BAHAN KECEMERLANGAN SPM 2015

BK 1

BIOLOGI

KERTAS 1

NAMA : .....

KELAS : .....

DIBIAYAI OLEH
KERAJAAN NEGERI TERENGGANU

SULIT
4551/1
Biologi
Kertas 1
Feb 2015
1 ¼ jam

UJIAN PENGESANAN TOV 2015
TINGKATAN LIMA

BIOLOGI

Kertas 1

Satu jam lima belas minit

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIBERITAHU

1. *Kertas soalan ini mengandungi 50 soalan.*
2. *Kertas soalan ini disediakan dalam dwibahasa.*
3. *Jawab semua soalan.*
4. *Jawab dengan menghitamkan ruangan yang betul pada kertas jawapan yang disediakan.*
5. *Sekiranya anda hendak menukarkan jawapan, padamkan tanda yang telah dibuat. Kemudian hitamkan jawapan yang baru.*
6. *Rajah yang mengiringi soalan dimaksudkan untuk memberi maklumat yang berguna bagi menjawab soalan. Rajah tidak dilukis mengikut skala kecuali dinyatakan.*
7. *Anda dibenarkan menggunakan kalkulatur saintifik yang tidak boleh diprogram.*

Kertas soalan ini mengandungi 31 halaman bercetak

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

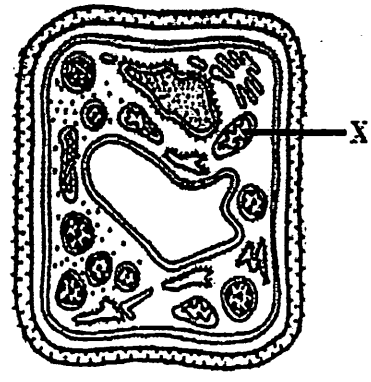


Diagram 1/*Rajah 1*

What is organelle X?
Apakah organel X?

A Nucleus
Nukleus

B Ribosome
Ribosom

C Chloroplast
Kloroplas

D Mitochondrion
Mitokondria

2. Pancreatic cells secrete hormones.
Which organelle is found in high density in pancreatic cells?
Sel pankreas merembeskan hormon.
Organel manakah yang banyak terdapat di dalam sel pankreas?

A Golgi apparatus
Jasad Golgi

B Lysosome
Lisosom

C Mitochondria
Mitokondria

D Smooth endoplasmic reticulum
Jalinan endoplasma licin

3. Which of the following structures contains cell sap?
Yang manakah antara struktur berikut mengandungi sap sel?

A Lysosomes
Lisosom

B Chloroplast
Kloroplas

C Vacoule
Vakuol

D Secretory vesicles
Vesikel perembes

4. Diagram 2 shows the structure of the plasma membrane.
Rajah 2 menunjukkan struktur membran plasma.

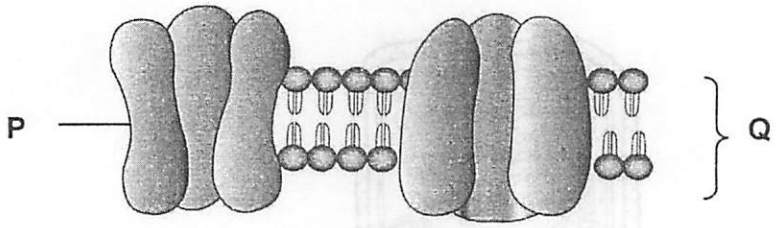


Diagram 2/*Rajah 2*

What are **P** and **Q**?
*Apakah **P** dan **Q**?*

	P	Q
A	Pore protein *Protein liang*	Phospholipid bilayer *Fosfolipid dwilapisan*
B	Pore Protein *Protein liang*	Hydrophilic heads *Kepala hidrofilik*
C	Carrier Protein *Protein pembawa*	Phospholipid bilayer *Fosfolipid dwilapisan*
D	Carrier Protein *Protein pembawa*	Hydrophobic tails *Ekor hidrofobik*

5. Diagram 3 shows the apparatus set up to demonstrate osmosis.
Rajah 3 menunjukkan susunan radas untuk demonstrasi osmosis.

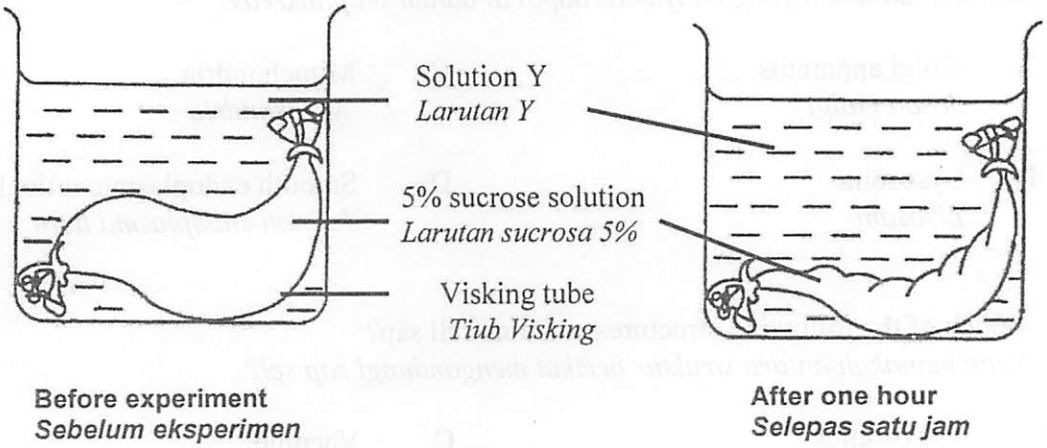


Diagram 3/*Rajah 3*

What is solution Y?
Apakah larutan Y?

A 1% sucrose solution
Larutan sukrosa 1%

B 5% sucrose solution
Larutan sukrosa 5%

C 10% sucrose solution
Larutan sukrosa 10%

D Distilled water
Air suling

6. Diagram 4 shows one way of preserving vegetable
Rajah 4 *menunjukkan satu cara untuk mengawet sayur-sayuran*

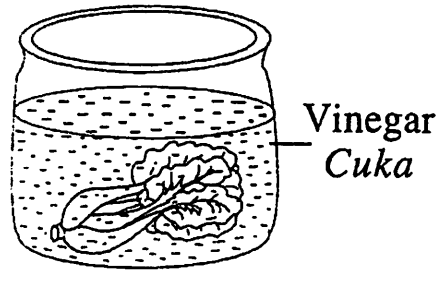


Diagram 4/*Rajah* 4

Which of the following explain why the vegetable can last longer?
Antara berikut yang manakah menerangkan mengapa sayur itu boleh tahan lama?

A The low pH is not conducive for bacterial growth
pH *yang rendah tidak sesuai untuk pertumbuhan bakteria*

B The vinegar causes the vegetable to turn alkaline
Cuka menyebabkan sayur itu menjadi beralkali

C The water molecules diffuse into the vegetable
Molekul air meresap ke dalam sayur-sayuran

D The bacteria are deplasmolysed
Bakteria telah mengalami deplasmolisis

7. Diagram 5 shows the hydrolysis process of a fat molecule.
Rajah 5 menunjukkan proses hidrolisis satu molekul lemak.

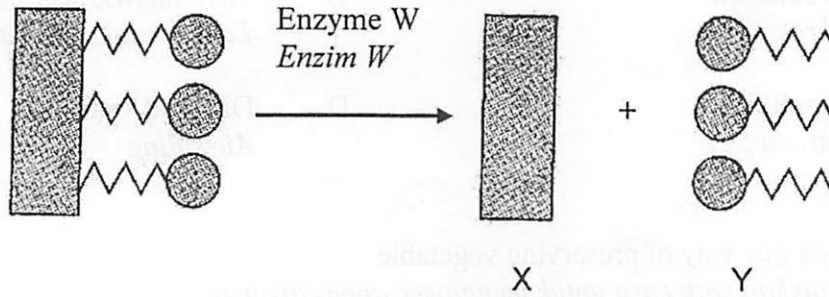


Diagram 5/*Rajah 5*

What are W, X and Y?
Apakah W, X dan Y?

	Enzyme W *Enzim W*	X	Y
A	Lipase *Lipase*	Glycerol *Gliserol*	Fatty Acids *Asid lemak*
B	Lipase *Lipase*	Fatty acids *Asid lemak*	Glycerol *Gliserol*
C	Lactase *Laktase*	Glucose *Glukosa*	Galactose *Galaktosa*
D	Lactase *Laktase*	Galactose *Galaktosa*	Glucose *Glukosa*

8. Which of the following monosaccharides combination produces sucrose?
Yang manakah antara kombinasi monosakarida berikut menghasilkan sukrosa?

A Glucose + fructose
Glukosa + fruktosa

B Glucose + galactose
Glukosa + galaktosa

C. Fructose + galactose
Fruktosa + galaktosa

D. Glucose + glucose
Glukosa + glukosa

9. Diagram 6 shows the experiment to study the activity of salivary amylase.
Rajah 6 menunjukkan eksperimen untuk mengkaji aktiviti enzim amilase.

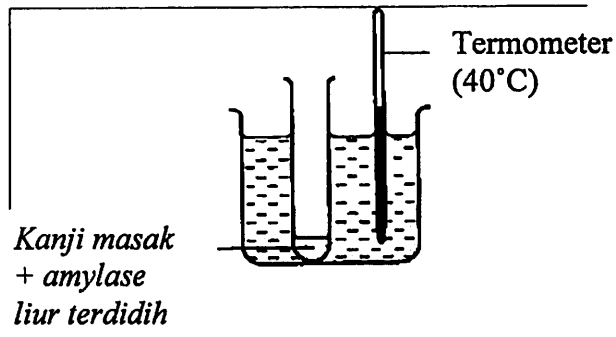
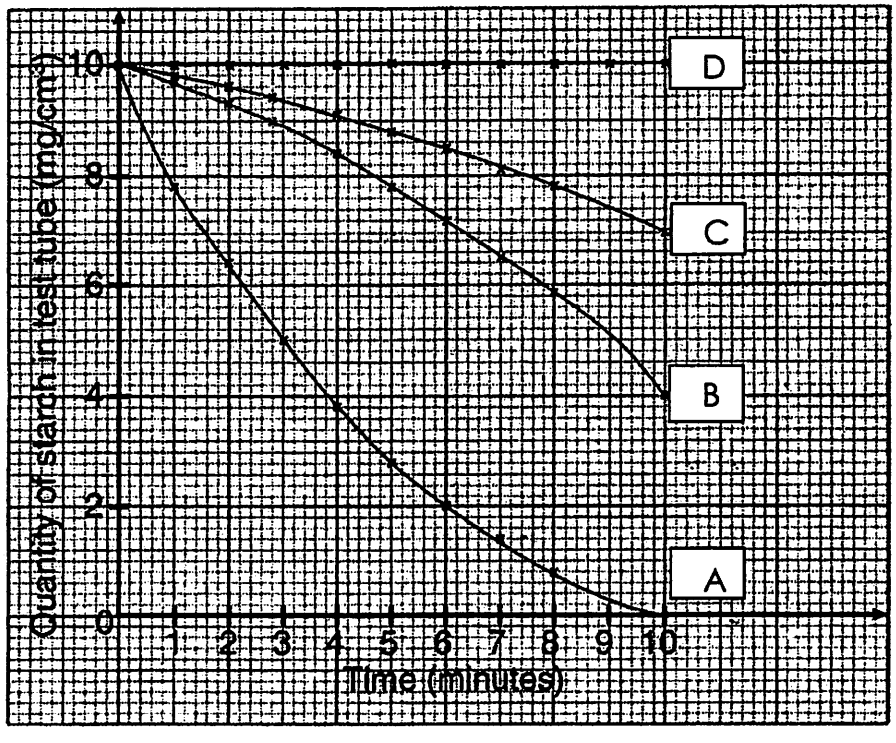


Diagram 6 /*Rajah 6*

Which of following curves represents the result of the experiment?
Manakah antara lengkung berikut mewakili keputusan eksperimen?



10. Diagram 7 shows the phases in a cell cycle.
Rajah 7 menunjukkan fasa-fasa satu kitar sel.

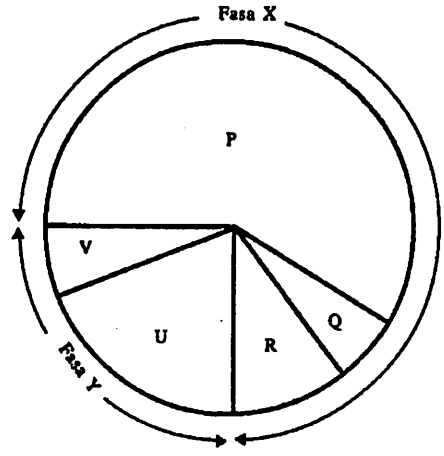


Diagram 7/*Rajah 7*

What phase is represented by P?
Apakah fasa yang diwakili oleh P?

A mitosis
mitosis

B cytokinesis
sitokinesis

C stage S
peringkat S

D stage G1
peringkat G1

11. The chromosomal number of an organism is 12.
What is the chromosomal number of gamete cells, somatic cells and embryonic cells of the organism?
Bilangan kromosom satu organisma adalah 12.
Apakah bilangan kromosom untuk sel-sel gamet, sel-sel soma dan sel-sel embrio organisma berkenaan ?

	Gamete cells *Sel-sel gamet*	Somatic cells *Sel-sel soma*	Embryonic cells *Sel-sel embrio*
A	12	12	12
B	6	12	6
C	6	12	12
D	12	6	12

12. Diagram 8 shows two stages in meiosis.
Rajah 8 menunjukkan dua peringkat meiosis.

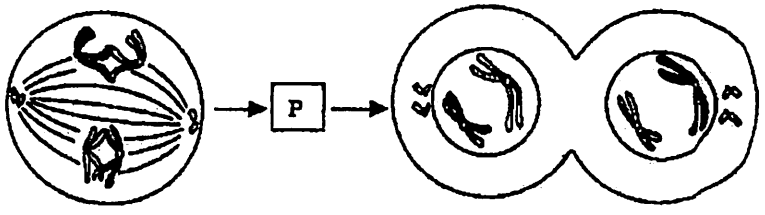


Diagram 8/*Rajah 8*

What is the chromosomal behaviour at stage P?
Apakah perlakuan kromosom di peringkat P ?

A Chromosomes thicken and condense
Kromosom menebal dan memendek

B Chromosomes arrange themselves around equatorial plane
Kromosom tersusun pada satah khatulistiwa

C Homologous chromosomes pair together and crossing-over occurs
Kromosom homolog berpasangan dan pindah silang berlaku

D Homologous chromosomes separate and move to the opposite poles
Kromosom homolog berpisah dan bergerak ke kutub bertentangan

13. Which of the following is the effect of nutrient deficiency?
Antara berikut yang manakah kesan kekurangan nutrien?

A Obesity
Obesiti

B Atherosclerosis
Atherosklerosis

C Diabetis mellitus
Diabetis mellitus

D Osteoporosis
Osteoporosis

14. Diagram 9 shows the structure of villus.
Rajah 9 menunjukkan struktur vilus

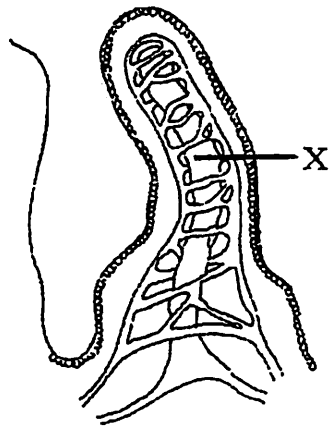


Diagram 9/*Rajah 9*

Which of the following nutrients are found in X?
Antara nutrien berikut, yang manakah didapati di X ?

A Fatty acids and Vitamin D
Asid lemak dan Vitamin D

B Glucose and Amino acid
Glukosa dan Asid amino

C Amino acid and Fatty acid
Asid Amino dan Asid lemak

D Glucose and Vitamin D
Glukosa dan Vitamin D

15. Which of the following is needed during the light reaction of photosynthesis?
Antara yang berikut, yang manakah diperlukan semasa peringkat tindakbalas cahaya fotosintesis?

A ATP
ATP

B Water
Air

C Hydrogen atom
Atom hidrogen

D Carbon dioxide
Karbon dioksida

16. Data shows the result of the experiment to determine the energy value of a peanut.
Data berikut merupakan keputusan suatu eksperimen untuk menentukan nilai tenaga kacang tanah.

Mass of peanut *Jisim kacang tanah*	0.5 (g)
Mass of water *Jisim air*	20 (g)
Initial temperature of water *Suhu awal air*	25 (°C)
Final temperature of water *Suhu akhir air*	45 (°C)

The specific heat capacity of water is 4.2 J g^{-1}°C^{-1}. Calculate the energy value of the peanut.
Muatan haba tentu air ialah 4.2 J g^{-1}°C^{-1}. Hitung nilai tenaga bagi kacang tanah.

A 1680 Jg^{-1}
B 3360 Jg^{-1}
C 7560 Jg^{-1}
D 11 760 Jg^{-}

17. Which structure is involved in the breathing mechanism of a frog?
Struktur manakah yang terlibat dalam mekanisme pernafasan katak?

A Rib cage
Sangkar rusuk
B Diaphragm
Diafragma
C Intercostal muscle
Otot Interkostal
D Mouth cavity
Rongga mulut

18. Which of the following describe how carbon dioxide is transported in blood?
Manakah antara berikut memperihalkan bagaimana karbon dioksida diangkut dalam darah?

I In the form of carbon monoxide
Dalam bentuk karbon monoksida
II In the form of oxyhaemoglobin
Dalam bentuk oksihemoglobin
III As carbaminohaemoglobin
Sebagai karbaminohemoglobin
IV As dissolved carbon dioxide in the blood plasma
Sebagai karbon dioksida larut dalam plasma darah.

A I and II only
I dan II sahaja
B I and III only
I dan III sahaja
C II and III only
II dan III sahaja
D III and IV only
III dan IV sahaja

19. Diagram 10 shows the longitudinal section of thorax viewed from the side.
Rajah 10 menunjukkan keratan membujur toraks dari pandangan sisi.

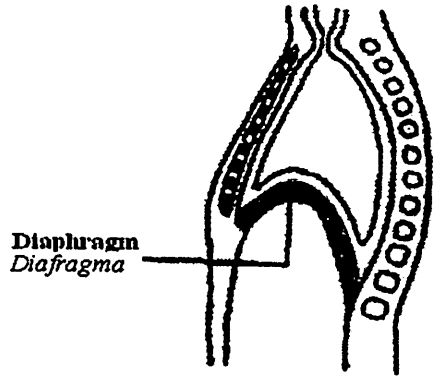


Diagram 10/*Rajah 10*

During the breathing process, which of the following occurs when the diaphragm is arch shaped?
Semasa proses pernafasan, yang manakah berlaku apabila diafragma melengkung ke atas?

	External intercostals muscles *Otot interkosta luar*	Ribcage *Sangkar rusuk*	Movement of air *Pergerakan udara*
A	Relax *Mengendur*	Moves downwards and inwards *bergerak ke bawah dan ke dalam*	Air is forced out of the lungs *Udara ditolak keluar dari peparu*
B	Relax *Mengendur*	Moves upwards and outwards *Bergerak ke atas dan keluar*	Air is forced out of the lungs *Udara ditolak keluar dari peparu*
C	Contract *Mengecut*	Moves downwards and inwards *Bergerak ke bawah dan ke dalam*	Air is sucked into the lungs *Udara disedut ke dalam peparu*
D	Contract *Mengecut*	Moves upwards and outwards *Bergerak ke atas dan keluar*	Air is sucked into the lungs *Udara disedut ke dalam peparu*

20. Diagram 11 shows three organisms which belong to different kingdoms.
Rajah 11 menunjukkan tiga organisma yang tergolong dalam alam yang berbeza.

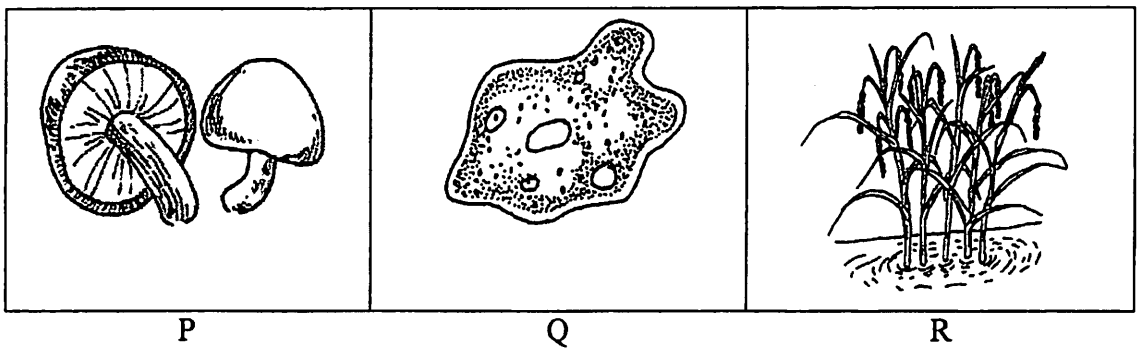


Diagram 11/*Rajah 11*

Which is the correct kingdom for P, Q and R?
Yang manakah alam yang betul untuk P, Q dan R?

	P	Q	R
A	Protista	Fungi	Plantae
B	Fungi	Protista	Plantae
C	Fungi	Plantae	Protista
D	Protista	Plantae	Fungi

21. Diagram 12 shows three different types of interaction between organisms.
Rajah 12 menunjukkan tiga jenis interaksi di antara organisma.

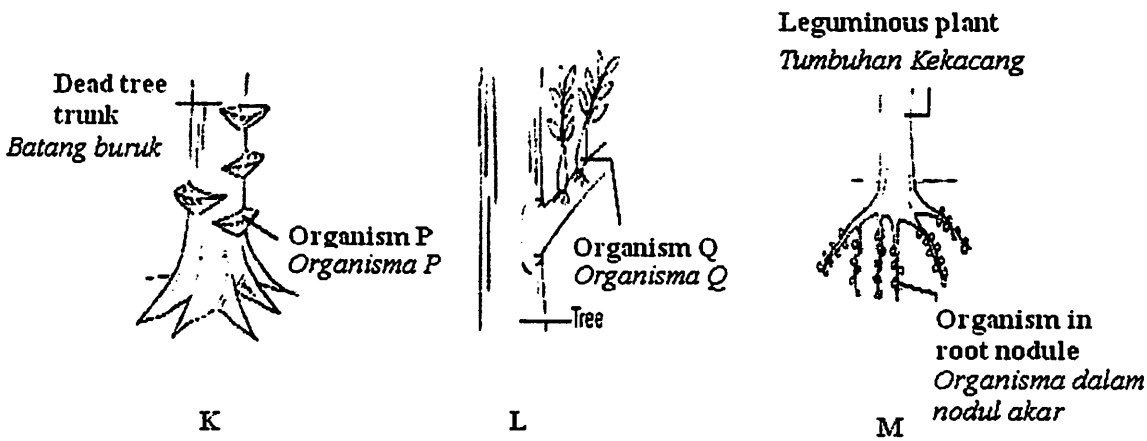


Diagram 12/*Diagram 12*

Which of the following is **true** about the interactions K, L and M?
Manakah di antara berikut benar tentang interaksi K , L dan M ?

	K	L	M
A	Mutualism	Commensalism	Parasitism
B	Mutualism	Parasitism	Saprophytism
C	Saprophytism	Commensalism	Mutualism
D	Parasitism	Commensalism	Mutualism

22. Diagram 13 shows an ecosystem of an abandoned pond which undergoes colonization and succession process.
Rajah 13 menunjukkan satu ekosistem sebuah kolam yang ditinggalkan yang mengalami proses pengkolonian dan sesaran.

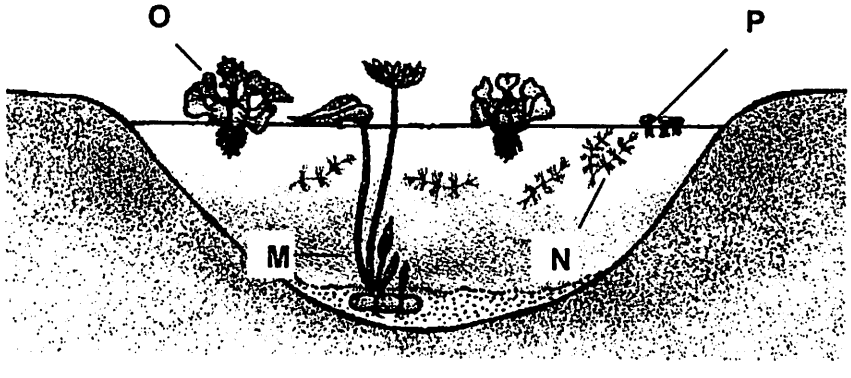


Diagram 13/*Rajah 13*

Which of M,N,O and P is the pioneer species?
Yang manakah antara M, N, O dan P merupakan spesies perintis?

A M
B N
C O
D P

23. Which of the following causes eutrophication?
Yang manakah antara berikut menyebabkan eutrofikasi?

A The flows of inorganic nutrients and organic material into a river
Pengaliran nutrient bukan organik dan bahan organik ke sungai

B An increase in the concentration of carbon dioxide in the river
Peningkatan dalam kepekatan karbon dioksida dalam sungai

C An increase in the number of decomposers in the river
Peningkatan dalam bilangan pengurai dalam sungai

D An increase in oxygen dissolved in the river
Peningkatan oksigen terlarut dalam sungai

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

I Melanoma
Melanoma

II Snow storms
Ribut salji

III Phytoplankton is killed
Fitoplankton mati

IV The rate of photosynthesis increases
Kadar fotosintesis meningkat

A I and II
I dan II

B I and III
I dan III

C II and IV
II dan IV

D III and IV
III dan IV

25. Which of the following air pollutants can cause acid rain?
Antara bahan pencemar udara berikut, yang manakah boleh menyebabkan hujan asid?

A Smoke from wood fires.
Asap dari pembakaran kayu.

B Dust particles from cement industries.
Zarah debu dari kilang simen.

C Lead compounds from car exhausts.
Sebatian plumbum dari ekzos kereta.

D Sulphur dioxide from coal-fueled power station.
Sulfur dioksida dari pembakaran arang batu oleh stesen janakuasa.

26. Diagram 14 shows a plant cell.
Rajah 14 menunjukkan satu sel tumbuhan.

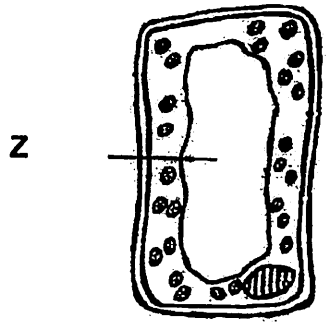


Diagram 14/*Rajah 14*

What is the function of structure Z?
Apakah fungsi struktur Z?

A Excrete of waste product from the cell.
Mengeluarkan bahan kumuh daripada sel.

B Maintain turgidity of the cell.
Mengekalkan kesegahan sel.

C Control size of the cell.
Mengawal saiz sel.

D Maintain the shape of the cell.
Mengekalkan bentuk sel.

27. Diagram 15 shows a type of human muscle tissue.
Rajah 15 menunjukkan satu jenis tisu otot dalam manusia

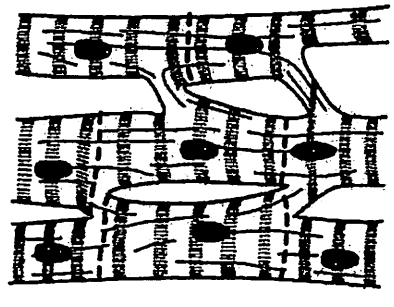


Diagram 15/*Rajah 15*

Which of the following organs consists of this type of muscle?
Antara organ berikut, yang manakah mempunyai otot jenis ini?

A Liver / *hati*

B Heart / *jantung*

C Kidney / *ginjal*

D Stomach / *perut*

28. Diagram 16 shows a mango strip.
Rajah 16 menunjukkan selinder mangga

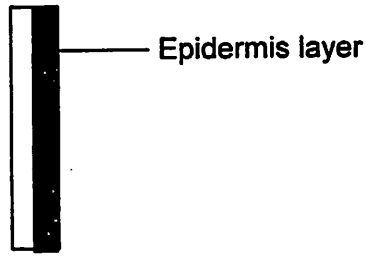
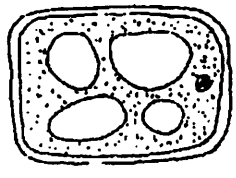
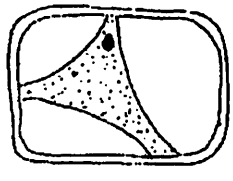
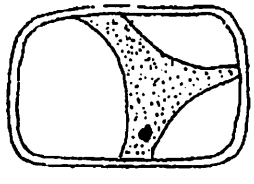
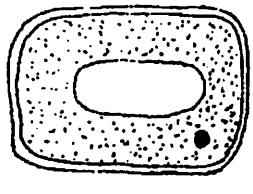
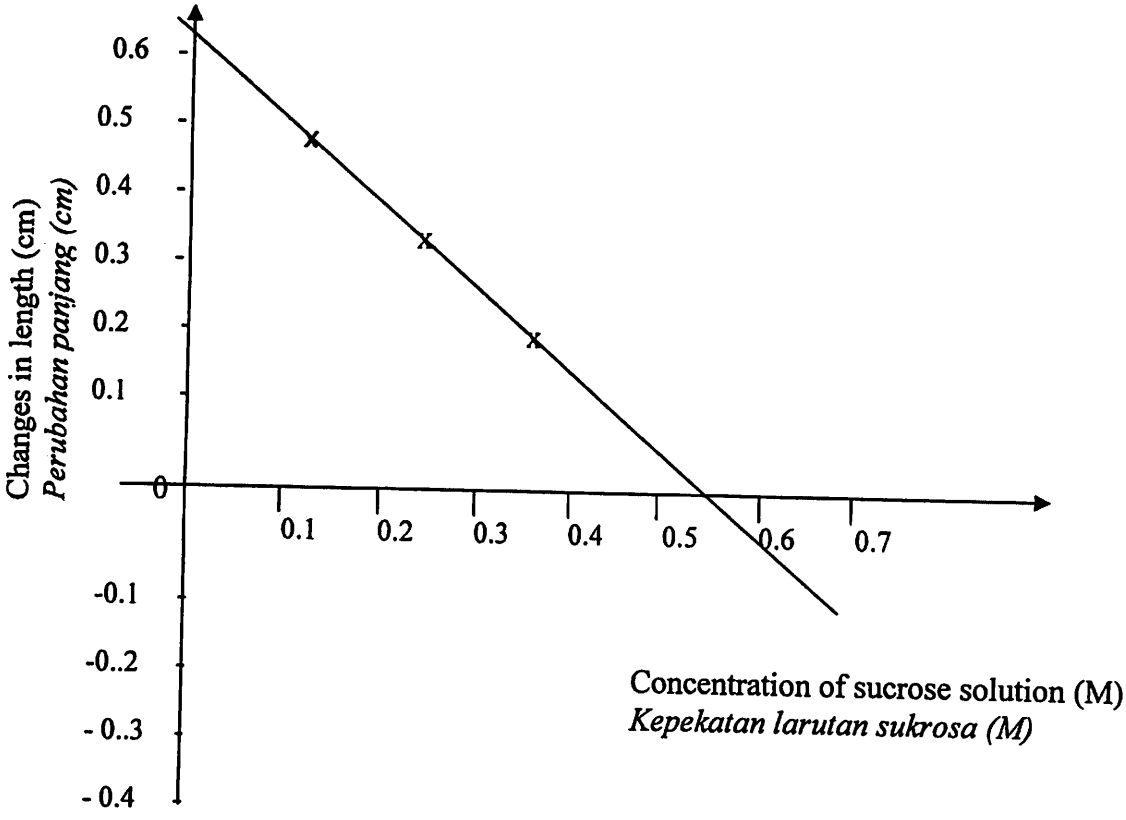


Diagram 16/*Rajah 16*

A student soaks the mango strip in a concentrated sugar solution for 24 hours. Which of the following shows its condition after 24 hours?
Seorang pelajar merendam selinder mangga dalam larutan gula pekat selama 24 jam. Yang manakah dari berikut menunjukkan keadaan nya selepas 24jam?

	Condition of cell *Keadaan sel*	Condition of mango strip Keadaan selinder mangga
A		
B		
C		
D		

29. The graph shows the changes in mass of potato strips immersed in different concentration of sucrose solution.
Graf menunjukkan perubahan pada panjang jalur ubi kentang yang direndam dalam larutan sukrosa yang berbeza kepekatan.



Based on the above graph, which of the following concentrations of sucrose solution will make the potato cells become flaccid?
Berdasarkan graf, manakah antara kepekatan larutan sukrosa berikut yang akan menyebabkan sel ubi kentang menjadi flasid?

A 0.60 M
B 0.55 M
C 0.45 M
D 0.35 M

30. Diagram 17 shows an organic compound.
Rajah 17 menunjukkan sejenis sebatian organik

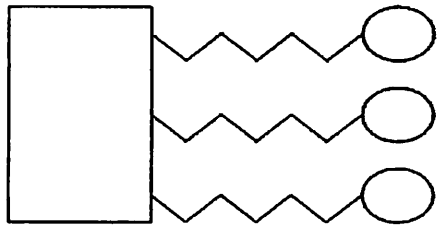


Diagram 17/*Rajah 17*

Which of the following enzyme can hydrolyse the organic compound
Antara enzim berikut, yang manakah boleh menghidrolisis sebatian organik tersebut.

A Lipase
Lipase

B Zimase
Zimase

C Protease
Protease

D Sucrase
Sukrase

31. The following information is about amino acids .
Maklumat berikut adalah tentang asid amino.

Excess amino acids cannot be stored in the body and are broken down in the liver through process K. *Asid amino yang berlebihan tidak boleh disimpan di dalam badan dan dipecahkan di dalam hati melalui proses K.*

What is process K?
Apakah proses K?

A absorption / *penyerapan*

B assimilation /*asimilasi*

C defeacation / *penyahtinjaan*

D deamination / *pendeaminaan*

32. Diagram 18 shows a stage in meiosis I.
Rajah 18 menunjukkan satu peringkat dalam meiosis I.

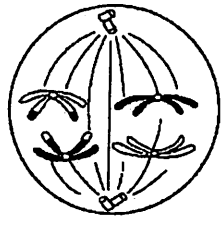


Diagram 18/*Rajah 18*

State the number of chromosome in daughter cells after the cell in Diagram 18 have completed meiosis?
Berapakah bilangan kromosom dalam sel anak selepas sel pada rajah 18 di atas lengkap melakukan meiosis?

A. 2
B. 4
C. 8
D. 16

33. Diagram 19 shows a somatic cell from the organism.
Rajah 19 menunjukkan sel soma dari satu organisma

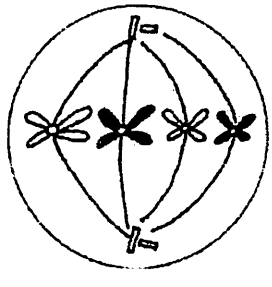


Diagram 19/*Rajah 19*

What is the type of cell division, the stage and the number of chromosomes in the nucleus of the organism's sperm cell?
Apakah jenis pembahagian sel, peringkat dan bilangan kromosom di dalam nukleus sel sperma organisma tersebut?

	Type of cell division *Jenis pembahagian sel*	**Stage** *Peringkat*	**Number of chromosomes** *Bilangan kromosom*
A	Mitosis	Anaphase	4
B	Mitosis	Metaphase	2
C	Meiosis	Anaphase I	2
D	Meiosis	Metaphase I	4

34. Green plants absorb oxygen and release carbon dioxide in low light intensity. Which of the followings are related to the process occur in the plant cell?
Tumbuhan hijau menyerap oksigen dan membebaskan karbon dioksida dalam keadaan keamatan cahaya yang rendah. Manakah antara berikut menunjukkan proses yang berlaku dalam sel tumbuhan?

A. Photosynthesis but not respiration
Fotosintesis tetapi tidak menjalankan respirasi

B. Respiration but not photosynthesis
Respirasi tetapi tidak menjalankan fotosintesis

C. Photosynthesis at a faster rate than respiration
Fotosintesis pada kadar yang lebih cepat daripada respirasi

D. Respiration at a faster rate than photosynthesis
Respirasi pada kadar yang lebih cepat daripada fotosintesis

35. Four different food tests were carried out on a food sample.
The results are shown inTable 1.
Ujian makanan dijalankan ke atas empat sampel makanan.
Keputusan ujian ditunjukan dalam Jadual 1

Test tube *Tabung uji*	Test carried out *Ujian makanan*	Observation *Pemerhatian*
1	Benedict test *Ujian Benedict*	Blue solution *Larutan biru*
2	Iodine test *Ujian kanji*	Dark blue *Biru tua*
3	DCPIP test *Ujian DCPIP*	Colorless solution *Tidak berwarna*

Table 1/*Jadual 1*

The food sample contains
Sampel makanan mengandungi

I starch
kanji

II protein
protein

III vitamin C
vitamin C

IV reducing sugar
gula penurun

A I and IV only

B I and III only

C I, II and III only

D I, II, III and IV

36. Table 2 shows the results of an experiment to estimate the population of rats in an oil palm estate?
Jadual 2 menunjukkan keputusan eksperimen untuk menganggarkan populasi tikus di ladang kelapa sawit.

Number of rats in the first sample *Bilangan tikus dalam tangkapan pertama*	80
Number of rats in the second sample *Bilangan tikus dalam tangkapan kedua*	60
Number of marked rats recaptured *Bilangan tikus bertanda dalam tangkapan kedua*	15

Table 2/*Jadual* 2

What is the estimated population of the rats in the oil palm estate?
Berapakah anggaran populasi tikus dalam ladang kelapa sawit tersebut?

A 125
B 155
C 300
D 320

37. The following information is about controlling breathing in a human body.
Maklumat berikut adalah tentang pengawalan pernafasan dalam badan manusia.

P - Partial pressure of carbon dioxide increases.
Tekanan separa karbon dioksida meningkat.

Q - Rate of breathing and rate of ventilation increase.
Kadar pernafasan dan kadar ventilasi meningkat.

R - Central chemoreceptors in the medulla oblongata detect an increase in the level of hydrogen ions in the blood.
Kemoreseptor pusat dalam medula oblongata mengesan peningkatan aras ion hidrogen dalam darah.

S - Nerve impulses are sent to the respiratory muscles.
Impuls saraf dihantar ke otot respirasi.

Which sequence is **correct**?
*Urutan manakah yang **betul**?*

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

38. Diagram 21 shows a nitrogen cycle
Rajah 21 menunjukkan kitar nitrogen

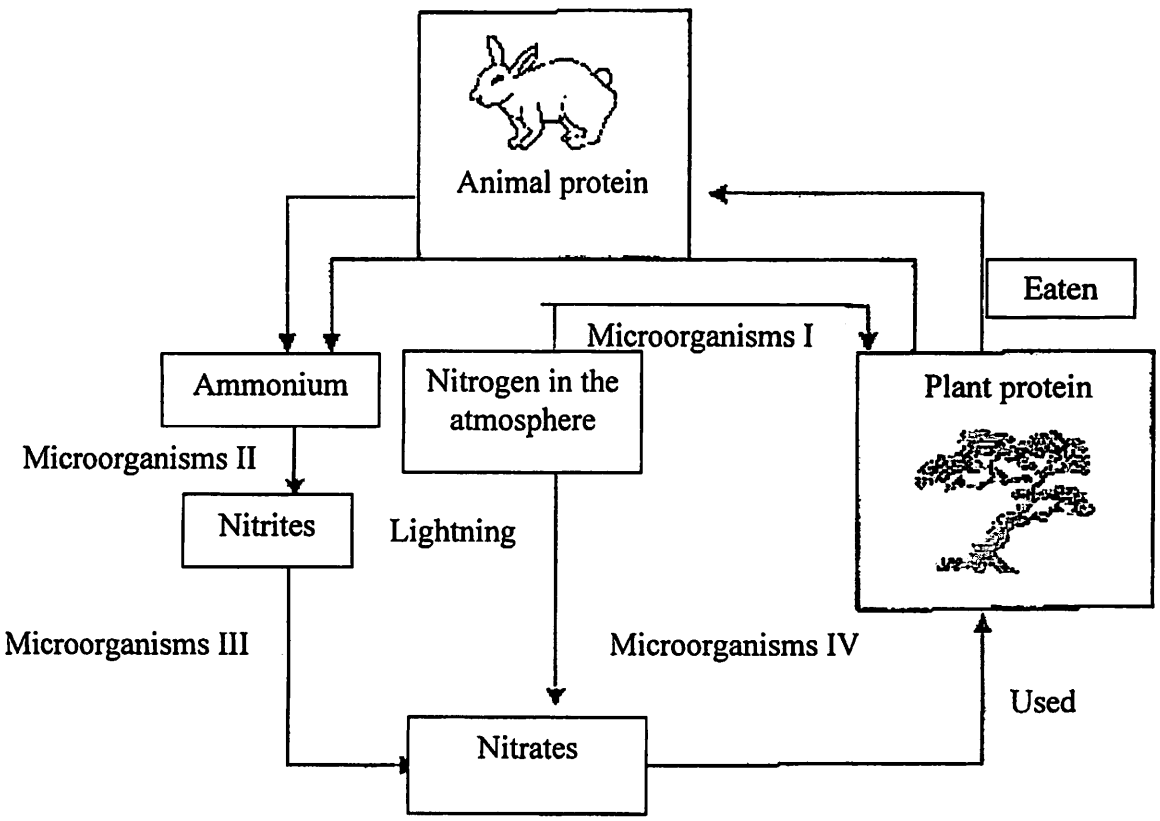


Diagram 21/*Rajah 21*

Which microorganisms carry out the nitrification?
Mikroorganisma manakah yang melakukan penitritan?

A. II and III

B. III and IV

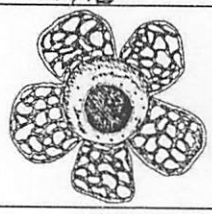
C. I, II and III

D. II, III and IV

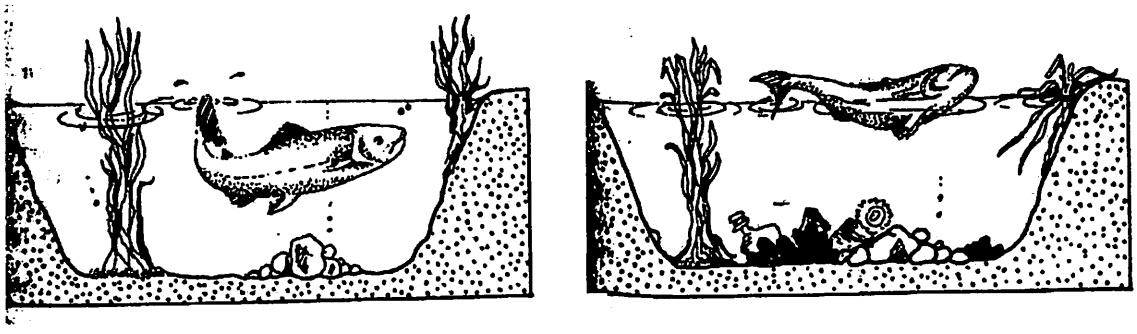
39. The following characteristic enables the organisms to survive in its habitat.
Ciri-ciri penyesuaian berikut membolehkan organisma hidup di habitatnya

I Has a modified part to store water
Mempunyai bahagian yang diubahsuai untuk menyimpan air
II Produce spore
Menghasilkan spora
III Has hyphae to absorb nutrients
Mempunyai hifa untuk menyerap nutrien
IV Has nodule
Mempunyai nodul

Which of the suitable characteristic enables organisms to survive in their habitat
Antara berikut yang manakah ciri penyesuaian yang sesuai untuk membolehkan organisma hidup di habitatnya.

	ORGANISMS *ORGANISMA*	**CHARACTERISTICS** *CIRI-CIRI*
A		I, II and III
B		II, III and IV
C		III and IV
D		II and III

40. Diagram 22 shows a situation of a pond in 1999 and 2003.
Rajah 22 menunjukkan keadaan sebuah kolam pada tahun 1999 dan 2003



1999 2003

Diagram 22/*Rajah 22*

Which of the following statements best explain the diagram above?
Antara pernyataan berikut yang manakah sesuai menerangkan kejadian dalam rajah di atas?

I. Factory waste is a main factor in pond pollution
Hasil buangan kilang adalah faktor utama pencemaran kolam

II. Additional quantity of nitrogenous material increases the number of microorganisms
Penambahan kuantiti bahan bernitrogen meningkatkan bilangan mikroorganisma

III. BOD will increase because the content of oxygen decrease
BOD akan meningkat kerana kandungan oksigen berkurang

IV. Aquatic organism died due to lack of oxygen
Organisma akuatik mati disebabkan kekurangan oksigen

A. II and IV

B. II and III

C. I, III and IV

D. I, II, III and IV

41. Diagram 23 is a graph showing the result of changes in mass of three pieces of onion which was left for 30 minutes in three sucrose solutions with different concentrations.
Graf dalam rajah 23 menunjukkan perubahan jisim tiga kepingan bawang yang direndam dalam tiga larutan sukrosa yang berbeza kepekatan selama 30 minit.

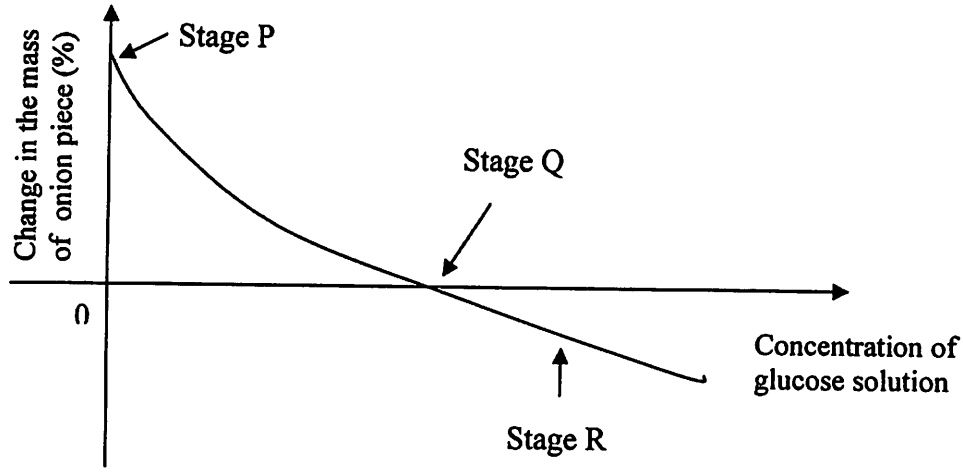
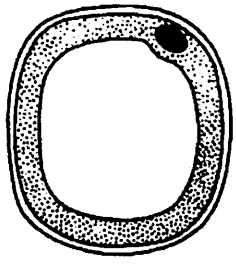


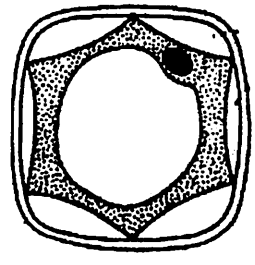
Diagram 23/*Rajah 23*

Which of the following diagrams reflects the condition of the cell at the stage Q?
Antara rajah berikut, yang manakah menunjukkan keadaan bawang pada kedudukan Q?

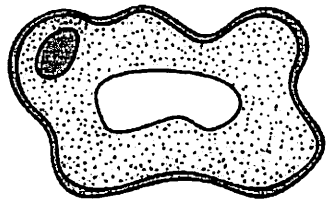
A



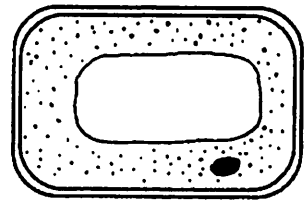
C



B



D



What is the concentration of vitamin C in the guava juice?
Berapakah kepekatan vitamin C dalam jus jambu batu?

A 2.5 mg / ml.
B 0.4 mg / ml.
C 4.0 mg / ml.
D 3.5 mg / ml.

45. Which of the following differences between light reaction and dark reaction is **not true**?
*Antara berikut yang manakah perbezaan bagi tindak balas cahaya dan tindak balas gelap yang **tidak benar**?*

	Light reaction	Dark reaction
A	Occurs in stroma *Berlaku dalam stroma*	Occurs in grana *Berlaku dalam grana*
B	ATP and hydrogen are produced *ATP dan hidrogen dihasilkan*	ATP and hydrogen are used *ATP dan hidrogen digunakan*
C	No reduction of carbon dioxide *Tiada penurunan karbon dioksida*	There is reduction of carbon dioxide *Berlaku penurunan karbon dioksida*
D	Oxygen is produced as a by product *Oksigen dihasilkan sebagai hasil sampingan*	No oxygen is produced *Oksigen dihasilkan*

46. Diagram 27 shows the set-up of apparatus to measure the percentage of certain gas in the air.
Rajah 27 menunjukkan persediaan radas untuk mengukur peratus gas tertentu di dalam udara

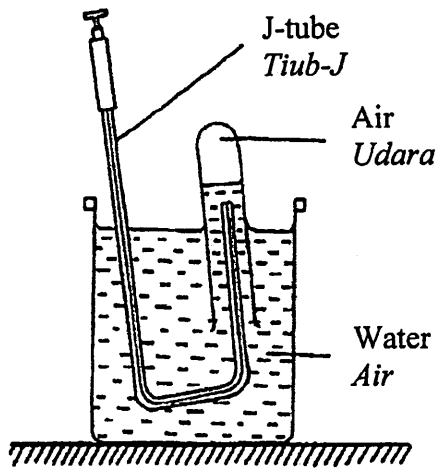


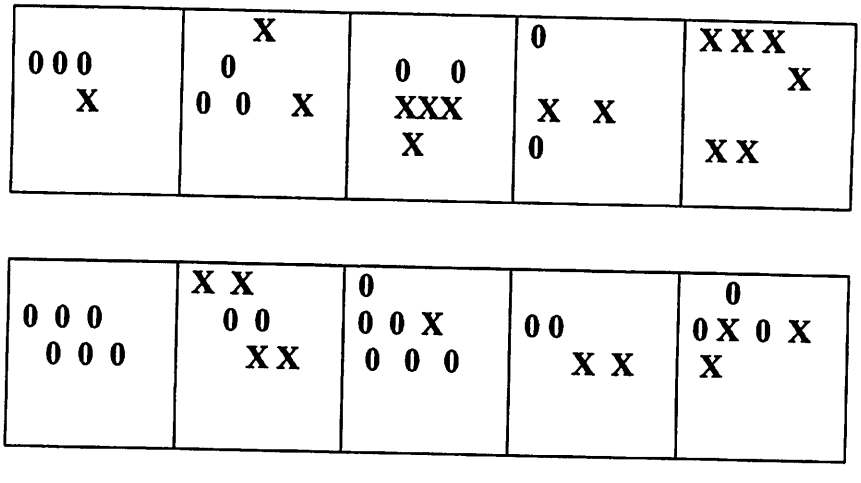
Diagram 27/*Rajah 27*

Length of exhaled air column *Panjang turus udara*	=	10.0 cm
Length of exhaled air column after treatment with potassium hydroxide *Panjang turus udara hembusan selepas di rawat dengan potassium hidroksida*	=	9.6 cm
Length of exhaled air column after treatment with potassium pyrogallate *Panjang turus udara hembusan selepas Dirawat dengan potassium pirogalat*	=	8.5 cm

What is the percentage of oxygen content in the exhaled air?
Berapakah peratus kandungan oksigen di dalam udara hembusan?

A 4.2 %
B 8.5 %
C 11.0 %
D 21.0 %

47. Diagram 28 shows the result of the distribution of two species of plants P and Q in 10 different quadrats of the same size 1m x 1m.
Rajah 28 menunjukkan hasil taburan dua spesies tumbuhan P dan Q dalam 10 quadrat berbeza dengan saiz yang sama 1m x 1m.



Key – **0** 10 individual of P
X 10 individual of Q

Diagram 28 / *Rajah 28*

What is the frequency percentage of species P?
Apakah peratus frekuensi spesis P?

A 90 %
B 80 %
C. 70%
D. 60%

48. Diagram 29 shows eight similar quadrates that are used to estimate the population of *Mimosa pudica* in a school field. The coverage of each quadrate is recorded.
Rajah 29 menunjukkan 8 quadrat yang digunakan untuk mengkaji populasi Mimosa pudica di padang sekolah. Litupan setiap kuadrat direkodkan.

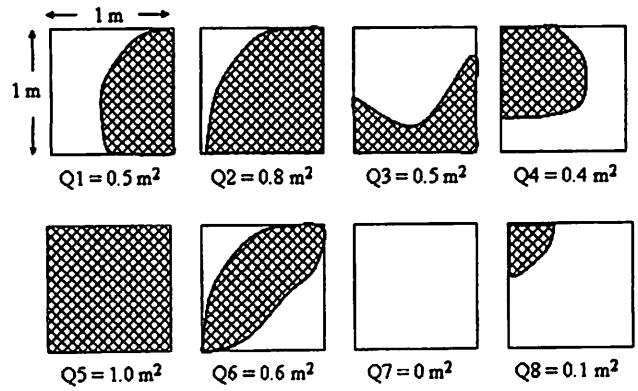


Diagram 29/*Rajah 29*

What is the percentage coverage of *Mimosa pudica* in this school field?
Apakah peratus litupan Mimosa pudica di padang sekolah ini?

A 39%
B 49%
C 67%
D 77%

49. Which of the following statements are the effects of a polluted pond caused by the disposal of industrial waste from factories?
Manakah antara pernyataan yang berikut adalah kesan pencemaran kolam akibat pembuangan bahan buangan industri dari kilang?

I pH change in the pond water
perubahan pH air kolam
II decrease the amount of oxygen in the pond
kandungan oksigen yang berkurangan di dalam kolam
III reduce the rate of photosynthesis of aquatic plants
mengurangkan kadar fotosintesis tumbuhan akuatik
IV respiratory surfaces of aquatic organisms are not functional
permukaan respirasi haiwan akuatik tidak berfungsi

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

50. What are the effects of sulphur dioxide on human health?
Apakah kesan sulfur dioksida kepada kesihatan manusia?

I	Irritates the eyes *Memedihkan mata*
II	Binds with haemoglobin in the blood. *Bergabung dengan haemoglobin dalam darah.*
III	Causes shortness of breath and coughing *Menyebabkan kesesakan nafas dan batuk*
IV	Retards mental development *Merencat perkembangan mental.*

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

END OF QUESTION PAPER
KERTAS SOALAN TAMAT

42. Diagram 24 shows the process of synthesis and secretion of enzyme in a cell.
Rajah 24 menunjukkan proses sintesis protein dan perembesan enzim dalam satu sel.

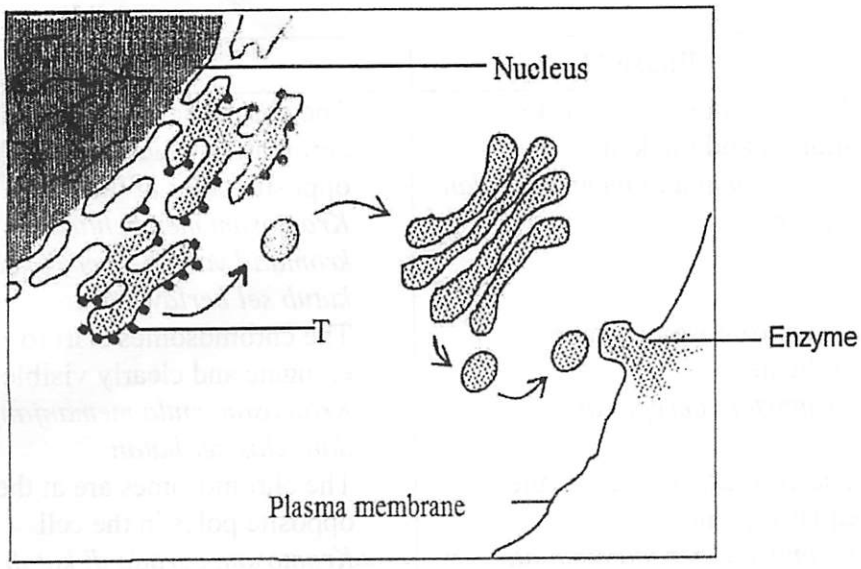


Diagram 24/*Rajah 24*

What will happen if organelle T is not present?
Apakah yang akan berlaku sekiranya organel T tidak hadir?

A Energy cannot be generated
Tenaga tidak dapat dijanakan

B Enzyme cannot be synthesized
Enzim tidak boleh disintesis

C Protein synthesized cannot be modified
Sintesis protein tidak boleh diubahsuaikan

D Protein synthesized cannot be transported
Sintesis protein tidak boleh diangkut

43. Diagram 25 shows the phases in mitosis.
Rajah 25 menunjukkan fasa-fasa dalam mitosis.

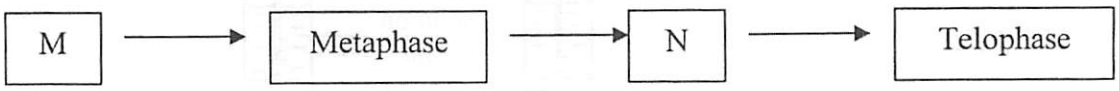


Diagram 25/*Rajah 25*

Which of the following statements is true about the chromosomes at stages M and N?
Antara pernyataan berikut yang manakah benar tentang kromosom pada peringkat M dan N?

	Phase M	Phase N
A	The chromosomes start to shorten and thicken *Kromosom mula memendek dan menebal*	The chromosomes form chromatids which move to the opposite poles af the cell *Kromosom membentuk kromatid yang bergerak kearah kutub sel berlawanan*
B	The chromosomes have replicated *Kromosom bereplikasi*	The chromosomes start to elongate and clearly visible *Kromosom mula memanjang dan jelas kelihatan*
C	The chromosome are at the equator plane *Kromosom berada di satah khatulistiwa*	The chromosomes are at the opposite poles in the cell *Kromosom berada di kutub sel berlawanan*
D	The chromosomes form sister chromatids *Kromosom membentuk kromatid kembar*	The homologous chromosomes are paired *Kromosom homolog berpasangan*

44. Diagram 26 shows an experiment to determine the content of ascorbic acid (Vitamin C) in fruit juice. The result shown that 1 ml of 0.1% ascorbic acid decolourised 1 ml of DCPIP solution while 2.5 ml of the guava juice was required to decolorise 1 ml of DCPIP.
Rajah 26 menunjukkan satu eksperimen untuk menentukan kandungan asid askorbik (vitamin C) dalam jus buah. Keputusan menunjukkan bahawa 1 ml asid askorbik 0.1 % melunturkan 1 ml larutan DCPIP manakala 2.5 ml jus jambu batu diperlukan untuk melunturkan 1 ml larutan DCPIP.

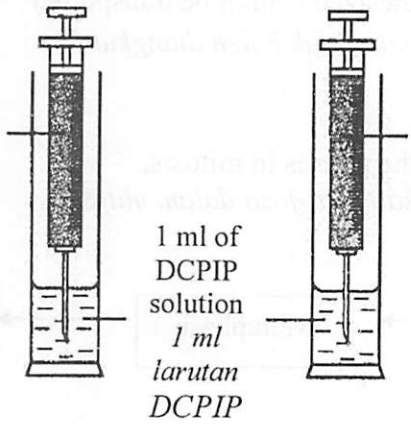


Diagram 26/*Rajah 26*

BAHAN KECEMERLANGAN

SPM 2015

Skema

BK 1

BIOLOGI

DIBIAYAI OLEH
KERAJAAN NEGERI TERENGGANU

UJIAN PENGESANAN TOV 2015
BIOLOGY 4551/1
PAPER 1

QUESTION NUMBER	ANSWER	QUESTION NUMBER	ANSWER
1	D	26	B
2	A	27	B
3	C	28	B
4	C	29	A
5	C	30	A
6	A	31	D
7	A	32	A
8	A	33	B
9	D	34	B
10	D	35	B
11	C	36	D
12	D	37	D
13	D	38	A
14	A	39	D
15	B	40	D
16	B	41	D
17	D	42	B
18	D	43	A
19	A	44	B
20	B	45	A
21	C	46	C
22	B	47	A
23	A	48	B
24	B	49	B
25	D	50	A