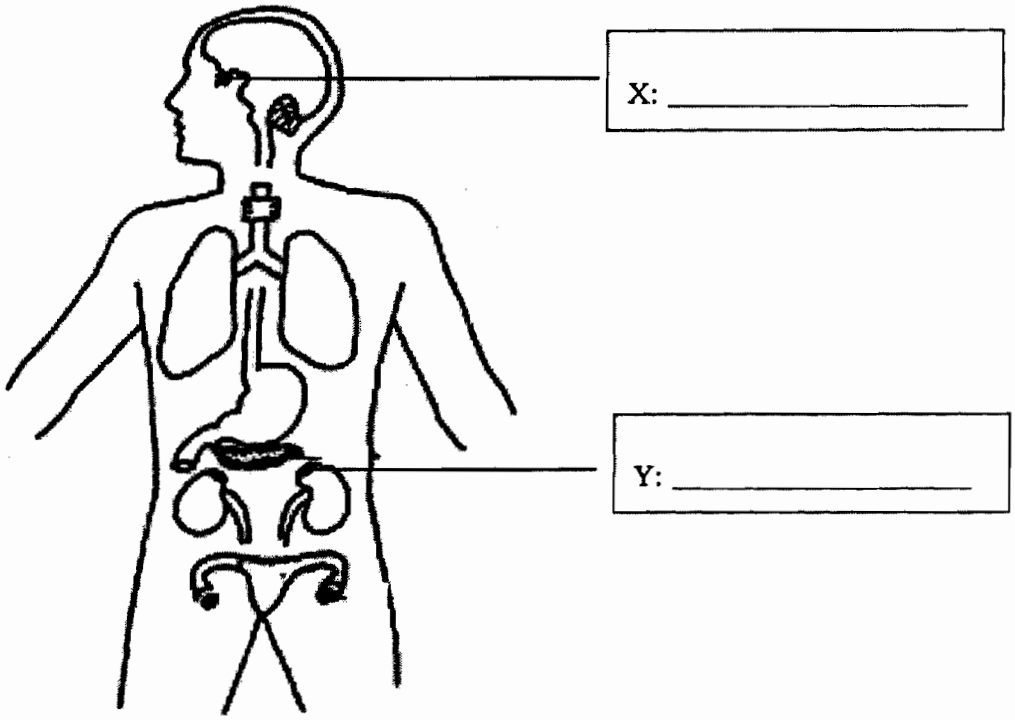


Diagram 5.1
Rajah 5.1

(a) (i) Label X and Y in the boxes provided in Diagram 5.1 using the following information.
Label X dan Y dalam kotak yang disediakan dalam Rajah 5.1 menggunakan maklumat berikut.

- Pituitary Gland
  Kelenjar Pituitari
- Thyroid Gland
  Kelenjar Tiroid
- Adrenal Gland
  Kelenjar Adrenal

(ii) State **one** function of Y.
*Nyatakan **satu** fungsi Y.*

.....

[3 *marks*]

(b) Diagram 5.2 shows a disease caused by excessive hormone in human body.
Rajah 5.2 menunjukkan penyakit yang disebabkan oleh lebihan hormon dalam badan manusia.

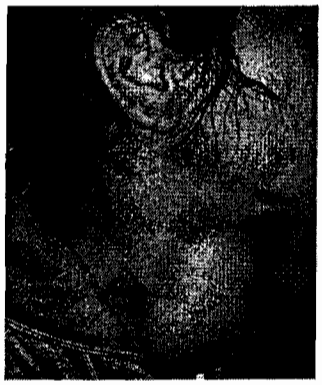


Diagram 5.2
Rajah 5.2

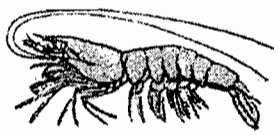
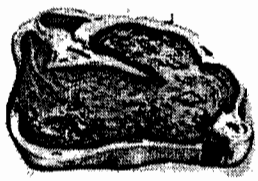
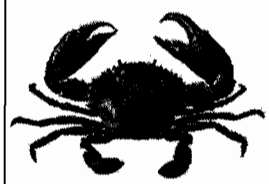
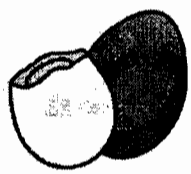
(i) Name the endocrine gland that involved.
Namakan kelenjar endokrin yang terlibat.

.....

(ii) State the disease in Diagram 5.2.
Nyatakan penyakit dalam Rajah 5.2.

.....
[2 marks]

(c) Mark (√) the foods should be taken by the patient in Diagram 5.2
Tandakan (√) makanan yang patut diambil oleh pesakit dalam Rajah 5.2.

 Prawn *Udang*	 Meat *Daging*	 Crab *Ketam*	 Eggs *Telur*

[1 *mark*]

6 Diagram 6 shows a schematic diagram of a cross breeding between red roses plant and white roses plant.
Rajah 6 menunjukkan rajah skema kacukan di antara pokok mawar merah dengan pokok mawar putih.

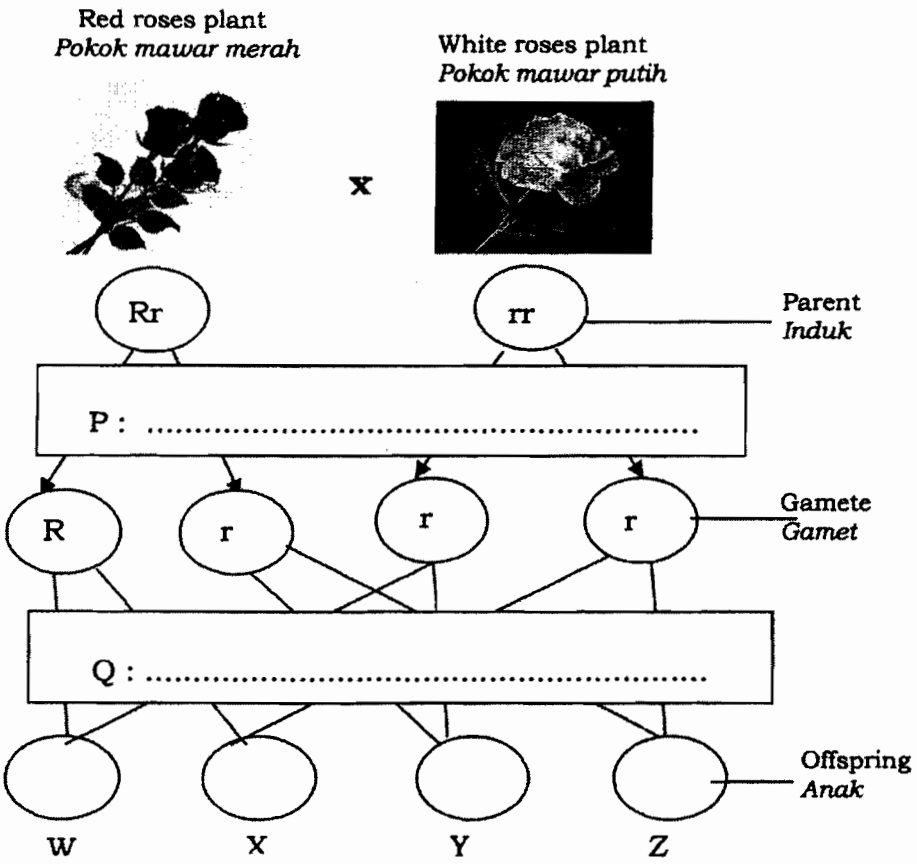


Diagram 6
Rajah 6

(a) Name process
Namakan proses

(i) P : .....

(ii) Q : .....

[2 *marks*]

(b) Based on Diagram 6, state the dominant trait of the roses ?
Berdasarkan Rajah 6, nyatakan sifat dominan bunga mawar tersebut?

.....

[1 *mark*]

(c) State the genotype of offspring
Nyatakan genotip bagi anak

(i) W: .....

(ii) Z: .....

[2 *marks*]

(d) What is the ratio of the number of red rose plants to the number of white rose plants?
Berapakah nisbah bilangan anak pokok mawar merah kepada bilangan anak pokok mawar putih?

.....

[1 *mark*]

7 Diagram 7 shows the elements of *P, Q, R and S* in an incomplete Periodic Table.
Rajah 7 menunjukkan unsur-unsur P,Q,R dan S di dalam Jadual Berkala yang tidak lengkap.

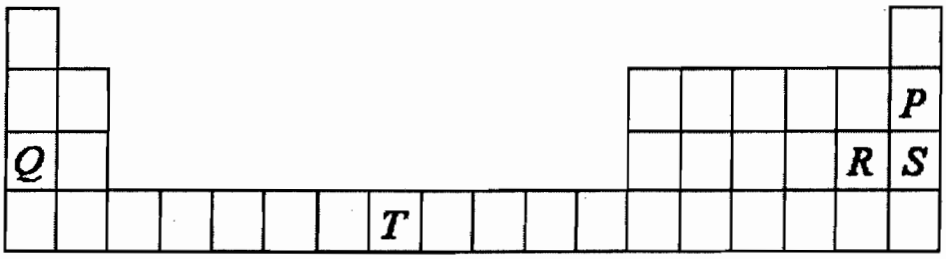


Diagram 7
Rajah 7

(a) How the elements in the Periodic Table are arranged?
Bagaimanakah unsur-unsur di dalam Jadual Berkala disusun?

.....

[1 *mark*]

(b) (i) What is the number of proton in element Q?
Berapakah bilangan proton dalam unsur Q?

.....

[1 *mark*]

(ii) Which element has the highest nucleon number?
Unsur yang manakah mempunyai nombor nukleon yang paling tinggi?

.....

[1 *mark*]

(c) Which element represents the transition element?
Unsur manakah mewakili unsur peralihan?

.....
[1 *mark*]

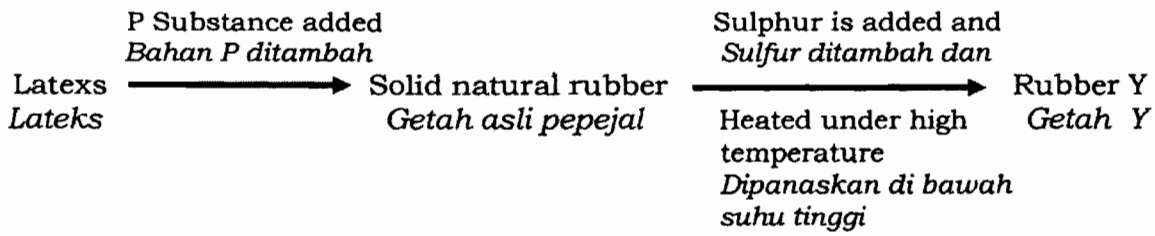
(d) Which elements have similar chemical properties?
Unsur - unsur yang manakah mempunyai sifat kimia yang sama?

.....
[1 *mark*]

(e) Which element is metal?
Unsur yang manakah adalah logam?

.....
[1 *mark*]

8 Diagram 8 shows a process to change latex into a suitable rubber that can be used to make tyres.
Rajah 8 menunjukkan satu proses untuk menukarkan lateks menjadi getah yang sesuai digunakan untuk membuat tayar.



(a) Name the monomer for latex.
Namakan monomer untuk lateks.

.....
[1 mark]

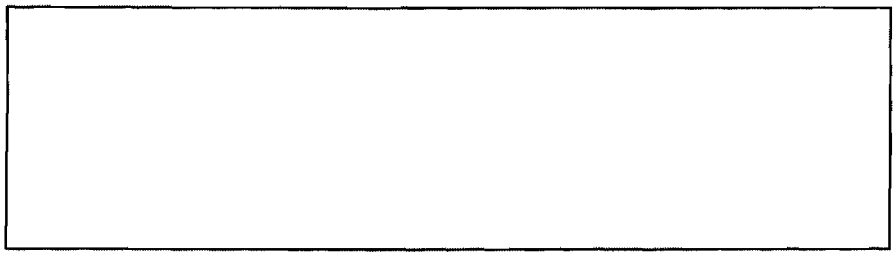
(b) Name substance P.
Namakan bahan P.

.....
[1 *mark*]

(c) (i) Name rubber Y.
Namakan getah Y.

.....

(ii) Draw the molecular structure of rubber Y
Lukis struktur molekul bagi getah Y.



[2 *marks*]

(d) State the function of sulphur added to solid natural rubber.
Nyatakan fungsi sulfur yang ditambah kepada getah asli pepejal.

.....

.....

[1 *mark*]

(e) Mark (√) in the boxes provided the other products which are made from rubber Y.
Tanda (√) pada kotak yang disediakan bagi produk lain yang diperbuat daripada getah Y.

Industrial glove
Sarung tangan industri ☐

Rubber band
Gelang getah ☐

Shoe sole
Tapak kasut ☐

[1 *mark*]

9 Diagram 9 shows a schematic diagram of a radio transmission system.
Rajah 9 menunjukkan rajah skema satu sistem pemancar radio.

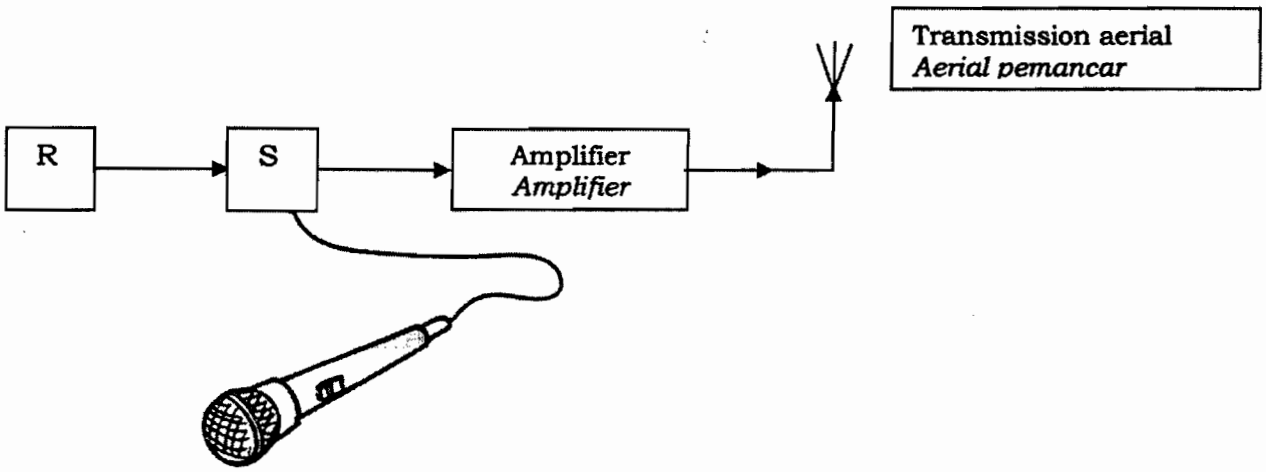


Diagram 9
Rajah 9

Based on Diagram 9,
Berdasarkan Rajah 9,

(a) name components R using the following information.
namakan komponen R menggunakan maklumat berikut.

Oscillator	Modulator
Osilator	*Modulator*

(i) R : .....

(ii) name the process occurs in component S.
namakan proses yang berlaku dalam komponen S.

.....
[2 *marks*]

(b) What is the function of a microphone in the radio transmission system?
Nyatakan apakah fungsi mikrofon dalam sistem pemancar radio tersebut?

.....
[1 *mark*]

(c) Name the type of wave generated by component R.
Namakan jenis gelombang yang dijanakan oleh komponen R.

.....
[1 *mark*]

(d) What is the main electronic component in an amplifier?
Apakah komponen elektronik utama di dalam sebuah amplifier?

.....

[1 *mark*]

(e) What type of wave is transmitted by transmission aerial?
Mark (√) your answer in Diagram 9.1.
Apakah jenis gelombang yang dipancarkan oleh aerial pemancar?
Tandakan (√) jawapan anda dalam petak yang disediakan dalam Rajah 9.1.

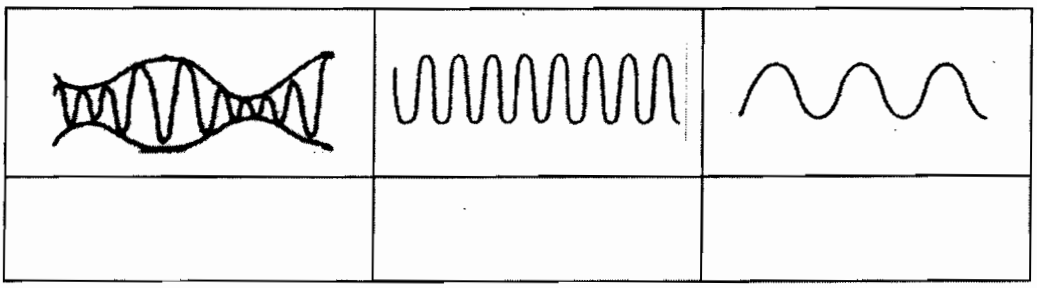


Diagram 9.1
Rajah 9.1

[1 *mark*]

SECTION C
[*20 marks*]

Answer **Question 10** *and either* **Question 11** *or* **Question 12**
Jawab **Soalan 10** *dan sama ada* **Soalan 11** *atau* **Soalan 12**

10 Study the following statement.
Kaji pernyataan berikut.

Metals show different reactivity when it react with dilute acid *Logam menunjukkan kecergasan yang berbeza apabila bertindakbalas dengan asid cair*

(a) Suggest a hypothesis to investigate the above statement.
Cadangkan satu hipotesis untuk menyiasat pernyataan di atas.

[*1 mark*]

(b) Using magnesium powder, zinc powder, dilute hydrochloric acid and other apparatus , describe an experiment to test your hypothesis in 10(a) based on the following criteria:

Dengan menggunakan serbuk magnesium, serbuk zink, asid hidroklorik cair dan radas lain, huraikan satu eksperimen untuk menguji hipotesis anda di 10(a) berdasarkan kriteria berikut:

(i) Aim of the experiment
Tujuan eksperimen [*1 mark*]

(ii) Identification of variables
Pengenalpastian pembolehubah [2 *marks*]

(iii) List of apparatus and materials
Senarai radas dan bahan [*1 mark*]

(iv) Procedure or method
Prosedur atau kaedah [3 *marks*]

(v) Tabulation of data
Penjadualan data [*1 mark*]

(vi) Conclusion
Rumusan [*1 mark*]

11 (a) Human activities sometimes cause undesirable effects to the environment.
State **two** human activities and explain their effects to the environment.
Aktiviti manusia kadangkala mendatangkan kesan buruk terhadap alam sekitar.
Nyatakan **dua** *aktiviti manusia dan terangkan kesannya terhadap alam sekitar.*
[4 *marks*]

(b) Most factories in an industrial area release smoke and poisonous gases as waste product.
The waste product produced will cause air pollution.
Explain methods to overcome this problem.
Kebanyakan kilang di kawasan perindustrian membebaskan asap dan gas beracun sebagai bahan buangan.
Bahan buangan yang dihasilkan akan menyebabkan pencemaran udara .
Terangkan kaedah untuk mengatasi masalah ini.

Your answer should include the following aspects;
Penerangan anda hendaklah mengandungi aspek-aspek berikut;

(i) Identify the problem [1 *mark*]
Kenal pasti masalah

(ii) Clarification of the problem [1 *mark*]
Penjelasan masalah

(iii) Suggest four methods to solve the problem [4 *marks*]
Cadangkan empat kaedah untuk menyelesaikan masalah ini

12 (a) State **two** differences between natural rubber and synthetic rubber.
Give **one** example of product made from each type of the rubbers.
*Nyatakan **dua** perbezaan antara getah asli dan getah sintetik.*
*Beri **satu** contoh produk yang diperbuat dari setiap jenis getah tersebut.*

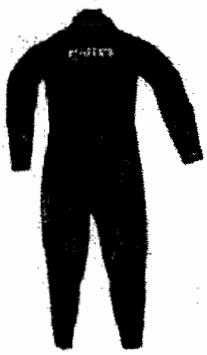
[4 *marks*]

(b) Diagram 12 shows three types of products made of synthetic rubber.
Rajah 12 menunjukkan tiga jenis produk yang diperbuat daripada getah sintetik.

Soles of shoes
Tapak kasut

Tyre inner tube
Tiub tayar

Synthetic rubber
Getah sintetik



Wetsuits
Pakaian menyelam

Diagram 12
Rajah 12

Study the products in Diagram 12 and construct the concept of synthetic rubber.
Kaji produk-produk dalam Rajah 12 dan bina konsep getah sintetik.

Your answer should be based on the following aspects;
Jawapan anda hendaklah berdasarkan aspek berikut;

(i) Identify **two** common characteristics
*Kenal pasti **dua** ciri sepunya*

[2 *marks*]

(ii) Give **two** other products made of synthetic rubber
*Beri **dua** contoh produk lain yang diperbuat daripada getah sintetik*

[2 *marks*]

(iii) Give **one** non-example of synthetic rubber
*Beri **satu** bukan contoh getah sintetik.*

[1*mark*]

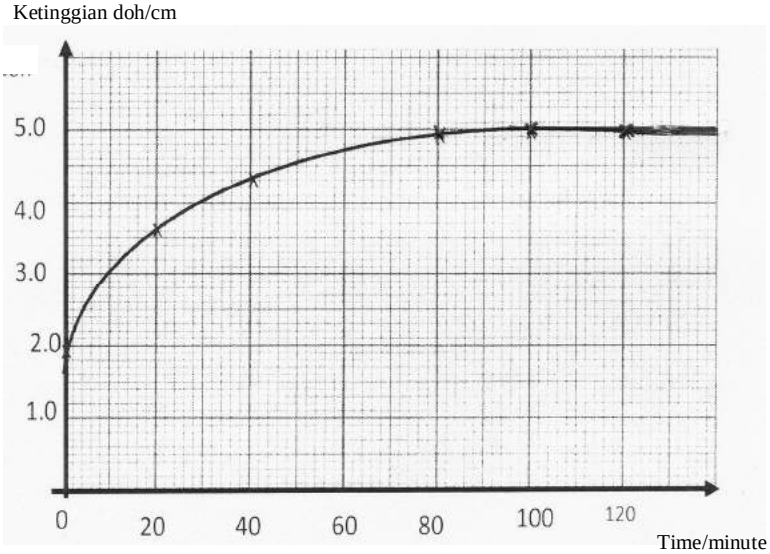
(iv) Relate the common characteristic to construct the concept of synthetic rubber
Hubungkaitkan ciri sepunya untuk membina konsep getah sintetik

[1*mark*]

END OF QUESTION PAPER
KERTAS SOALAN TAMAT

MARKING SCHEME (PAPER 2)

Quest No	Marking Criteria	Mark	Σ Marks
	SECTION A		
1	(a) ……..± 0.1 cm	1	
	Note:Measurement base on question paper		1
	(b) 1. same size/height	1	
	2. upright	1	
	3. virtual	1	
	4. distance of object from the mirror is the same as the distance of image from the mirror	1	1
	Note: Any one		
	(c) (i) AMBULANCE	1	
	(ii) laterally inverted	1	2
	(d) periscope	1	1
		TOTAL	**5**

Quest No	Marking Criteria	Mark	Σ Marks
2	(a) (i) Height of dough/cm Ketinggian doh/cm  Time/minute Masa/min. Note: 1. All points are transferred correctly – 1m 2. Smooth graph - 1m	2	2
	(a)(ii) 4.7 ± 0.1 (cm) (Note: Answer base on student's graph)	1	1
	(b) 1. As the time increases, the height of dough increases 2. If the time increases, so the height of dough increases 3. The longer the time, the higher the height of dough *Any one*	1	1
	(c) 5.0 (cm)	1	1
		TOTAL	**5**

<table>
<tr><th>Quest No</th><th>Marking Criteria</th><th>Mark</th><th>Σ Marks</th></tr>
<tr><td>3</td><td>
(a) (i) Manipulated variable:
1. Type of food
2. Bread and groundnut
Any one

(ii) Constant variable:
1. Mass of food
2. Volume of water
Any one

(b) Hypothesis:
1. Different types of food have different calorific value
2. Groundnut has the higher calorific value/higher rise in temperature
3. Bread has the lower calorific value / lower rise in temperature

(c) Define operationally:
Calorific value is (the value) shown by the rise of water temperature

(d)
<table>
<tr><td> 
Watermelon
Tembikai</td><td> 
Cheese cake
Kek keju</td><td> 
Cooked rice
Nasi</td></tr>
<tr><td></td><td>√</td><td></td></tr>
</table>
</td><td>1

1

1

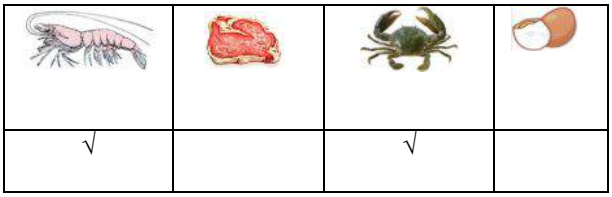
1

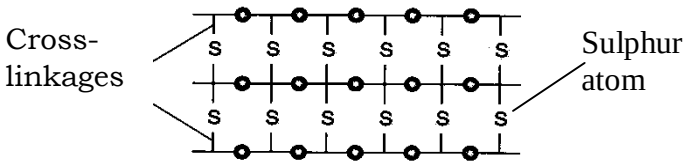
1</td><td>2

1

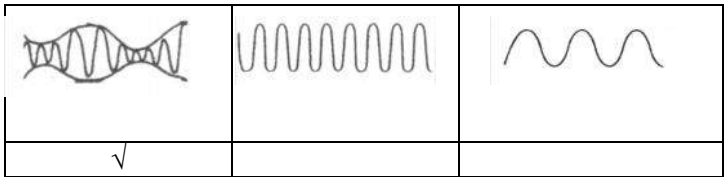
1</td></tr>
<tr><td></td><td></td><td>TOTAL</td><td>5</td></tr>
</table>

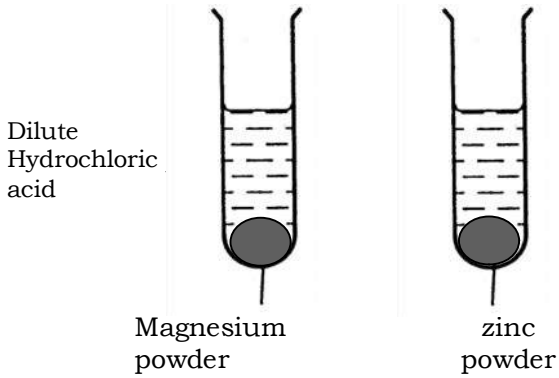
Quest No	Marking Criteria	Mark	Σ Marks
4	(a)(i) 8 min (ii) Observation: 1. Stopwatch reading in Diagram 4.1 is less compared to stopwatch reading in Diagram 4.2 // vice versa 2. Time taken in Diagram 4.1 is shorter compared to time taken in Diagram 4.2 3. Time taken in Diagram 4.1 is 4 minutes and Time taken in Diagram 4.2 is 8 minutes (iii) Inference: Time taken for tin to stop swinging in Diagram 4.2 is longer because it has higher mass / inertia (b) Responding variable: 1. Inertia of tin 2. time taken for tin to stop swinging *Any one* (c) Define operationally: Inertia is shown by the time taken for tins to stop swinging.	1 1 1 1 1	3 1 1
		TOTAL	**5**

5	**SECTION B** (a) (i) X: pituitary (gland) Y: Adrenal (gland) (ii) 1. Increases the metabolic rate to overcome pressure 2. Speed up heartbeat and breathing *Any one* (b) (i) thyroid (gland) (ii) goiter (c)  Note: 2 correct – 1 mark	1 1 1 1 1 1	 3 2 1
		TOTAL	**6**
Quest No	Marking Criteria	Mark	Σ Marks
6	(a) (i) P : meiosis (ii) Q : fertilisation (b) Red roses (c) (i) W : Rr (ii) Z : rr (d) 2:2//1: 1	1 1 1 1 1 1	 2 1 2 1
		TOTAL	**6**
7	(a) According to the number of protons According to the proton number *Any one* (b)(i)11 (ii)T (c) T (d) P and S (e) Q//T	1 1 1 1 1	1 2 1 1 1

		TOTAL	**6**
8	(a) isoprene	1	1
	(b) ethanoic acid //formic acid// any acid	1	1
	(c)(i) Vulcanised rubber	1	
	(ii) 	1	2
	(d) Sulphur atoms form cross-linkages between rubber polymers/molecules	1	1
	(e) industrial glove and shoe sole Note: 2 correct - 1 mark	1	1
		TOTAL	**6**

Quest No	Marking Criteria	Mark	Σ Marks

9	(a)(i) R : Oscillator (ii) S : Modulation (b) To change sound wave to audio wave/electric signal (c) Radio wave (c) Transistor (e)  √	1 1 1 1 1 1	 2 1 1 1 1
		TOTAL	**6**
10	**SECTION C** (a) 1. Different metal shows different reactivity with dilute (hydrochloric) acid 2. Magnesium shows higher reactivity with dilute (hydrochloric) acid 3. Zinc shows lower reactivity with dilute (hydrochloric) acid *Any one* (b)(i) To study the reactivity of metals with dilute (hydrochloric) acid (ii) Constant : Type of acid // Concentration/ volume of acid//Mass of metal Manipulated: Type of metal // magnesium powder and zinc powder Responding : Reactivity of metal // Number of bubbles (iii) magnesium powder, zinc powder, dilute hydrochloric acid, **test tube**	1 1 1 1 1 1 1 1 1 1	 1 1 Max 1
Quest	Marking Criteria	Mark	Σ Marks

No			
10	(iv)  1 Prepare two test tubes A and B 2. Pour dilute hydrochloric acid in test tube A and B // diagram 3. Put: (a) Magnesium powder in test tube A// diagram (b) Zinc powder in test tube B // diagram 4. Observe the reactivity of the metals with dilute hydrochloric acid (and record in table). (v) Type of metal *Jenis logam* / Reactivity of metal *Kereaktifan logam* Magnesium Zinc (vi) Different metal shows different reactivity with dilute acid	1 1 1 1	3 1
		TOTAL	**10**

Quest	Marking Criteria	Mark	Σ Marks

<table>
<tr><td>No</td><td></td><td></td><td></td></tr>
<tr><td>11(a)</td><td>
<table>
<tr><td></td><td>Human activities</td><td>Effect to environment</td></tr>
<tr><td>1</td><td>Burning of fossil fuels by vehicles and factory machinery.</td><td>1. Acid rain
2. Plant destroy
3. Air pollution
4. Greenhouse effect
5. Global warming
Note : Any one</td></tr>
<tr><td>2</td><td>Uncontrolled use of chemical substance / fertilizer / pesticides / fungicides in agriculture.</td><td>1. Polluted water / lakes / rivers
2. Stimulates excessive growth of alga
3. Eutrophication
Note: Any one</td></tr>
<tr><td>3</td><td>Disposal of chemical waste/ toxic substance / radioactive substance into waterways</td><td>1. Water pollution
2. Aquatic life destroy
3. Thermal pollution
Note: Any one</td></tr>
<tr><td>4</td><td>Use of chlorofluorocarbon</td><td>1. Thinning
2. Depletion of ozone layer
Note: Any one</td></tr>
<tr><td>5</td><td>Disposal of non-biodegradable rubbish and sewage.</td><td>1. Landfill sites are filled with garbage
2. Land pollution
3. Contaminated water
4. Water pollution
Note: Any one</td></tr>
<tr><td>6</td><td>Deforestation</td><td>1. Soil erosion
2. Flash floods
3. Landslides
Note: Any one</td></tr>
</table>
Any two human activities and two effects
Note:
1. One human activity – 1 mark
2. One correct effect - 1 mark
3. Only effect given - 0 mark
</td><td>2

2

2

2

2

2</td><td>4</td></tr>
</table>

<table>
<tr><th>Quest No</th><th>Marking Criteria</th><th>Mark</th><th>Σ Marks</th></tr>
<tr><td>11(b)</td><td>Identify of problem: Air pollution

Clarification of problem:
Most factories release smoke and poisonous gases.

Methods to solve the problem:
1. Using a tall chimney
2. Using a filter at the chimney
3. Using an electrostatic precipitator / catalytic converter.
4. Using air cleaning system
5. Law enforcement.
[Any four methods]</td><td>1

1

1
1
1

1
1</td><td>1

1

4</td></tr>
<tr><td></td><td></td><td>TOTAL</td><td>6</td></tr>
<tr><td>12(a)</td><td>
<table>
<tr><th></th><th>Natural Rubber</th><th>Synthetic Rubber</th></tr>
<tr><td>1</td><td>Low heat resistant</td><td>High heat resistant</td></tr>
<tr><td>2</td><td>Easily oxidized</td><td>Cannot be easily oxidized</td></tr>
<tr><td>3</td><td>More elastic</td><td>Less elastic</td></tr>
<tr><td>4</td><td>Higher ability to absorb sound</td><td>Low ability to absorb sound</td></tr>
</table>
Any two differences
Examples of each type of the rubber

<table>
<tr><th>Natural Rubber</th><th>Synthetic Rubber</th></tr>
<tr><td>1. Aeroplane’s tyre
2. Glove</td><td>1. Hoses
2. Gaskets
3. Wetsuits
4. Rubber hose of a bunsen buner
5. Pharmaceutical stoppers
6. Petrol hose
Note any one</td></tr>
</table>
Any one example for each type of rubber
</td><td>1

1

1

1

1
1</td><td>

2

2</td></tr>
</table>

Quest No	Marking Criteria	Mark	Σ Marks
12(b)	• **Common characteristic**: 1. Resistance to heat 2. Low ability to absorb sound 3. Low ability to absorb vibration 4. Less elastic *Note : Any two common characteristics*	 1 1 1 1	2
	• **Two other products:** 1. Gaskets 2. Electrical insulation 3. Rubber hose of the Bunsen burner 4. Petrol hose 5. Pharmaceutical stoppers *Note : Any two relevant answers*	 1 1 1 1 1	2
	• **One non-example** 1. Latex	 1	1
	• **Actual Concept** Synthetic rubber is a rubber/substance that is resistance to heat and has low ability to absorb sound *Note :* *1. Use any two characteristics mentioned in 12(b)(i)* *2. Follow the format of writing actual concept*	 1	1
		TOTAL	**10**

END OF MARKING SCHEME

SKEMA PEMARKAHAN TAMAT