

4554/1
BIOLOGY / B
Kertas 1
MAY 2011
1 1/2 Jam

BIOLOGY

Tingkatan 5

Kertas 1

Satu Jam Lima Belas Minit

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIBERITAHU.

1. *Kertas soalan ini adalah dalam dwibahasa.*
2. *Soalan dalam bahasa Inggeris mendahului soalan yang sepadan dalam bahasa Melayu.*
3. *Calon dikehendaki membaca maklumat di halaman belakang kertas soalan ini.*

Kertas soalan ini mengandungi 31 halaman bercetak dan 1 halaman tidak bercetak.

Ilustrasi bahan masuk sel

2.

2. What is the function of cholesterol molecules in the plasma membrane?
- A As carrier membrane to move substances across the plasma membrane by active transport.
 - B To form protein pores for facilitated diffusion of mineral ions.
 - C To join the proteins with phospholipid molecules.
 - D To stabilize the fluidity of the plasma membrane.
- Apakah fungsi molekul kolesterol dalam membran plasma?
- A Sebagai membran pembawa yang mengangkut bahan menenast membran plasma secara pengangkutan aktif.
 - B Membentuk hang protein untuk resapan berbanli ion mineral.
 - C Menghubungkan protein-dengan molekul fosfolipid.
 - D Menstabilkan keanjalan membran plasma.

- What is the function of structure S?
- A Excites waste products from the cell.
 - B Maintains rigidity of the cell.
 - C Controls the size of the cell.
 - D Maintains the shape of the cell.
- Apakah fungsi struktur S?
- A Mengeluarkan bahan kumuh daripada sel.
 - B Menjaga kekakuan sel.
 - C Mengawal saiz sel.
 - D Menjaga bentuk sel.

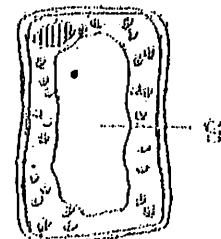


Diagram 1
Rajah 1

1. Diagram 1 shows a plant cell.
Rajah 1 menunjukkan satu sel tumbuhan.

- 3 Diagram 2 shows diffusion in potato cells:
Rajah 2 menunjukkan resapan dalam sel kentang.

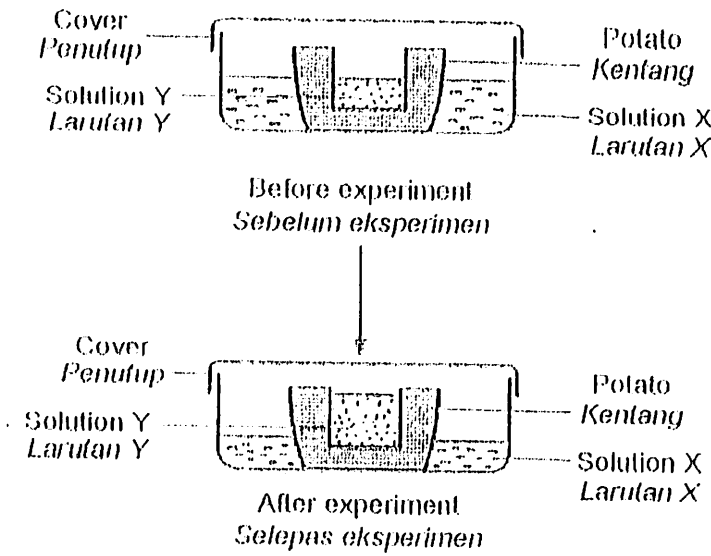


Diagram 2
Rajah 2

What is solution X and solution Y?
Apakah larutan X dan larutan Y?

	Solution X / <i>Larutan X</i>	Solution Y / <i>Larutan Y</i>
A	Distilled water <i>Air suling</i>	Distilled water <i>Air suling</i>
B	10% sucrose solution <i>Larutan sukrosa 10%</i>	10% sucrose solution <i>Larutan sukrosa 10%</i>
C	Distilled water <i>Air suling</i>	10% sucrose solution <i>Larutan sukrosa 10%</i>
D	10% sucrose solution <i>Larutan sukrosa 10%</i>	Distilled water <i>Air suling</i>

[Lihat halaman sebelah]

- 4 -

- What is the observation after 30 minutes?
Apakah pemerhatian selepas 30 minit?
- A Visking tube swells
Tub visking mengembang
 - B No change occurs
Tiada perubahan berlaku
 - C Visking tube shrinks
Tub visking mengecut
 - D Visking tube bursts
Tub visking pecah

Diagram 4
Rajah 4

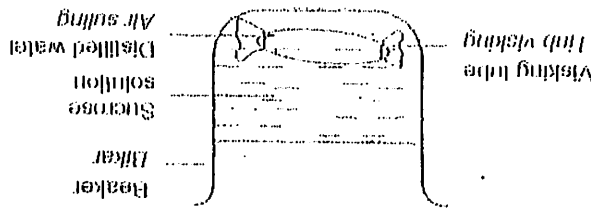


Diagram 4 shows the visking tube which is filled with distilled water and immersed in sucrose solution.
Rajah 4 menunjukkan tub visking yang diisi dengan air suling dan direndam dalam larutan sifrosa.

5

- Name the process in which the plant cells have undergone?
Namakan proses yang telah dialami oleh sel tumbuhan itu?
- A Haemolysis
Plasmolysis
 - B Crenation
Krenasi
 - C Plasmolysis
Plasmolisis
 - D Deplasmolysis
Deplasmolisis

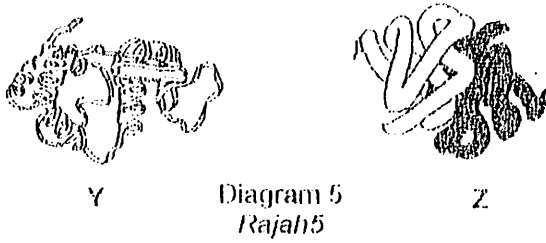
Diagram 3
Rajah 3



Diagram 3 shows plant cells immersed in solution A for 30 minutes.
Rajah 3 menunjukkan sel tumbuhan yang direndam dalam larutan A selama 30 minit.

4

- 6 Diagram 5 shows two types of protein structure.
Rajah 5 menunjukkan dua jenis struktur protein.



Which of the following are the correct examples?
Antara berikut, yang manakah contoh yang betul?

	Y	Z
A	Keratin / Keratin	Haemoglobin / Haemoglobin
B	Haemoglobin / Haemoglobin	Enzyme / Enzim
C	Haemoglobin / Haemoglobin	Keratin / Keratin
D	Antibody / Antibodi	Haemoglobin / Haemoglobin

- 7 Diagram 6 shows a hydrolysis process by an enzyme .
Rajah 6 menunjukkan proses hidrolisis oleh enzim.

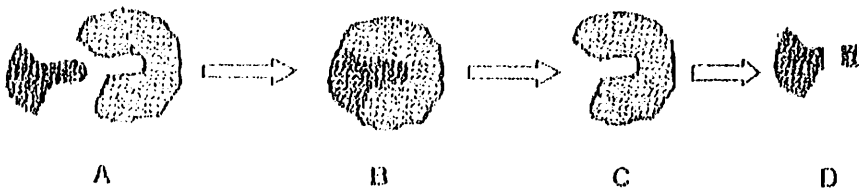
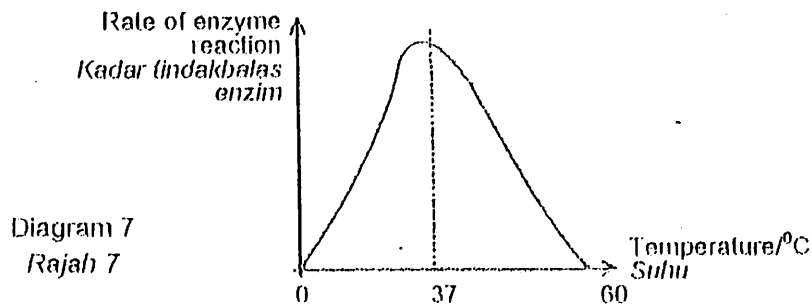


Diagram 6
Rajah 6

Which of the structure labeled A, B, C and D represent the enzyme?
Antara struktur bertabel A, B C dan D, manakah mewakili enzim?

- 8 Diagram 7 shows the effects of temperature on the rate of an enzyme reaction.
Rajah 7 menunjukkan kesan suhu ke atas kadar tindak balas enzim.



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

- A When the temperature is low, the rate of enzyme reaction is high.
Apabila suhu rendah, kadar tindak balas enzim tinggi
- B When the temperature is high, the rate of reaction is not accelerated
Apabila suhu tinggi, kadar tindak balas tidak meningkat
- C When the temperature is optimum, the rate of reaction is maximum
Apabila suhu optimum, kadar tindak balas maksimum
- D When the temperature is beyond optimum, the rate of reaction increases
Apabila suhu melampaui optimum, kadar tindak balas meningkat

- 9 Diagram 8 shows part of the contents of a nucleus.
Rajah 8 menunjukkan sebahagian kandungan dalam nukleus sel.

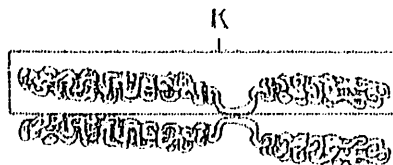


Diagram 8
Rajah 8

What is K?
Apakah K?

- A Chromosome
Kromosom
- B Gene
Gen
- C Chromatid
Kromatid
- D Double helix DNA
DNA heliks ganda dua

10 Diagram 9 shows the different stages of mitosis.

Rajah 9 menunjukkan peringkat-peringkat yang berbeza dalam mitosis.

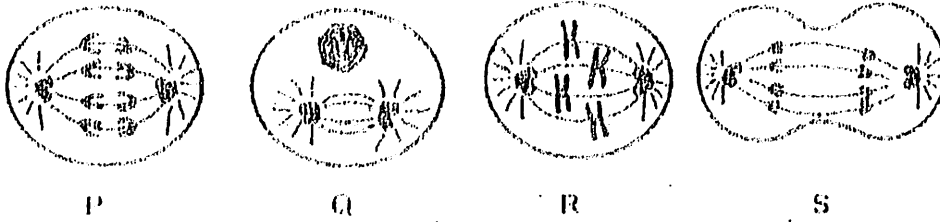


Diagram 9 / Rajah 9

Arrange the diagrams in the correct sequence.

Susun rajah tersebut dalam urutan yang betul.

A P → Q → R → S

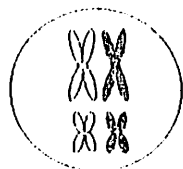
C S → R → Q → P

B Q → R → P → S

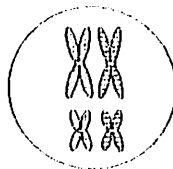
D S → R → P → Q

11 Diagram 10 shows the homologous chromosomes in organisms P and Q before meiosis.

Rajah 10 menunjukkan kromosom homolog dalam organism P dan Q sebelum meiosis.



Organism P
Organisma P

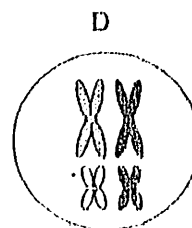
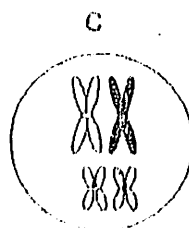
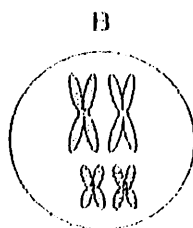
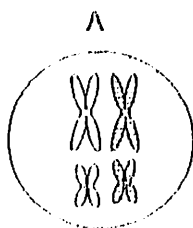


Organism Q
Organisma Q

Diagram 10
Rajah 10

Which of the following shows the product of fertilization between organism P and Q?

Antara berikut yang manakah merupakan hasil persenyawaan antara organism P dan organism Q?



Lihat halaman sebelah

- 8 -

- Which of the following statements is true?
 Antara berikut, pernyataan manakah yang benar?
- A Cell X has haploid number of chromosomes
 Sel X mempunyai bilangan kromosom yang haploid.
 - B Cell Z is a product of meiosis
 Sel Z adalah hasil meiosis.
 - C Cell Y is a product of mitosis
 Sel Y adalah hasil mitosis.
 - D Cell W can become a gamete
 Sel W boleh menjadi gamet.

Diagram 11b
 Rajah 11b

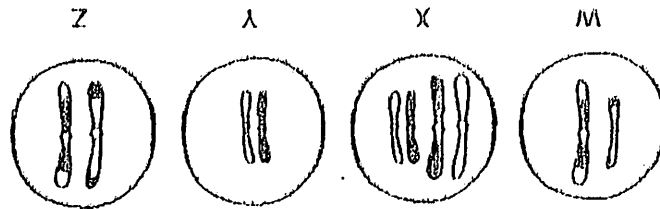
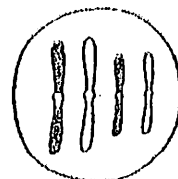


Diagram 11b shows the possible combinations of chromosomes in the daughter cells when the parent cell divides.
 Rajah 11b menunjukkan kemungkinan gabungan kromosom dalam sel anak apabila sel induk membahagi.

Diagram 11a
 Rajah 11a



12. Diagram 11a shows the chromosomes of a parent cell.
 Rajah 11a menunjukkan kromosom dalam sel induk.

- 13 Diagram 12 shows a phase during meiosis.
Rajah 12 menunjukkan satu fasa semasa meiosis.

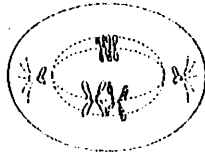


Diagram 12
Rajah 12

What is the significance of the phase shown?
Apakah kepentingan fasa tersebut?

- A Produces daughter cells with equal number of chromosome as the parent cell.
Menghasilkan sel anak yang mempunyai bilangan kromosom yang sama dengan sel induk.
 - B Causes crossing over to occur between sister chromatids.
Menyebabkan pindah silang berlaku antara kromatid beradik.
 - C Halves the number of chromosome in each daughter cell.
Bilangan kromosom dalam sel anak menjadi separuh.
 - D Produces variation in gametes
Menghasilkan variasi pada gamet.
- 14 Diagram 13 shows a longitudinal section of a villus.
Rajah 13 menunjukkan keratan memanjang vilus.

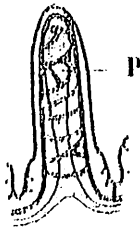


Diagram 13
Rajah 13

Which of the following nutrients are found in P?
Antara nutrient berikut, yang manakah dijumpai di dalam P?

- | | |
|------------------------------------|----------------------------------|
| I Glucose
<i>Glukosa</i> | III Fat
<i>Lemak</i> |
| II Amino acid
<i>Asid amino</i> | IV Vitamin D
<i>Vitamin D</i> |
- A I and II only
I dan II sahaja
 - B III and IV only
III dan IV sahaja
 - C I, II and IV only
I, II dan IV sahaja
 - D II, III and IV only
II, III dan IV sahaja

- 15 The following statements refer to stage X during photosynthesis.
 Pernyataan berikut merujuk kepada peringkat X semasa fotosintesis.

- Hydrogen ions are produced
Ion hidrogen dihasilkan
- ATP is produced
ATP dihasilkan
- Water molecules are broken down
Molekul air terurai

What is stage X?
 Apakah peringkat X?

- | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|
| <p>A Decomposition of hydrocarbons
<i>Pereputan hidrokarbon</i></p> <p>B Reduction of carbon dioxide
<i>Penurunan karbon dioksida</i></p> | <p>C Photolysis of water
<i>Fotolisis air</i></p> <p>D Production of glucose
<i>Penghasilan glukosa</i></p> |
|---------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|

- 16 The following measurements were made during an experiment to determine the energy value of a peanut.
 Pengukuran berikut dibuat semasa eksperimen untuk menentukan nilai tenaga kacang tanah.

• Mass of peanut <i>Jisim kacang tanah</i>	=	2 g
• Mass of water <i>Jisim air</i>	=	10 g
• Initial water temperature <i>Suhu awal air</i>	=	26°C
• Final water temperature <i>Suhu akhir air</i>	=	66°C

The specific heat capacity of water is $4.2 \text{ Jg}^{-1}\text{C}^{-1}$. Calculate the energy value of the peanut.
 Muatan haba tentu air ialah $4.2 \text{ Jg}^{-1}\text{C}^{-1}$. Hitung nilai tenaga kacang tanah.

- | | |
|------------------------------------|-----------------------------------|
| <p>A 55.4 J/g</p> <p>B 336 J/g</p> | <p>C 546 J/g</p> <p>D 840 J/g</p> |
|------------------------------------|-----------------------------------|

- 17 Diagram 14 shows organism X and organism Y.
Rajah 14 menunjukkan organism X dan organism Y.



Diagram 14
Rajah 14

How do both organisms adapt themselves to transport substances efficiently into and out of their bodies?

Bagaimanakah kedua-dua organism dapat mengadaptasi diri untuk mengangkut bahan masuk dan keluar dari badan dengan berkesan?

- I Y expels waste products by simple diffusion
Y menyingkir bahan buangan melalui resapan ringkas
 - II Y has a specialised medium to transport substances
Y mempunyai medium yang khusus untuk pengangkutan bahan
 - III X has projections and folds in its organs
X mempunyai unjuran dan lipatan pada organnya
 - IV X has many specialised structure to expel waste products
X mempunyai struktur khusus untuk menyingkir bahan buangan
- A I and II only
I dan II sahaja
- B II and III only
II dan III sahaja
- C I, II and III only
I, II dan III sahaja
- D I, III and IV only
I, III dan IV sahaja

[Lihat halaman sebelah]

- 12 -

- A Digestion of sucrose
Pencernaan sukrosa
- B Emulsification of lipids
Pengerutisan lipid
- C Secretion of pepsin
Kambesasan pepsin
- D Conversion of glucose to glycogen
Penukaran glukosa ke glikogen

Which process is affected when organ X fails to function?
Proses manakah yang akan terjejas jika organ X tidak berfungsi?

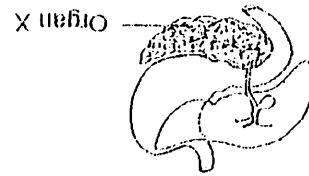


Diagram 15
Rajah 15

Diagram 15 shows a part of human digestive system.
Rajah 15 menunjukkan sebahagian dari sistem pencernaan manusia.

19

A	45.0	27.8
B	27.8	12.5
C	44.0	12.5
D	55.0	44.0
	Lime juice (mg/100ml) Jus limau (mg/100ml)	Papaya juice (mg/100ml) Jus betik (mg/100ml)

What is the percentage of vitamin C found in lime juice and papaya juice?
Apakah peratus vitamin C yang terdapat didalam jus limau dan jus betik?

Table 1 / Jadual 1

Volume of fruit juice required to decolorize 1 ml DCPJP (ml) Isipadu jus buah yang diperlukan untuk melunturkan 1 ml DCPJP	0.1% Ascorbic acid 0.1% Asid askorbik	1.0
	Lime juice Jus limau	3.6
Type of juice Jenis jus	Papaya juice Jus betik	8.0

Table 1 shows the volume of fruit juice required to decolorize 1 ml DCPJP.
Jadual 1 menunjukkan isipadu jus buah-buahan yang diperlukan untuk melunturkan warna 1ml DCPJP.

18

- 20 Diagram 16 shows relationship between photosynthesis and cell respiration.
Rajah 16 menunjukkan hubungan antara fotosintesis dan respirasi sel.

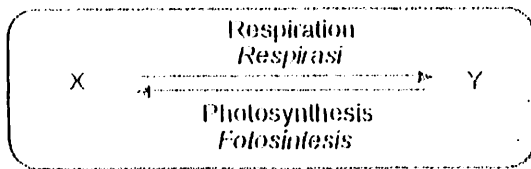


Diagram 16
Rajah 16

What are X and Y?
Apakah X dan Y?

	X	Y
A	Glucose, oxygen <i>Glukosa, oksigen</i>	Glucose, carbon dioxide <i>Glukosa, karbon dioksida</i>
B	Glucose, carbon dioxide <i>Glukosa, karbon dioksida</i>	Glucose, oxygen <i>Glukosa, oksigen</i>
C	Glucose, oxygen <i>Glukosa, oksigen</i>	Water, carbon dioxide, ATP <i>Air, karbon dioksida, ATP</i>
D	Starch, energy <i>Kanji, tenaga</i>	Carbon dioxide <i>Karbon dioksida</i>

- 21 Diagram 17 shows paddy plants in a paddy field.
Rajah 17 menunjukkan tumbuhan padi dalam sawah.



Diagram 17
Rajah 17

What are the products of respiration in the leaves and roots?
Apakah hasil respirasi pada daun dan akarnya?

	Products of respiration in leaves <i>Hasil respirasi di daun</i>	Products of respiration in roots <i>Hasil respirasi di akar</i>
A	Carbon dioxide and water <i>Karbon dioksida dan air</i>	Lactic acid and carbon dioxide <i>Asid laktik dan karbon dioksida</i>
B	Carbon dioxide and water <i>Karbon dioksida dan air</i>	Ethanol and carbon dioxide <i>Etanol dan karbon dioksida</i>
C	Lactic acid and carbon dioxide <i>Asid laktik dan karbon dioksida</i>	Carbon dioxide and water <i>Karbon dioksida dan air</i>
D	Ethanol and carbon dioxide <i>Etanol dan karbon dioksida</i>	Carbon dioxide and water <i>Karbon dioksida dan air</i>

Lihat halaman sebelah

- 14 -



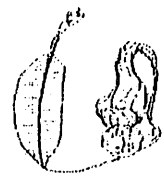
D



B



C

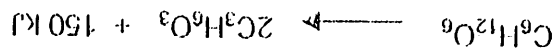


A

23. Which of the following organisms is a saprophyte?
 Antara organisma berikut yang manakah saprofit?

- A To transfer lactic acid from muscle tissues to the liver.
 Memindahkan asid laktik dari tisu otot ke hati.
- B To oxidise lactic acid to produce energy.
 Mengoksidakan asid laktik bagi menghasilkan tenaga.
- C To oxidise lactic acid to glucose.
 Mengoksidakan asid laktik kepada glukosa.
- D To convert glucose to glycogen.
 Menukarkan glukosa kepada glikogen.

Which statement explains why muscle cells needs more oxygen just after the activity.
 Pernyataan manakah yang menerangkan kenapa sel otot memerlukan lebih oksigen
 sebagai sahaja selepas aktiviti tersebut.



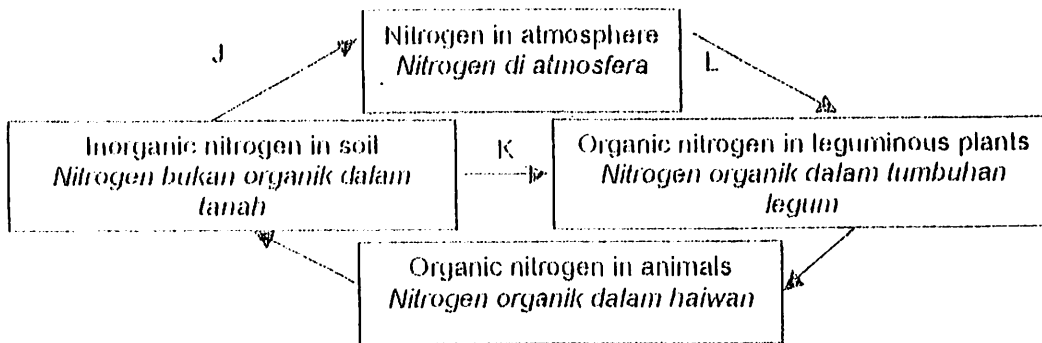
22. The chemical equation shows a type of respiration in human muscle during vigorous exercise.
 Persamaan kimia menunjukkan jenis respirasi yang berlaku dalam otot manusia semasa aktiviti cergas.

24 Which of the following are adaptations by the *Sonneratia* sp. to enable it to grow in the mangrove swamp?

Antara berikut, yang manakah penyesuaian *Sonneratia* sp. untuk membolehkannya tumbuh di paya bakau?

- | | | | |
|----|------------------------------------------------------------------|-----|--------------------------------------------------------------------------------------|
| I | Thick and succulent leaves
<i>Daun yang tebal dan sukulen</i> | III | Buttress roots
<i>Akar banir</i> |
| II | Viviparity
<i>Vivipariti</i> | IV | High osmotic pressure in the cell sap
<i>Tekanan osmosis dalam sap sel tinggi</i> |
| A | I and II only
<i>I dan II sahaja</i> | C | I, II and III only
<i>I, II dan III sahaja</i> |
| B | I and III only
<i>I dan III sahaja</i> | D | I, II and IV only
<i>I, II dan IV sahaja</i> |

25 The chart shows the pathway of nitrogen cycle in leguminous plants.
Carta menunjukkan kitar nitrogen bagi tumbuhan legum.



What are the processes of J, K and L?
Apakah proses J, K dan L?

	J	K	L
A	Nitrification <i>Nitrifikasi</i>	Nitrogen fixation <i>Pengikatan nitrogen</i>	Denitrification <i>Denitrifikasi</i>
B	Nitrogen fixation <i>Pengikatan nitrogen</i>	Denitrification <i>Denitrifikasi</i>	Nitrification <i>Nitrifikasi</i>
C	Denitrification <i>Denitrifikasi</i>	Nitrification <i>Nitrifikasi</i>	Nitrogen fixation <i>Pengikatan nitrogen</i>
D	Denitrification <i>Denitrifikasi</i>	Nitrogen fixation <i>Pengikatan nitrogen</i>	Nitrification <i>Nitrifikasi</i>

Lihat halaman sebelah

- 16 -

I	Melanoma	III	Destruction of phytoplankton
II	Snow storms	IV	The rate of photosynthesis increases
	Ribut salji		Kadar fotosintesis meningkat
V	I and II only	C	II and IV only
	I dan II sahaja		II dan IV sahaja
B	I and III only	D	III and IV only
	I dan III sahaja		III dan IV sahaja

28 Which of the following are the effects of ozone depletion?
Antara berikut yang manakah adalah kesan penipisan lapisan ozon?

A	Autotrophic / Autotrofik	Parasitic / Parasitik
B	Saprophytic / Saprotik	Parasitic / Parasitik
C	Holozoic / Holozoik	Saprophytic / Saprotik
D	Parasitic / Parasitik	Heterotrophic / Heterotrofik

What is the feeding method for P and Q?
Apakah kaedah pemakanan bagi P dan Q?



Diagram 18
Rajah 18

27 Diagram 18 shows the organisms P and Q.
Rajah 18 menunjukkan organisma P dan Q.

- A Grasshopper / Belalang
B Eagle / Helang
C Grass / Rumput
D Snake Ular

26 Which of the following is at the first trophic level in the pyramid number?
Antara berikut, yang manakah berada pada aras trofik pertama dalam piramid nombor?

- 29 Diagram 19 shows the emission of various gases by a chemical factory in an industrial area.
Rajah 19 menunjukkan pengeluaran pelbagai jenis gas dari kilang kimia di suatu kawasan perindustrian.

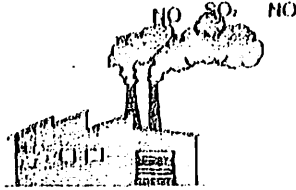


Diagram 19
Rajah 19

Which of the following phenomenon is the most likely to occur?
Antara fenomena di bawah yang manakah lebih kerap berlaku?

- | | |
|---------------------------------------------|------------------------------------------------------------|
| A Acid rain
<i>Hujan asid</i> | C Greenhouse effect
<i>Kesan rumah hijau</i> |
| B Global warming
<i>Pemanasan global</i> | D Thinning of ozone layer
<i>Penipisan lapisan ozon</i> |
- 30 Which of the following is an effect of thermal pollution?
Yang manakah perkara di bawah adalah kesan pencemaran terma?
- A Photosynthesis in aquatic plants increases
Fotosintesis tumbuhan akuatik meningkat
- B Growth rate in aquatic organisms increases
Kadar pertumbuhan organism akuatik meningkat
- C Population of aquatic organism is reduced
Populasi organism akuatik berkurang
- D Trophic level in a food chain increases
Aras trofik dalam rantai makanan meningkat.

[List latihan sebelum]

- 18 -

- What is the estimated of population size of bats in the cave?
 Apakah anggaran saiz populasi kelewar dalam gua tersebut?
- A 10
 B 250
 C 2000
 D 2500

50	Bats caught and marked in the first catch Kelewar ditangkap dan ditandai pada tangkapan pertama
40	Bats caught in the second catch Kelewar ditangkap pada tangkapan kedua
8	Bats marked in the second catch Kelewar bertanda pada tangkapan kedua

Diagram 21
Rajah 21

32. In an experiment to estimate the population of bat in a cave, a student obtained the following data.
 Dalam eksperimen menganggar saiz populasi kelewar dalam sebuah gua, pelajar telah memperoleh data seperti berikut.

- A I, II and III only
 B I, II and IV only
 C I, III and IV only
 D II, III and IV sahaja

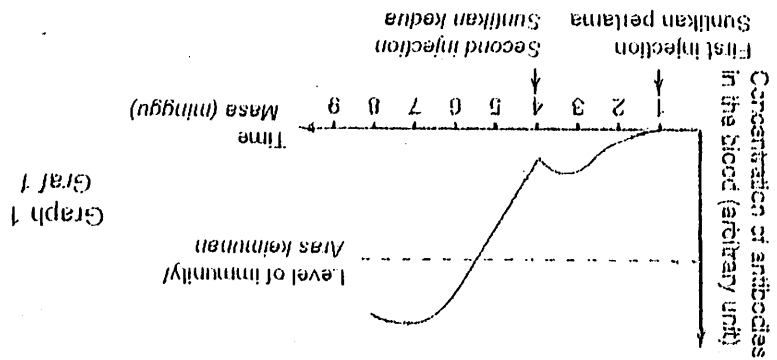
- I Run-off of excess nutrients into pond
 II Discharge of untreated sewage into water source
 III Increase in photosynthesis rate of aquatic plants
 IV Inorganic fertilizers dissolve in soil water
 V Baja bukan organik larut dalam air tanah

31. Which of the following causes eutrophication?
 Manakah yang berikut menyebabkan eutrofikasi?

Lihat halaman sebelah

- 20 -

- Which one of the following statements is true about the graph.
- Antara pernyataan berikut, yang manakah benar tentang graf tersebut.
- A Both injections contain serum that can raise antibody level.
Kedua-dua suntikan mengandung serum yang boleh meningkatkan aras antibodi.
- B Second injection is required to boost the level of immunity.
Suntikan kedua diperlukan untuk meningkatkan aras keimunan.
- C Only the first injection contains pathogens that stimulate the production of antibody.
Hanya suntikan pertama mengandung patogen yang merangsang penghasilan antibodi.
- D Second injection contains higher level of antibody.
Suntikan kedua mengandungi aras antibodi yang lebih tinggi.



36 Graph 1 shows a type of immunity.
Graf 1 menunjukkan sejenis keimunan.

- A Cockroach
Lipas
- B Lizard
Cicak
- C Penguin
Penguin
- D Gold fish
Ikan emas

Which of the organism has the blood circulatory system in the diagram above?
Organisma manakah yang mempunyai sistem peredaran darah seperti rajah diatas?

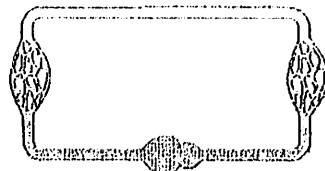


Diagram 22
Rajah 22

36 Diagram 22 shows a type of blood circulatory system.
Rajah 22 menunjukkan sejenis sistem peredaran darah.

- 37 Diagram 23 shows a fish swimming.
Rajah 23 menunjukkan seekor ikan sedang berenang.

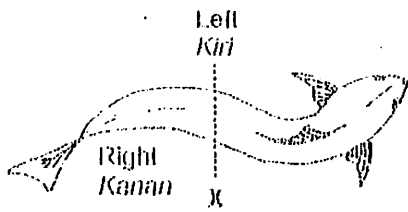
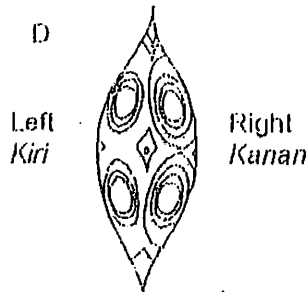
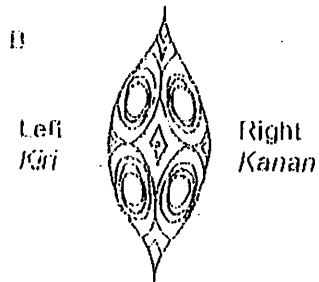
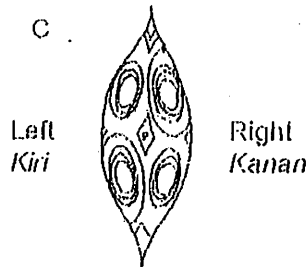
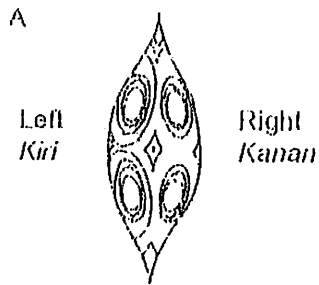


Diagram 23
Rajah 23

Which of the following shows the muscles of the fish at the line labeled X?
Antara berikut, manakah menunjukkan otot-otot ikan pada garis bertabel X?



[Lihat halaman sebelah]

- 22 -

- A Protection for spinal cord
Perlindungan bagi saraf tunjang
- B Surface for muscle attachment
Permukaan untuk pertekatan otot
- C Surface to join with other vertebrae
Permukaan untuk persediaan dengan vertebra lain
- D Provides support and absorbs shock
Menyediakan sokongan dan menyerap gegaran

What is the function of Z?
Apakah fungsi Z?

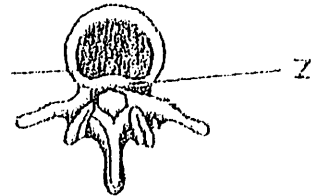


Diagram 25
Rajah 25

39 Diagram 25 shows human lumbar vertebrae.
Rajah 25 menunjukkan vertebra lumbar manusia.

- A To assist in the metabolism of the cell body
Untuk membantu metabolisme badan sel
- B To supply nutrients to the cell body
Untuk membekalkan nutrien ke badan sel
- C To facilitate rapid transmission of impulses
Untuk membantu penghantaran impuls dengan lebih cepat
- D To direct impulse towards one direction
Untuk mengarahkan pergerakan impuls satu hala

What is the function of the structure labeled X?
Apakah fungsi struktur berlabel X?

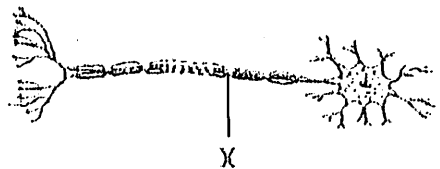


Diagram 24
Rajah 24

38 Diagram 24 shows a motor neuron.
Rajah 24 menunjukkan neuron motor.

40 Which of the following parameters cannot be detected by the receptors in the body?
Antara berikut, parameter yang manakah tidak dapat dikesan oleh reseptor di dalam badan.

- A Blood pressure
Tekanan darah
- B Body temperature
Suhu badan
- C Partial pressure of carbon dioxide and oxygen
Tekanan separa karbon dioksida dan oksigen
- D Amino acid level in blood
Aras asid amino darah

41 The following information is about a coordination and response.
Maklumat berikut adalah berkaitan dengan koordinasi dan gerakbalas.

A boy ran very fast when chased by a fierce dog.
Budak lelaki lari dengan pantas apabila dikejar anjing yang garang

Which of the following occurs in the boy's body?
Antara berikut, yang manakah berlaku dalam badan budak lelaki itu?

- A Metabolic rate decreases
Kadar metabolisme menurun
- B Rate of digestion increases
Kadar pencernaan meningkat
- C Concentration of blood glucose increases
Kepekatan glukosa darah meningkat
- D Amount of glucagon secreted decreases
Jumlah glukagon yang dirembes berkurang

- 42 Diagram 26 shows the stages in the development of a follicle in an ovary.
Rajah 26 menunjukkan peringkat perkembangan folikel di dalam ovari.

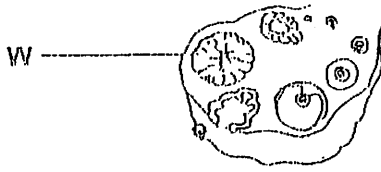


Diagram 26
Rajah 26

What is the hormone secreted by W?
Apakah hormon yang dirembeskan oleh W?

- A Oestrogen
Estrogen
- B Progesterone
Progesteron
- C Luteinising hormone
Hormon peluteinan
- D Follicle stimulating hormone
Hormon perangsang folike

43 Diagram 27 shows the secretion of two types of hormones during the menstrual cycle in a female.

Rajah 27 menunjukkan rembesan dua jenis hormone semasa kitar haid seorang perempuan.

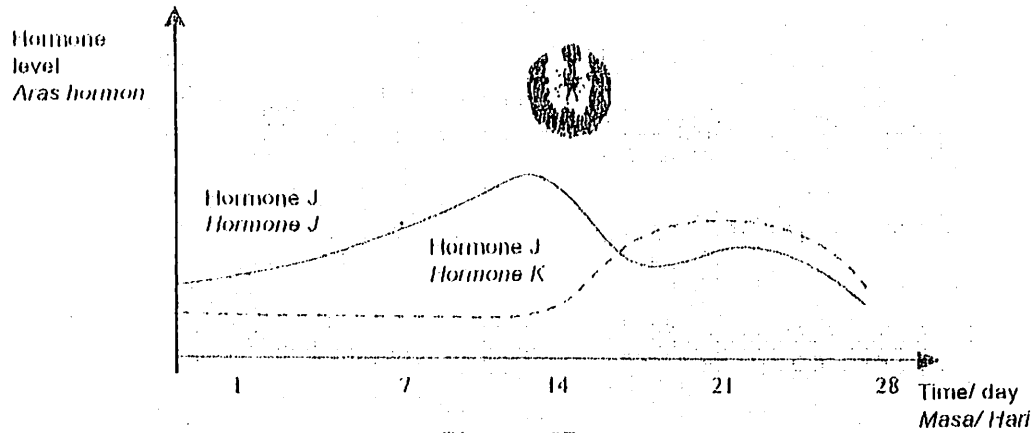


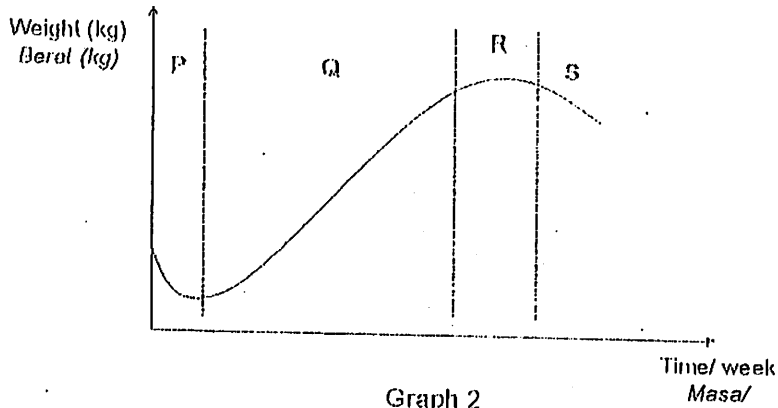
Diagram 27
Rajah 27

Which of the following statements are correct?

Antara pernyataan berikut yang manakah benar?

- I A drop in the level of hormone J induces a drop in the level of hormone K
Penurunan aras hormon J merangsang penurunan aras hormon K
 - II A rise in level of hormone K stimulates ovulation
Peningkatan aras hormon K merangsang pengovulan
 - III A drop in the level of hormone K stimulates menstruation
Penurunan aras hormon K merangsang haid
 - IV A rise in the level of hormone J repairs the endometrium lining
Peningkatan aras hormon J merangsang pembaikan lapisan endometrium
- A I and II only
I dan II sahaja
- B I and IV only
I dan IV sahaja
- C II and III only
II dan III sahaja
- D III and IV only
III dan IV sahaja

- 44 The graph 2 shows a sigmoid growth curve.
 Graf 2 menunjukkan lengkung pertumbuhan sigmoid



Which statements about the growth are true?
 Pernyataan yang manakah benar tentang pertumbuhan?

- I The growth rate is fastest at Q
 Kadar pertumbuhan adalah paling cepat di Q
 - II The growth rate is slowest at R
 Kadar pertumbuhan adalah paling perlahan di R
 - III The growth rate is negative at S
 Kadar pertumbuhan negatif di S
 - IV The growth rate is constant at P
 Kadar pertumbuhan adalah malar di P
- A I and III only
 I dan III sahaja
- B I and IV only
 I dan IV sahaja
- C I, II and III only
 I, II dan III sahaja
- D I, III and IV only
 III dan IV sahaja

- 45 Diagram 28 shows the stages in the development of embryo of a human.
Rajah 28 menunjukkan peringkat-peringkat dalam perkembangan embrio manusia.

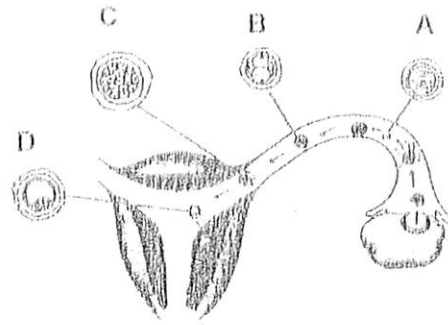


Diagram 28
Rajah 28

Which of the following labeled parts A, B, C and D is a morula stage?
Antara bahagian berlabel A, B, C dan D yang manakah peringkat morula?

- 46 Which of the following statements are true about double fertilisation in a plant?
Antara pernyataan berikut, yang manakah betul tentang persenyawaan gandadua pada tumbuhan.

- I One male gamete nucleus fuses with the nucleus of an egg cell to form an embryo sac.
Satu nukleus gamet jantan bergabung dengan nukleus sel telur untuk membentuk pundi embrio.
- II Two haploid nuclei formed in the ovule fuse with two male gamete nuclei.
Dua nukleus haploid dalam ovul bergabung dengan dua nukleus gamet jantan.
- III One male gamete nucleus fuses with the female nucleus to form a diploid zygote.
Satu nukleus gamet jantan bergabung dengan nukleus betina untuk membentuk zygot yang diploid.
- IV Two polar nuclei fuse with one male nucleus to form the endosperm.
Dua nukleus kutub bergabung dengan satu nukleus gamet jantan membentuk endosperma.

A I and II only
I dan II sahaja

C I, II and III only
I, II dan III sahaja

B III and IV only
III dan IV sahaja

D II, III and IV only
II, III dan IV sahaja

lihat halaman sebelah

- 28 -

- A 0 B 25 C 50 D 75

If the rambutan tree R is crossed with the rambutan tree S, what percentage of the trees produced will be dwarf?
 Sekiranya pokok rambutan R dikacukkan dengan pokok rambutan S, apakah peratus anak yang terhasil adalah kerdil?

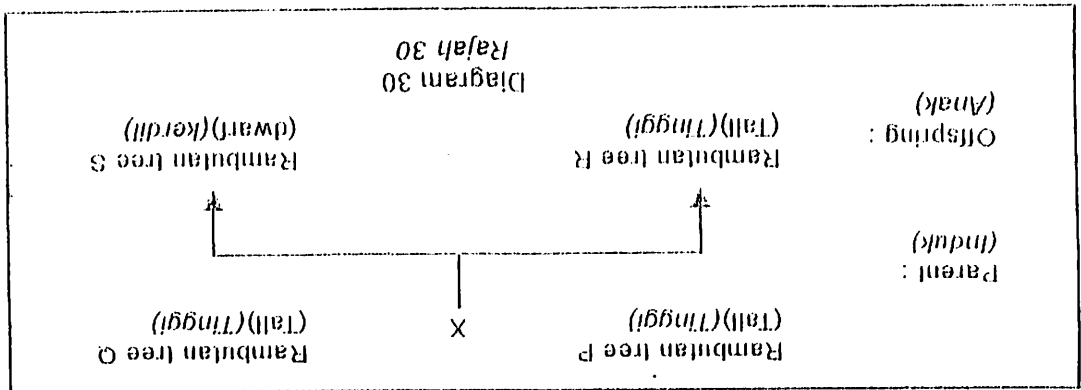


Diagram shows the result of the monohybrid cross between tall rambutan tree P and rambutan tree Q, 50% of the offspring are tall and 50% are dwarf.
 Rajah di bawah menunjukkan keputusan kacukan monohybrid bagi pokok rambutan R dan rambutan Q, 50% dari anak yang terhasil kesemuanya tinggi manakala 50% lagi kerdil.

40

Parent P	AA
Parent Q	BB
A	AA
B	BB
C	AB
D	AO

What is the possible genotype of P and Q?
 Apakah kemungkinan genotip P dan Q?

Diagram 29
Rajah 29

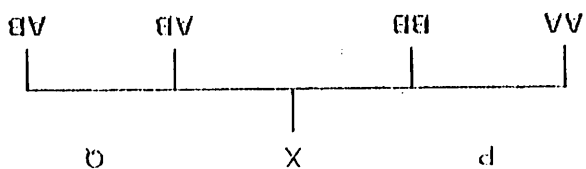
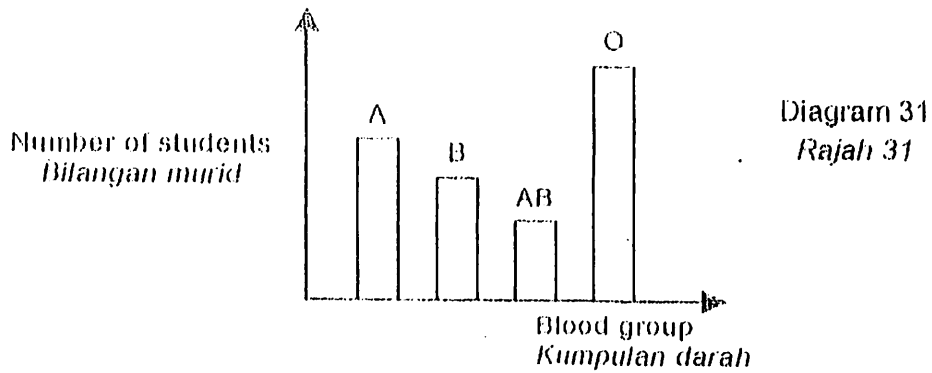


Diagram 29 shows genotype of offspring from parent P and Q.
 Rajah 29 menunjukkan genotip anak daripada induk P dan Q.

47

- 49 Diagram 31 shows the variation of blood groups in humans.
Rajah 31 menunjukkan variasi bagi kumpulan darah manusia.



Which of the following is true about the variation of blood groups in humans?
Antara berikut yang manakah benar tentang variasi bagi kumpulan darah manusia?

- A Influenced by environmental factors
Dipengaruhi oleh faktor persekitaran
- B Controlled by one pair of alleles
Dikawal oleh satu pasang alel
- C The differences in a character are not distinctive
Perbezaan ciri tidak jelas
- D Cannot be measured from one character to another
Tidak dapat diukur dari satu ciri dengan ciri lain

Lihat halaman sebelah

- 30 -

END OF QUESTION PAPER
KERTAS SOALAN TAMAT

- 50 What are the uses of DNA fingerprinting?
Apakah kegunaan cap jari DNA?
- I To help solve criminal cases
Untuk menyelesaikan kes-kes jenayah
 - II To produce genetically modified organisms
Untuk menghasilkan organisma ubahsuaian genetik
 - III To produce insulin
Untuk menghasilkan insulin
 - IV To help settle paternity disputes
Untuk mengesahkan ibubapa kandung
- A I and II only
I dan II sahaja
- B I and IV only
I dan IV sahaja
- C II and III only
II dan III sahaja
- D III and IV only
III dan IV sahaja

INFORMATION FOR CANDIDATES
MAKLUMAT UNTUK CALON

1. This question paper comprises 50 questions
Kertas soalan ini mengandungi 50 soalan.
2. Answer **all** questions
*Jawab **semua** soalan.*
3. Answer each question by blackening the correct space on the answer sheet
Jawab dengan menghitamkan ruangan yang betul pada kertas jawapan objektif.
4. Blacken **only one** space for each question.
*Hitamkan **satu ruang sahaja** bagi setiap soalan.*
5. If you wish to change your answer, erase the blackened mark that you have made. Then blacken the space for the new answer.
Sekiranya anda hendak menukarkan jawapan, padamkan tanda yang telah dibuat. Kemudian hitamkan jawapan yang baru.
6. The diagrams in the questions provided are not drawn to scale unless stated.
Rajah tidak dilukiskan mengikut skala kecuali dinyatakan.
7. You may use a non-programmable scientific calculator.
Anda dibenarkan menggunakan kalkulator saintifik yang tidak boleh diprogram.