

Nama:..... Kelas :



قَسَمْتُ نَفْسِي بَيْنَ عِلْمٍ وَفِعْلٍ
وَمَعَهُمَا كَرَامَاتٌ سَكُونُ لِمَنْ عَمِلَ
يَا أَيُّهَا اسْلَامُ كَلِمَتُنْ



4551/1
Biologi
Kertas 1
Oktober
2024
1 1/3 jam

**PEPERIKSAAN PERCUBAAN
SIJIL PELAJARAN MALAYSIA
TAHUN 2024 M / 1446 H**

**BIOLOGI
KERTAS 1**

JANGAN BUKA KERTAS PEPERIKSAAN INI SEHINGGA DIBERITAHU

1. Kertas soalan ini adalah dalam dwibahasa.
2. Soalan dalam bahasa Melayu mendahului soalan yang sepadan dalam bahasa Inggeris.

**MAKLUMAT UNTUK CALON
INFORMATION FOR CANDIDATES**

1. Kertas soalan ini mengandungi 40 soalan.
2. Jawab **semua** soalan.

Kertas peperiksaan ini mengandungi 24 halaman bercetak

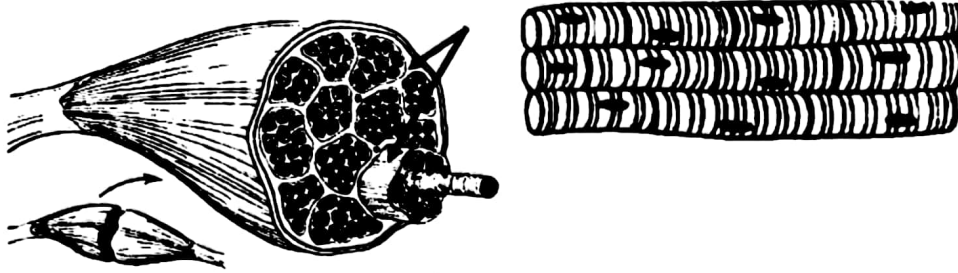
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PERCUBAAN SPM YIK BIOLOGI K1

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Sebelah**

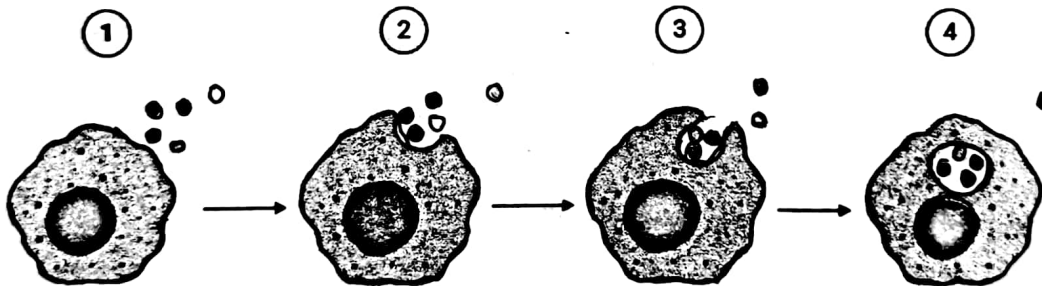
- 1 Rajah 1 menunjukkan sejenis tisu otot.
Diagram 1 shows a type of muscle tissue.



Rajah 1
Diagram 1

Organel manakah yang banyak dijumpai dalam tisu itu?
Which organelle is abundantly found in the tissue?

- A Jasad Golgi
Golgi apparatus
- B Mitokondrion
Mitochondrion
- C Jalinan endoplasma kasar
Rough endoplasmic reticulum
- 2 Rajah 2 menunjukkan suatu proses yang berlaku dalam *Amoeba* sp.
Diagram 2 shows a process that occurs in *Amoeba* sp.

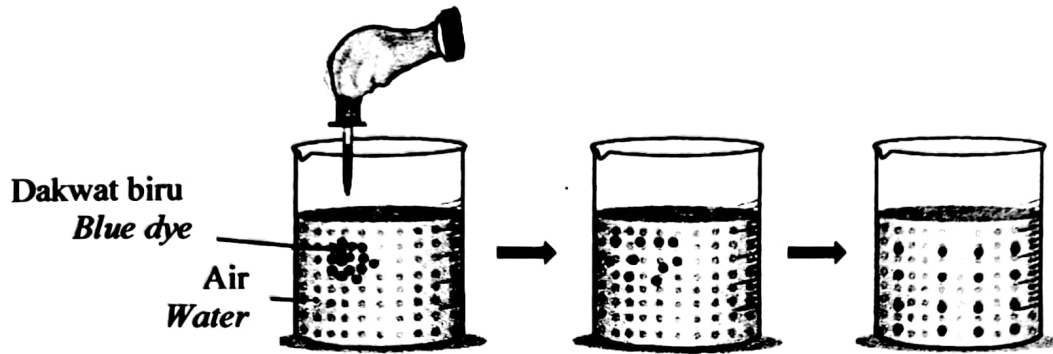


Rajah 2
Diagram 2

Apakah organel yang terlibat dalam proses ini?
What is the organelle involved in this process?

- A Lisosom
Lysosome
- B Ribosom
Ribosome
- C Jasad Golgi
Golgi apparatus

- 3 Rajah 3 menunjukkan suatu eksperimen.
Diagram 3 shows an experiment.

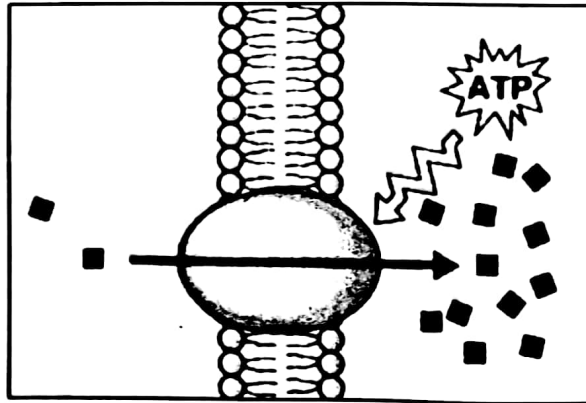


Rajah 3
Diagram 3

Namakan proses yang berlaku dalam eksperimen ini.
Name the proses that occurs in the experiment.

- A Osmosis
Osmosis
 - B Resapan ringkas
Simple diffusion
 - C Resapan berbantu
Facilitated diffusion
- 4 Apakah keadaan bagi sel haiwan apabila direndam dalam larutan garam yang pekat?
What happens to animal cells when immersed in concentrated salt solution?
- A Krenasi
Crenation
 - B Segah
Turgid
 - C Hemolisis
Haemolysis
 - D Plasmolisis
Plasmolysis

- 5 Rajah 4 menunjukkan pergerakan suatu bahan merentasi membran plasma.
Diagram 4 shows the movement of substance across a plasma membrane.

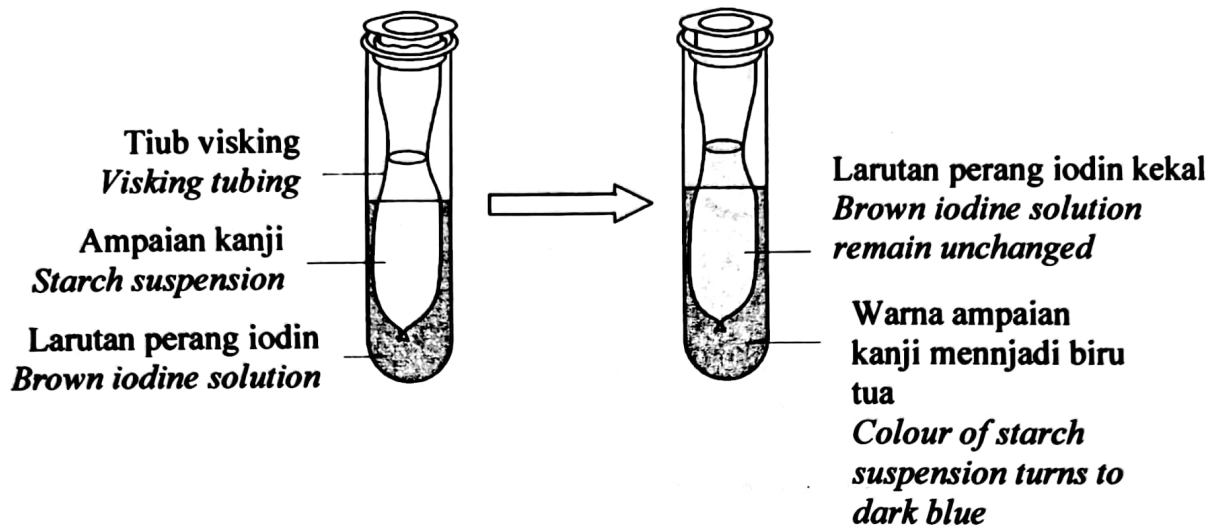


Rajah 4
Diagram 4

Antara berikut, pernyataan yang manakah benar tentang pergerakan bahan ini?
Which of the following statements are correct about the movement of this substance?

- I Melibatkan protein liang
Involved pore protein
 - II Melibatkan protein pembawa
Involved carrier protein
 - III Melawan kecerunan kepekatan
Against concentration gradient
 - IV Memerlukan tenaga
Require energy
- A I dan III
I and III
 - B I dan IV
I and IV
 - C I, III dan IV
I, III and IV
 - D II, III dan IV
II, III and IV

- 6 Rajah 5 menunjukkan satu eksperimen ringkas melibatkan tiub visking.
Diagram 5 shows a simple experiment involved visking tubing.



Rajah 5
Diagram 5

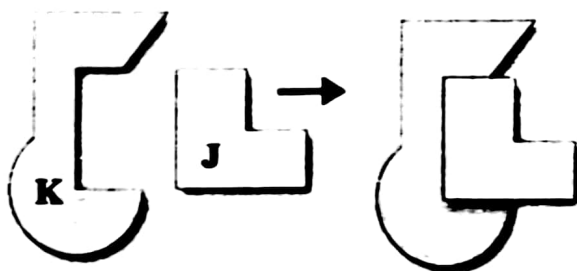
Apakah ciri tiub visking berdasarkan eksperimen ini?
What is the characteristic of visking tubing based on the experiment?

- A Tidak telap
Non-permeable
- B Separa telap
Semi-permeable
- C Telap sepenuhnya
Fully permeable

- 7 Sebatian manakah adalah disakarida?
Which compound are disaccharide?

- A Laktosa dan maltosa
Lactose and maltose
- B Glukosa dan sukrosa
Glucose and sucrose
- C Galaktosa dan fruktosa
Galactose and fructose
- D Sukrosa dan galaktosa
Sucrose and galactose

- 8 Rajah 6 menunjukkan tindakan enzim, J ke atas substrat, K.
Diagram 6 shows the action of enzyme, J on substrate, K.



Rajah 6
Diagram 6

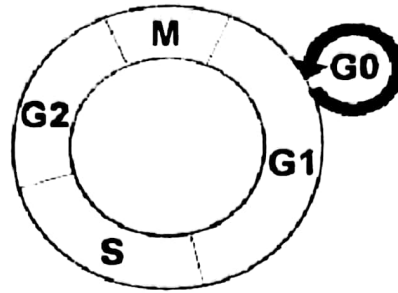
Apakah yang akan berlaku pada akhir tindak balas?
What will happen at the end of the reaction?

- A Substrat tidak akan terjejas
The substrate will not be affected
- B Substrat akan dihidrolisis
The substrate will be hydrolysed
- C Sebahagian kecil substrat menjadi hasil tindak balas
A small portion of the substrate becomes the product of the reaction

- 9 Antara yang berikut, yang manakah perencat enzim?
Which of the following is an enzyme inhibitor?

- I Ferum
Iron
- II Sianida
Cyanide
- III Vitamin C
Vitamin C
- IV Merkuri
Mercury
- A I dan II
I and II
- B I dan III
I and III
- C II dan III
II and III
- D II dan IV
II and IV

- 10 Rajah 7 menunjukkan satu kitar sel.
Diagram 7 shows a cell cycle.



Rajah 7
Diagram 7

Apakah yang berlaku dalam fasa G1, S, G2 dan M?
What happen in phase G1, S, G2 and M?

	G1	S	G2	M
A	Sintesis organel <i>Synthesis of organelles</i>	Replikasi DNA <i>DNA replication</i>	Pembahagian nukleus <i>Division of nucleus</i>	Kadar respirasi tinggi <i>Rate of respiration high</i>
B	Replikasi DNA <i>DNA replication</i>	Sintesis organel <i>Synthesis of organelles</i>	Kadar respirasi tinggi <i>Rate of respiration high</i>	Pembahagian nukleus <i>Division of nucleus</i>
C	Sintesis organel <i>Synthesis of organelles</i>	Replikasi DNA <i>DNA replication</i>	Kadar respirasi tinggi <i>Rate of respiration high</i>	Pembahagian nukleus <i>Division of nucleus</i>
D	Kadar respirasi tinggi <i>Rate of respiration high</i>	Replikasi DNA <i>DNA replication</i>	Sintesis organel <i>Synthesis of organelles</i>	Pembahagian nukleus <i>Division of nucleus</i>

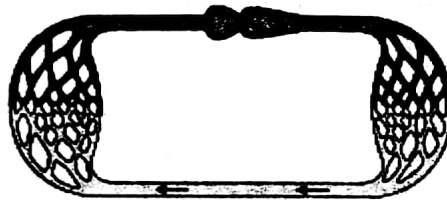
- 11 Semasa pembentukan kromosom dalam gamet yang abnormal, pada peringkat pembahagian sel yang manakah mutasi ini berlaku?
During the formation of chromosomes in an abnormal gametes, at which stage of cell division do mutations occur?
- A Profasa I
Prophase I
 - B Metafasa I
Metaphase I
 - C Anafasa I
Anaphase I
 - D Telofasa I
Telophase I
- 12 Apakah kepentingan proses meiosis semasa pembentukan gamet?
What is the importance of the process of meiosis during gamete formation?
- A Mengurangkan bilangan kromosom anak
Reduce the chromosomal number of offspring
 - B Mengekalkan bilangan kromosom anak
Maintain the chromosomal number of offspring
 - C Menjadikan bilangan kromosom anak separuh
Halve the chromosomal number of offspring
 - D Menggandakan bilangan kromosom anak
Double up the chromosomal number of offspring
- 13 Teknik yang manakah boleh digunakan oleh petani untuk menghasilkan tanaman dalam kuantiti yang sangat banyak pada masa yang singkat?
Which technique can farmers use to produce crops in very large quantities in a short time?
- A Kultur tisu
Tissue culture
 - B Keratan batang
Stem cutting
 - C Pembiakbakaan
Selective breeding
 - D Kejuruteraan genetik
Genetic engineering

- 14 Semasa aktiviti berenang, akan berlaku suatu keadaan yang dipanggil hutang oksigen. Apakah sebab utama berlaku hutang oksigen ini?
During swimming activity, there will be a condition called oxygen debt. What is the main reason for this oxygen debt?
- A Peningkatan perembesan hormon
Increased hormone secretion
 - B Peningkatan pengaliran impuls saraf
Increased transmission of nerve impulses
 - C Peningkatan aras urea dalam darah
Increased levels of ureas in the blood
 - D Peningkatan keperluan oksigen melebihi bekalan oksigen
Increased oxygen demand exceeds oxygen supply
- 15 Antara berikut, yang manakah mewakili urutan hidrolisis protein bermula dari perut?
Which of the following represents the sequence of protein hydrolysis starting from the stomach?
- A Protein → Dipeptida → Asid amino → Polipeptida
Protein Dipeptide Amino acid Polypeptide
 - B Protein → Asid amino → Dipeptida → Polipeptida
Protein Amino acid Dipeptide Polypeptide
 - C Protein → Polipeptida → Dipeptida → Asid amino
Protein Polypeptide Dipeptide Amino acid
 - D Protein → Dipeptida → Polipeptida → Asid amino
Protein Dipeptide Polypeptide Amino acid

- 16 Bahan X terlibat semasa pencernaan lipid yang berlaku di dalam duodenum. Apakah bahan X dan kepentingannya?
Substance X is involved during lipid digestion that occurs in the duodenum. What is substance X and its importance?

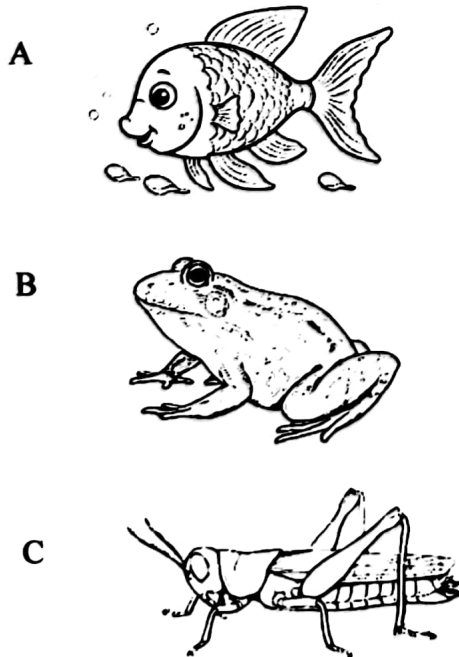
	Bahan X <i>Substance X</i>	Kepentingan <i>Importance</i>
A	Garam hempedu <i>Bile salt</i>	Menyediakan medium berasid bagi enzim <i>Creates acidic medium for enzyme</i>
B	Garam hempedu <i>Bile salt</i>	Menambahkan luas permukaan bagi tindakan enzim <i>Increase surface area for enzyme action</i>
C	Asid hidroklorik <i>Hydrochloric acid</i>	Menyediakan medium berasid bagi enzim <i>Creates acidic medium for enzyme</i>
D	Asid hidroklorik <i>Hydrochloric acid</i>	Menambahkan luas permukaan bagi tindakan enzim <i>Increase surface area for enzyme action</i>

- 17 Rajah 8 menunjukkan sistem peredaran darah bagi seekor haiwan.
Diagram 8 shows the blood circulatory system of an animal.



Rajah 8
 Diagram 8

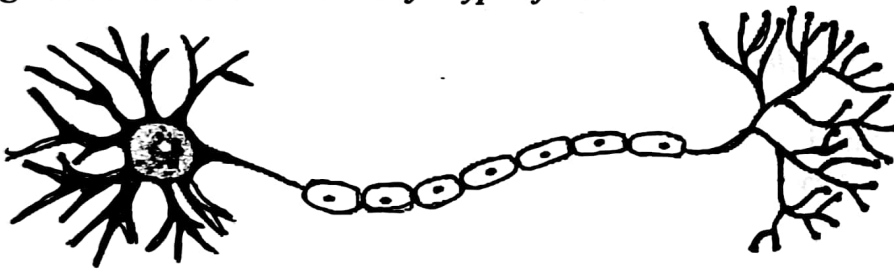
Antara organisma berikut, yang manakah mempunyai sistem peredaran darah ini?
Which of the following organisms has this blood circulatory system?



- 18 Pak Mat telah disengat oleh seekor kala jengking dan telah dimasukkan ke hospital. Apakah rawatan yang harus diberikan kepada Pak Mat?
Pak Mat was stung by a scorpion and was hospitalised. What treatment should be given to Pak Mat?

- A Vaksin khusus
Specific vaccine
- B Antigen khusus
Specific antigen
- C Antivirus khusus
Specific antiviral
- D Antiserum khusus
Specific antiserum

- 19 Rajah 9 menunjukkan struktur sejenis neuron.
Diagram 9 shows the structure of a type of neurone.

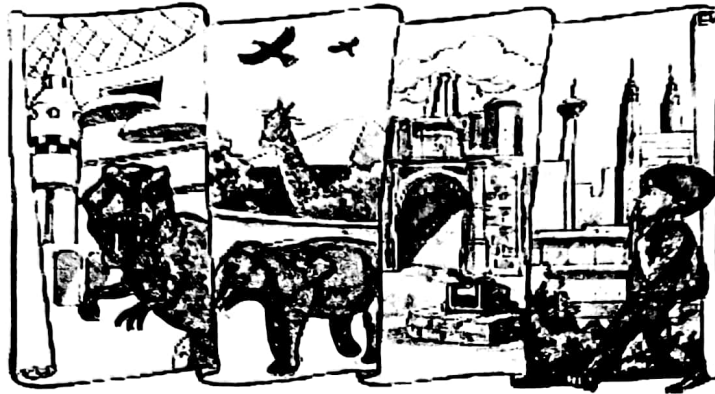


Rajah 9
Diagram 9

Apakah fungsi neuron ini?
What is the function of the neurone?

- A Menghantar impuls saraf dari neuron deria ke neuron motor
Send nerve impulses from sensory neurons to motor neurons
- B Menghantar impuls saraf dari sistem saraf pusat ke efektor
Send nerve impulses from the central nervous system to effector
- C Menghantar impuls saraf dari reseptor ke sistem saraf pusat
Send nerve impulses from receptor to the central nervous system
- D Menghantar impuls saraf dari reseptor ke efektor
Send nerve impulses from receptor to effector

- 20 Rajah 10 menunjukkan suatu aktiviti di taman tema.
Diagram 10 shows an activity in a theme park.



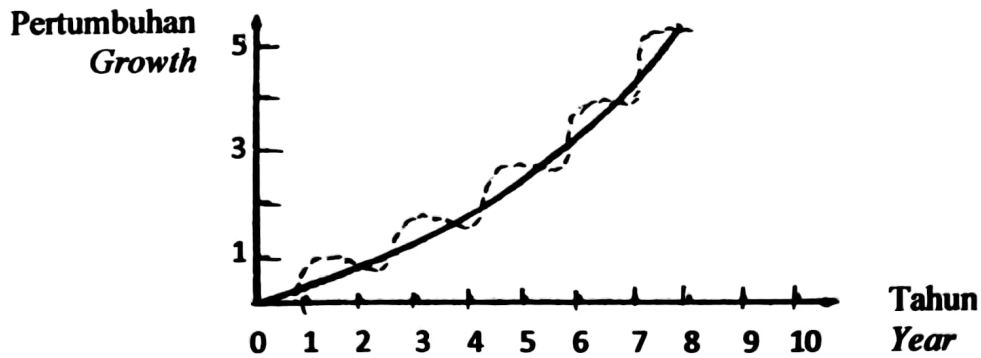
Rajah 10
Diagram 10

Raja sangat teruja dengan lawatan di taman tema. Kelenjar endokrin yang manakah terlibat semasa situasi tersebut?

Raja is very excited about the visit in the theme park. Which endocrine glands are involved during the situation?

- A Pituitari
Pituitary
 - B Pankreas
Pancreas
 - C Adrenal
Adrenal
- 21 Apakah peranan hormon peluteinan (LH) dalam kitar haid?
What is the role of luteinising hormone (LH) in menstrual cycle?
- A Merangsang pengovulan
Stimulates ovulation
 - B Merangsang perkembangan folikel
Stimulates the development of follicle
 - C Merangsang penebalan endometrium
Stimulates thickens the endometrium
 - D Merangsang pembentukan oosit sekunder
Stimulates the formation of secondary oosite

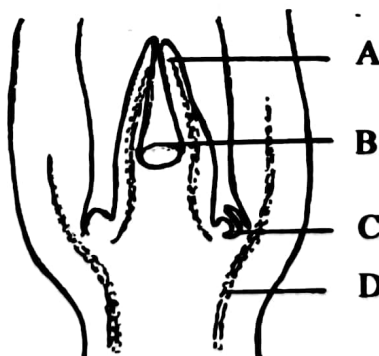
- 22 Rajah 11 menunjukkan lengkung pertumbuhan bagi suatu tumbuhan.
Diagram 11 shows the growth curve of a plant.



Rajah 11
Diagram 11

Jenis tumbuhan yang manakah mempunyai lengkung pertumbuhan ini?
Which type of plant has this growth curve?

- A Tumbuhan saka
Perennial plants
- B Tumbuhan semusim
Annual plants
- C Tumbuhan dwimusim
Biennial plants
- 23 Rajah 12 menunjukkan zon-zon pertumbuhan pada keratan memanjang hujung pucuk.
Diagram 12 shows the growth zones on the longitudinal section of shoot tip.



Rajah 12
Diagram 12

Antara zon A, B, C dan D pada zon manakah berlakunya pemvakuolan?
Among zones A, B, C and D, which zones does vacuolation occur?

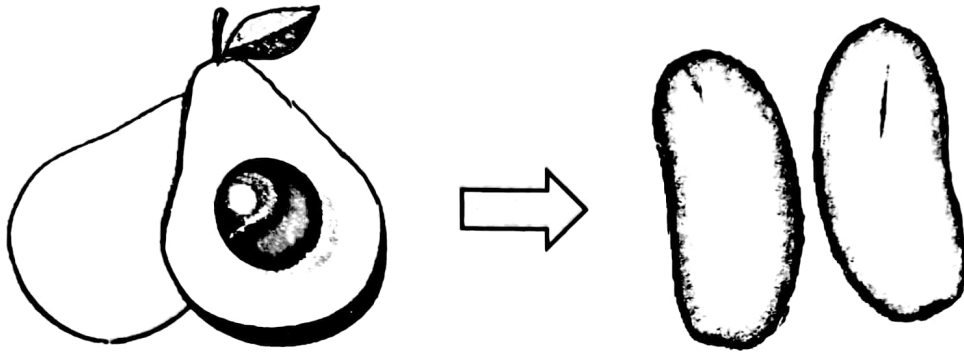
- 24 Antara berikut, yang manakah benar tentang aplikasi penggunaan rumah hijau dalam meningkatkan kadar fotosintesis?
Which of the following is true about the application of greenhouses in increasing the rate of photosynthesis?

- I Kepekatan karbon dioksida yang tinggi dikekalkan di dalam rumah hijau
A high concentration of carbon dioxide is maintained in the greenhouse
- II Persekitaran dalam rumah hijau lebih kurang sama dengan persekitaran di luar
The environment in the greenhouse is more or less the same as the environment outside
- III Suhu di dalam rumah hijau ditetapkan melebihi 40°C
The temperature inside the greenhouse is set above 40°C
- IV Tanaman didedahkan kepada cahaya sepanjang masa
Plants are exposed to light throughout the day
- A I dan II
I and II
- B II dan III
II and III
- C III dan IV
III and IV
- D I dan IV
I and IV

- 25 Yang manakah contoh mikronutrien?
Which is an example of a micronutrient?

- A Boron
Boron
- B Oksigen
Oxygen
- C Nitrogen
Nitrogen
- D Magnesium
Magnesium

- 26 Rajah 13 menunjukkan perubahan buah avokado dari ada biji kepada tanpa biji.
Diagram 13 shows the change of avocado fruit from have a seed to seedless.

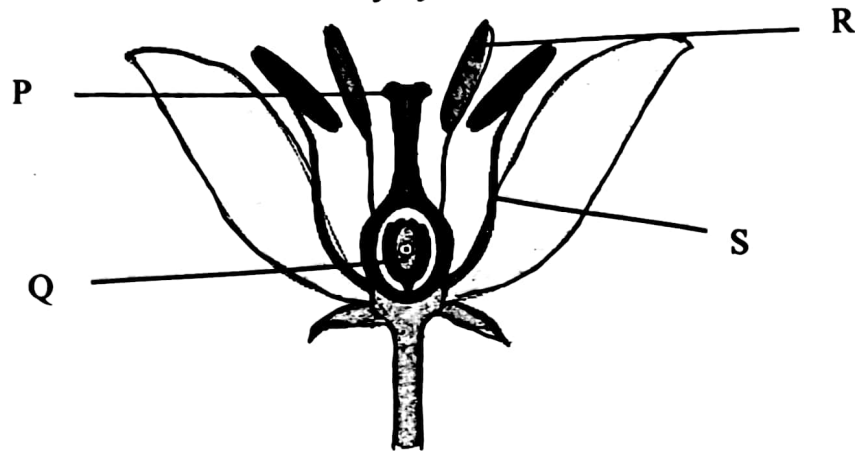


Rajah 13
Diagram 13

Bagaimana buah tanpa biji ini boleh dihasilkan?
How can seedless fruits be produced?

- A Melalui kaedah kejuruteraan genetik
Through genetic engineering
 - B Membuang bunga muda pada tumbuhan
Removes young flowers from the plant
 - C Merangsang tisu meristem untuk mitosis berlaku
Stimulate meristem tissue for mitosis to occur
 - D Menggunakan hormon auksin untuk partenokarpi
Using auxin hormone for parthenocarpy
- 27 Bagaimanakah proses pertukaran gas berlaku pada bahagian akar tumbuhan halofit?
How does the process of gas exchange occur in the root part of halophyte plants?
- A Melalui stoma
Through stomata
 - B Melalui lentisel
Through lenticels
 - C Melalui hidatod
Through hydathodes

- 28 Rajah 14 menunjukkan keratan rentas pada bunga.
Diagram 14 shows a cross section of a flower.

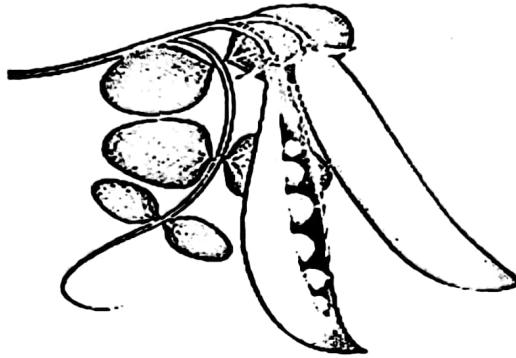


Rajah 14
Diagram 14

Struktur yang manakah mematuhi Hukum Mendel Pertama dan Kedua?
Which structures obey Mendel's First and Second Laws?

- A P dan Q
P and Q
- B P dan R
P and R
- C Q dan R
Q and R
- D Q dan S
Q and S
- 29 Yang manakah ciri yang betul bagi jenis alam eubakteria?
Which is the correct characteristic of the eubacterial's kingdom?
- A DNA dan RNA berbentuk bulatan
Have circular DNA and RNA
- B Tiada nukleus atau organel bermembran
No nucleus or membrane-bound organelles
- C Boleh hidup dalam persekitaran yang ekstrem
Can survive in extreme condition

- 30 Rajah 15 menunjukkan buah kacang pea yang terbentuk daripada satu karpel.
Diagram 15 shows a pea fruit formed from one carpel.

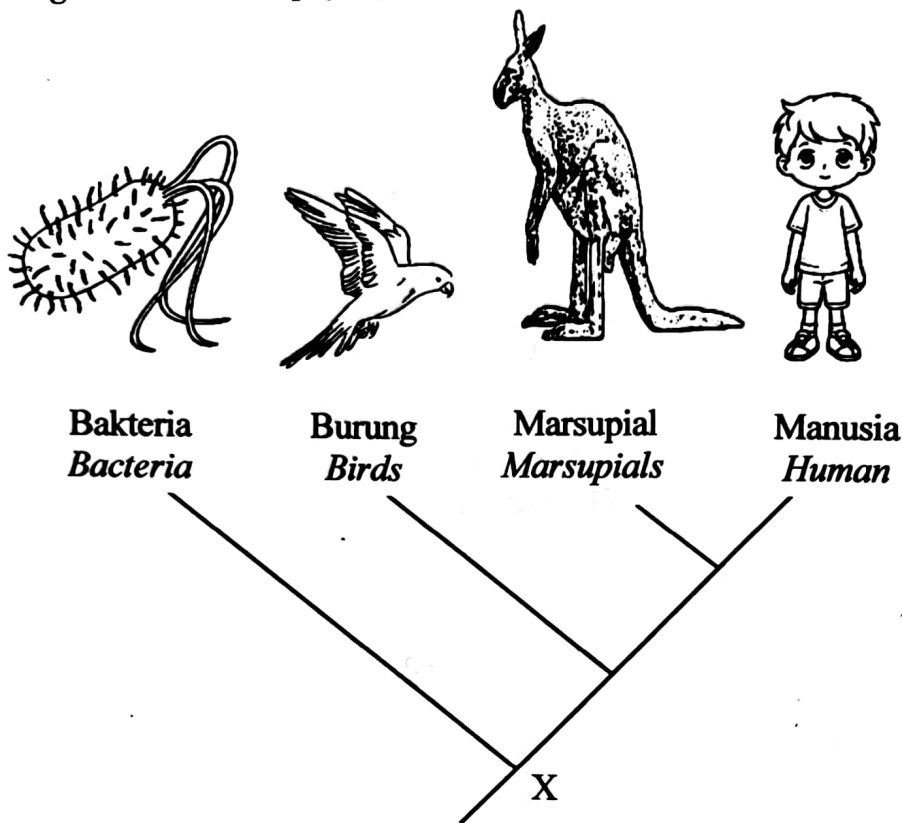


Rajah 15
Diagram 15

Apakah jenis buah tersebut?
What is the type of the fruit?

- A Buah ringkas
Simple fruit
- B Buah agregat
Aggregate fruit
- C Buah berganda
Multiple fruit
- D Buah aksesori
Accessories fruit

- 31 Rajah 16 menunjukkan pokok filogeni bagi organisma tertentu.
 Diagram 16 shows a phylogenetic tree of certain organisms.

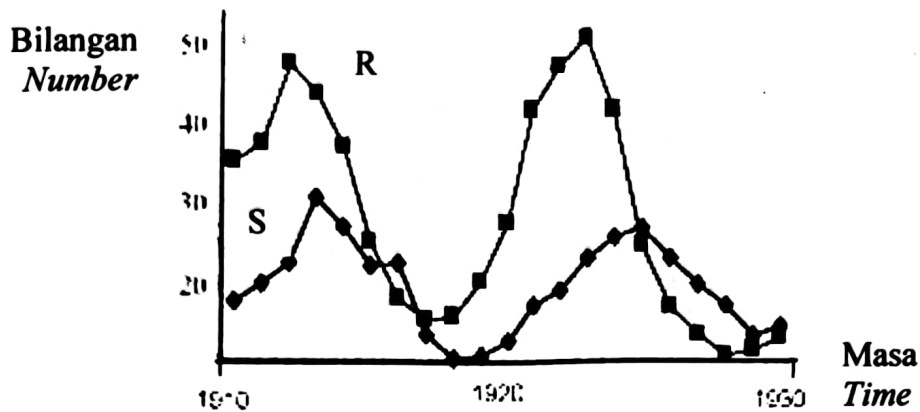


Rajah 16
 Diagram 16

Apakah yang ditunjukkan pada titik X?
 What is shown at point X?

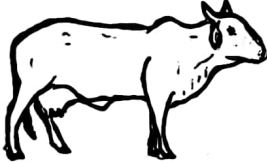
- A Leluhur yang sama bagi semua vertebrata
Common ancestor of all vertebrates
- B Leluhur yang sama bagi semua haiwan berdarah panas
Common ancestor of all warm-blooded animals
- C Leluhur yang sama bagi burung, marsupial dan manusia
Common ancestor of birds, marsupials and humans
- D Leluhur yang sama bagi semua organisma yang terlibat
Common ancestor of all organisms involved

- 32 Rajah 17 menunjukkan interaksi antara dua spesies yang berbeza.
Diagram 17 shows the interaction between two different species.



Rajah 17
Diagram 17

Apakah R dan S?
What are R and S?

	R	S
A	 Perumah Host	 Parasit Parasite
B	 Mangsa Prey	 Pemangsa Predator
C	 Tumbuhan legum Leguminous plant	 Bakteria pengikat nitrogen Nitrogen fixation bacteria
D	 Parasit Parasite	 Mangsa Prey

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PERCUBAAN SPM YIK BIOLOGI K1

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- 33 Rajah 18 menunjukkan sejenis organisma.
Diagram 18 shows a type of organism.



Rajah 18
Diagram 18

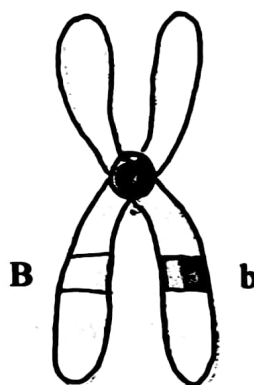
Apakah ciri bagi jenis nutrisi organisma ini?
What are the characteristics of this type of nutritional organism?

- A Menyerap nutrien daripada perumah
Absorb nutrients from the host
 - B Mensintesis makanan sendiri melalui kemosintesis
Synthesizes own food through chemosynthesis
 - C Memperoleh nutrien daripada bahan organik yang reput
Obtain nutrients from decaying organic matter
 - D Mencernakan bahan organik pepejal dan serap ke dalam badan
Digest solid organic matter and absorb into the body
- 34 Antara berikut, yang manakah merupakan komponen biosis yang terdapat dalam suatu ekosistem?
Which of the following is a biosis component found in an ecosystem?
- A Pengurai
Decomposer
 - B Topografi
Topography
 - C Kelembapan
Humidity
 - D Keamatan cahaya
Light intensity

- 35 Antara berikut yang manakah contoh pemuliharaan ex-situ?
Which of the following is an example of ex-situ conservation?

- A Taman laut
Marine parks
- B Taman negara
National parks
- C Taman botani
Botanical parks

- 36 Rajah 19 menunjukkan alel resesif 'b' yang dibawa oleh salah satu kromosom X seorang wanita.
Diagram 19 shows the recessive allele 'b' carried by one of the X chromosomes of a woman.



Rajah 19
Diagram 19

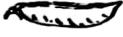
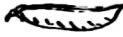
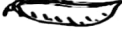
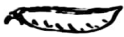
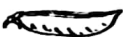
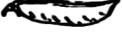
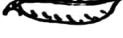
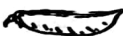
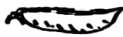
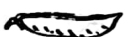
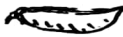
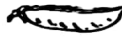
- Antara berikut, yang manakah bukan contoh ciri yang dibawa oleh wanita tersebut?
Which of the following is not an example of a characteristic that the woman carries?

- A Talasemia
Thalassemia
- B Hemofilia
Haemophillia
- C Buta warna
Colour blindness

37

Rajah 20 menunjukkan segi empat Punnet bagi pewarisan dihibrid.
Diagram 20 shows the Punnet square of dihybrid inheritance.

F1 : GgBb X GgBb

Gamet Gamet	GB	Gb	gB	gb
GB	 GGBB	 GGBb	 GgBB	 GgBb
Gb	 GGBb	 GGbb	 GgBb	 Ggbb
gB	 GgBB	 GgBb	 ggBB	 ggBb
gb	 GgBb	 Ggbb	 ggBb	 ggbb

Rajah 20
Diagram 20

Apakah nisbah genotip homozigot dominan kepada genotip homozigot resesif?
What is the ratio of dominant homozygous genotype to recessive homozygous genotype?

- A 1 : 1
- B 3 : 1
- C 9 : 1
- D 15 : 1

- 38 Maklumat berikut menunjukkan sejenis mutasi dan kecacatan genetik yang dialami oleh seorang individu.

The following information shows the type of mutation and genetic defect that an individual has.

- Kehilangan sebahagian kromosom ke -5
Loss of part of the -5th chromosome
- Individu terencat akal
Individuals with mental retardation
- Suara tangisan bayi seperti suara anak kucing
The sound of a baby's cry is like the sound of a kitten

Apakah jenis mutasi dan kecacatan genetik yang dialami oleh individu tersebut?
What types of mutations and genetic defects does the individual have?

	Jenis mutasi <i>Type of mutation</i>	Kecacatan genetik <i>Genetic defect</i>
A	Mutasi gen <i>Gene mutation</i>	Talasemia <i>Thalassemia</i>
B	Mutasi kromosom <i>Chromosomal mutation</i>	Sindrom Turner <i>Turner's syndrome</i>
C	Mutasi gen <i>Gene mutation</i>	Penyakit Huntington <i>Huntington's disease</i>
D	Mutasi kromosom <i>Chromosomal mutation</i>	Sindrom Cri du chat <i>Cri du chat syndrome</i>

- 39 Apakah yang dipindahkan dari satu organisma ke satu organisma yang lain dalam proses kejuruteraan genetik?
What is transferred from one organism to another in the process of genetic engineering?

- A DNA
DNA
- B Enzim
Enzyme
- C Lemak
Fat
- D Protein
Protein

40 Antara berikut yang manakah adalah betul tentang tumbuhan transgenik?
Which of the following is true about transgenic plants?

- I Mudah dijangkiti penyakit
Easily infected with disease
 - II Lebih rintang terhadap perosak
More resistant to pests
 - III Menghasilkan hasil tanaman yang tinggi
Produce high crop yields
 - IV Tidak selamat bagi kegunaan manusia
Not safe for human consumption
-
- A I dan II
I and II
 - B I dan III
I and III
 - C II dan III
II and III
 - D II dan IV
II and IV

KERTAS PEPERIKSAAN TAMAT
END OF QUESTION PAPER