INFORMATION FOR CANDIDATES

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

Instruction: Answer all questions.

[Lihat sebelah

1. Diagram 1 shows a structure of chloroplast.
Rajah 1 menunjukkan struktur kloroplas.

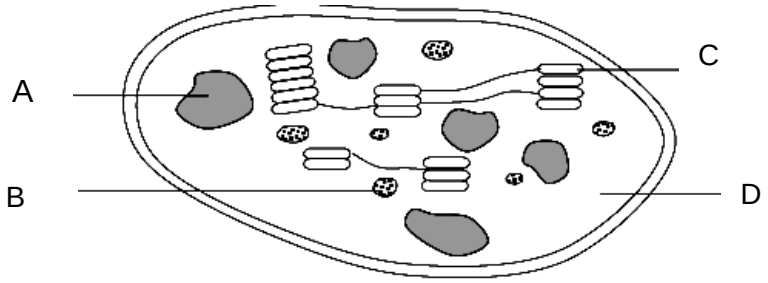


Diagram 1
Rajah 1

Which of the parts labeled A,B, C and D contain chlorophyll?
Manakah bahagian yang berlabel A,B, C dan D mengandungi klorofil?

2. Diagram 2 shows a model of plasma membrane.
Rajah 2 menunjukkan model membran plasma.

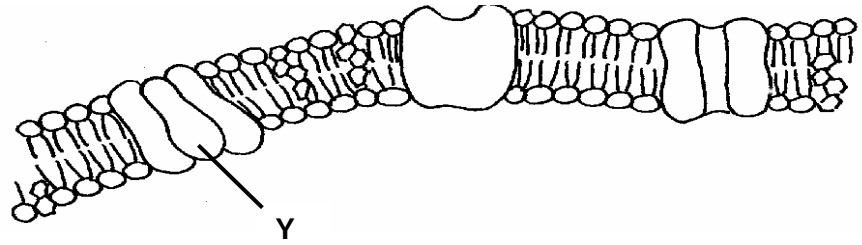


Diagram 2
Rajah 2

What is structure Y?
Apakah struktur Y ?

A Lipid
Lipid

B Phospolipid
Fosfolipid

C Pore protein
Protein liang

D Carrier protein
Protein pembawa

3. Diagram 3 shows three structure of protein.
Rajah 3 menunjukkan tiga struktur protein.

 P	 Q	 R

Diagram 3
Rajah 3

What are structure P, Q and R ?
Apakah struktur P,Q dan R?

	P	Q	R
A	Primary *Primer*	Secondary *Sekunder*	Quaternary *Kuartenar*
B	Quaternary *Kuartenar*	Primary *Primer*	Secondary *Sekunder*
C	Quaternary *Kuartenar*	Secondary *Sekunder*	Primary *Primer*
D	Secondary *Sekunder*	Primary *Primer*	Quaternary *Kuartenar*

4. Amino acid + Amino acid $\underset{\text{Y}}{\overset{\text{X}}{\rightleftharpoons}}$ dipeptide + water
Asid amino + Asid amino *dipeptida + air*

What is process X and Y?
Apakah X dan Y?

	X	**Y**
A	Hydrolysis *Hidrolisis*	Condensation *Kondensasi*
B	Condensation *Kondensasi*	Hydrolysis *Hidrolisis*
C	Hydrolysis *Hidrolisis*	Hydrolysis *Hidrolisis*
D	Condensation *Kondensasi*	Condensation *Kondensasi*

[Lihat sebelah

5. A human spermatogonium divide meiotically. What is the number of chromosome in each daughter cell.
Spermatogonium manusia membahagi secara meosis. Apakah bilangan kromosom yang terdapat dalam setiap sel anak.

A 4
B 23
C 46
D 92

6. Diagram 4 shows a hydrolysis process by an enzyme .
Rajah 4 menunjukkan proses hidrolisis oleh enzim.

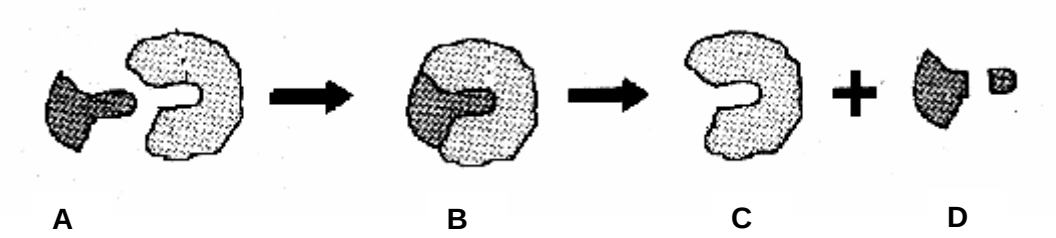


Diagram 4
Rajah 4

Which of a structure labeled A, B , C and D represent the enzyme.
Antara struktur berlabel A,B C dan D, manakah mewakili enzim.

7. Which of the following vitamin that act as antioxidant that defend human body against free radicals.
Antara vitamin berikut yang manakah bertindak sebagai bahan antioksida yang melindungi tubuh menentang radikel bebas.

A Vitamin C
B Vitamin B
C Vitamin D
D Vitamin K

8. A child has distended stomach and suffers from diarrhea.
What type of malnutrition does this child suffer from?
Seorang kanak-kanak mempunyai perut buncit dan mengalami cirit birit.
Apakah jenis malnutrisi yang dialami oleh kanak-kanak tersebut.

A Kwasyiokor
Kwasyiokor
B Obesity
Kegendutan
C Osteoporosis
Osteoporosis
D Cardiovascular disease.
Penyakit kardiovaskular

[Lihat sebelah

9. Diagram 5 shows a respiratory structure in an organism.
Rajah 5 menunjukkan struktur respirasi dalam satu organisma.

Diagram 5
Rajah 5

What is the respiratory structure shown in the diagram?
Apakah struktur respirasi yang ditunjukkan dalam rajah tersebut?

A Gills
Insang

B Trachea
Trakea

C Alveolus
Alveolus

D Moist skin
Kulit lembap

10. Diagram 6 shows a set of apparatus to investigate anaerobic respiration by yeast.
Rajah 6 menunjukkan satu susunan radas untuk mengkaji respirasi anearob oleh yis.

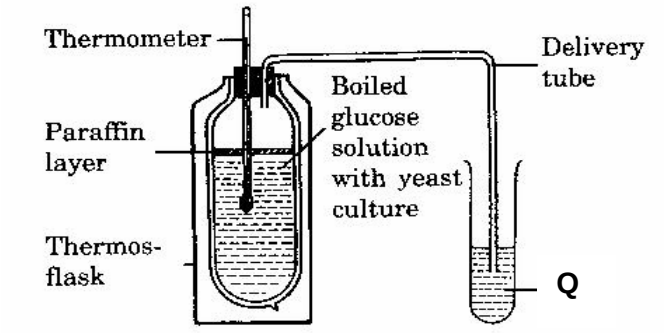


Diagram 6
Rajah 6

Substance Q is used to identify the type of gas releases during the process.
What is Q?
Bahan Q digunakan untuk menentukan jenis gas yang dibebaskan semasa proses tersebut. Apakah Q?

A Calcium oxide
Kalsium oksida

B Hydrogen oxide
Hidrogen oksida

C Calcium carbonate
Kalsium karbonat

D Calcium hydroxide
Kalsium hidroksida

11. 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?

A Grasshopper
Belalang

B Eagle
Helang

C Grass
Rumput

D Snake
Ular

12. Which of the following process convert light energy to chemical energy?
Antara proses berikut, yang manakah menukarkan tenaga cahaya kepada tenaga kimia?

A Photosynthesis
Fotosintesis

B Chemosynthesis
Kemosintesis

C Photolysis of water
Penguraian molekul air

D Hydrolisis of starch
Hidrolisis kanji

13. Diagram 7 shows the organisms P and Q.
Rajah 7 menunjukkan organisma P dan Q.

P **Q**

Diagram 7
Rajah 7

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

	P	Q
A	Autotropic *Autotropik*	Parasitic *Parasitik*
B	Saprophytic *Saprofitik*	Parasitic *Parasitik*
C	Holozoic *Holozoik*	Saprophytic *Saprofitici*
D	Parasitic *Parasitik*	Heterotropic *Heterotropik*

[Lihat sebelah

14.

Heat is trapped in the atmosphere,
the Earth's average temperature rises.
Haba terperangkap di atmosfera,
Purata suhu bumi meningkat.

Which term is correct to describe the phenomenon?
Antara istilah berikut, yang manakah menerangkan tentang fenomena tersebut?

A Greenhouse Effect
Kesan Rumah Hijau

B Thermal Pollution
Pencemaran terma

C Climate change
Perubahan cuaca

D Global warming
Pemanasan globali

15. The following information is about eutrophication.
Berikut adalah maklumat mengenai eutrofikasi.

P – Algae grow and cover the surface of the lake
Alga tumbuh dan meliputi permukaan kolam

Q – The rate of bacteria reproduction increases
Kadar pertumbuhan bacteria meningkat

R – BOD of water increases
BOD meningkat

S – Organic fertilizer flows into the lake
Baja organic mengalir ke dalam kolam

Which of the following sequences is correct about the eutrophication process?
Antara berikut,manakah urutan yang betul tentang proses eutrofikasi?

A S, P, Q, R

B P, S, R, Q

C S, Q, R, P

D Q, S, P, R

[Lihat sebelah

16. Which of the following shows the correct sequence of the blood flowing in the pulmonary circulation?
Antara berikut yang manakah menunjukkan urutan yang betul tentang pengaliran darah dalam peredaran pulmonari?

A Pulmonary artery → Lungs → Pulmonary vein → Heart
Arteri pulmonary → Peparu → vena pulmonari → Jantung

B Aorta → Lungs → Pulmonary artery → Heart
Aorta → Peparu → Arteri pulmonary → Jantung

C Pulmonary vein → Heart → Aorta → Body Cells
Vena pulmonary → Jantung → Aorta → Sel badan

D Vena cava → Heart → Pulmonary artery → Lungs
Vena kava → Jantung → Arteri Pulmonari → Peparu

17. Diagram 8 shows a type of blood circulatory system.
Rajah 8 menunjukkan sejenis sistem peredaran darah.

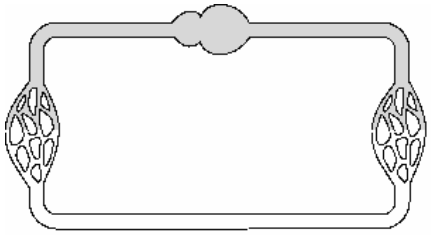


Diagram 8
Rajah 8

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

A Cockroach
Lipas

B Lizard
Cicak

C Penguin
Penquin

D Gold Fish
Ikan emas

18. Which artery carries blood with the lowest oxygen concentration?
Apakah arteri yang membawa darah yang mengandungi kepekatan oksigen paling rendah?

A The pulmonary artery
Arteri pulmonari

B The mesenteric artery
Arteri mesentari

C The hepatic artery
Arteri hepatik

D The renal artery
Arteri renal

[Lihat sebelah

19. Diagram 9 shows human bones.
Rajah 9 menunjukkan tulang manusia.

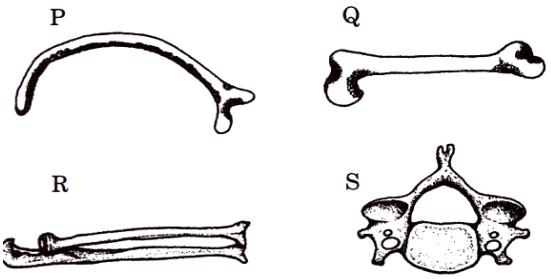


Diagram 9
Rajah 9

Which bones are part of the appendicular skeleton?
Antara berikut ,tulang yang manakah sebahagian daripada rangka apendaj?

A P and S
P dan S

B Q and R
Q dan R

C P, Q and R
P, Q dan R

D Q, R and S
Q, R dan S

20. Diagram 10 shows a part of vertebral column of human .
Rajah 10 menunjukkan sebahagian daripada turus vertebra manusia.

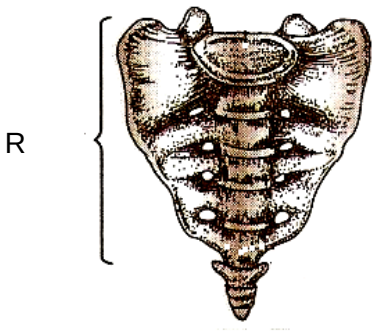


Diagram 10
Rajah 10

What is the number of bones found in part R ?
Apakah bilangan tulang yang terdapat di bahagian R ?

A 1

B 5

C 8

D 33

[Lihat sebelah

21. Diagram 11 shows parts of the human brain.
Rajah 11 menunjukkan bahagian otak manusia.

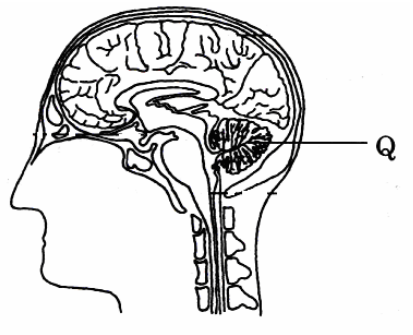


Diagram 11
Rajah 11

What is the function of Q?
Apakah fungsi Q?

A Controls thinking
Mengawal pemikiran

B Controls rate of heart beat
Mengawal degupan jantung

C Controls balancing of body
Mengawal keseimbangan badan

D Controls peristalsis movement
Mengawal pergerakan peristalsis

22. Diagram 12 shows a cross section of the stem of dicotyledon plant which experiences secondary growth.
Rajah 12 menunjukkan keratan rentas batang tumbuhan dikotiledon yang mengalami pertumbuhan sekunder.

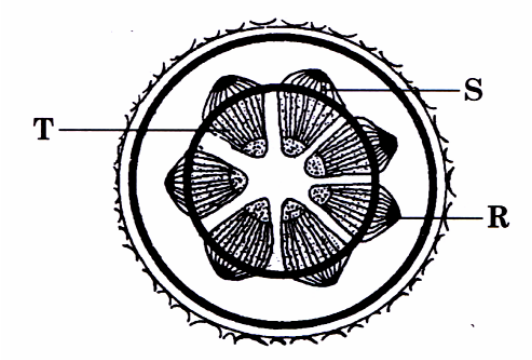


Diagram 12
Rajah 12

[Lihat sebelah

What are R, S and T?
Apakah R, S dan T ?

	R	S	T
A	Primary phloem *Floem primer*	Secondary xylem *Xylem sekunder*	Secondary phloem *Floem sekunder*
B	Secondary xylem *Xylem sekunder*	Primary phloem *Floem primer*	Secondary phloem *Floem sekunder*
C	Secondary phloem *Floem sekunder*	Primary phloem *Floem primer*	Secondary xylem *Xylem sekunder*
D	Primary phloem *Floem primer*	Secondary phloem *Floem sekunder*	Secondary xylem *Xylem sekunder*

23. Diagram 13 belows shows the stages in the development of embryo of a human.
Rajah 13 menunjukkan peringkat-peringkat dalam perkembangan embrio manusia.

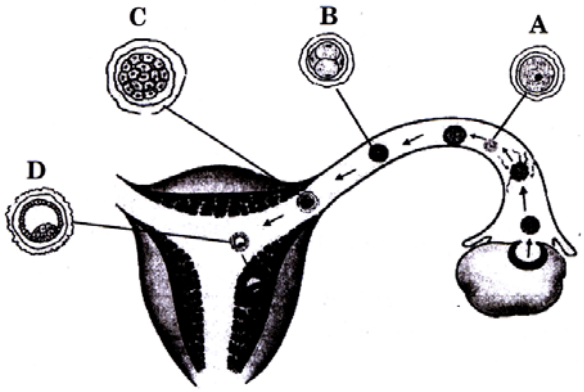


Diagram 13
Rajah 13

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?

[Lihat sebelah

24. Diagram 14 shows genotype of offsprings from parent P and Q.
Rajah 14 menunjukkan genotip anak daripada induk P dan Q.

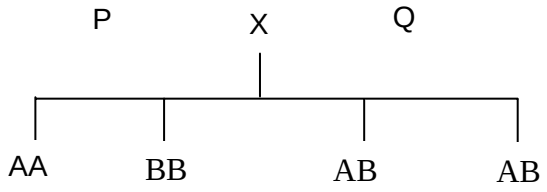


Diagram 14
Rajah 14

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

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

25. Which of the following characteristics in garden pea plants shows continuous variation?

Yang mana satukah merupakan ciri yang menunjukkan variasi selanjar dalam pokok kacang pea?

A Flower colour
Warna bunga

B Seed shape
Bentuk biji benih

C Seed colour
Warna biji benih

D Length of leaf
Panjang daun

[Lihat sebelah

26. Diagram 15 shows a plant cell.
Rajah 15 menunjukkan satu sel tumbuhan.

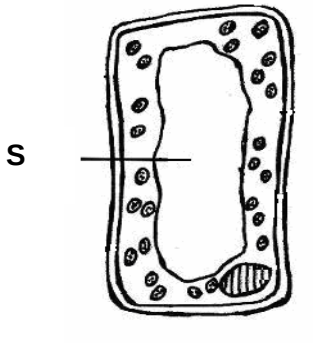


Diagram 15
Rajah 15

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

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. What is the function of cholesterol molecules in the plasma membrane?
Apakah fungsi molekul kolestrol dalam plasma membran?

A As membrane carriers to move substances across the plasma membrane by active transport.
Sebagai membran pembawa yang mengangkut bahan merentasi membrane plasma secara pengangkutan aktif.

B To form protein channels for facilitated diffusion of mineral ions.
Membentuk protein liang untuk resapan berbantu ion mineral.

C To join the proteins with phospolipid molecules.
Menghubungkan protein dengan molekul fosfolipid .

D To stabilize the fluidity of the plasma membrane.
Menstabilkan keanjalan membran plasma..

28. Diagram 16 shows an organic compound.
Rajah16 menunjukkan sejenis sebatian organik

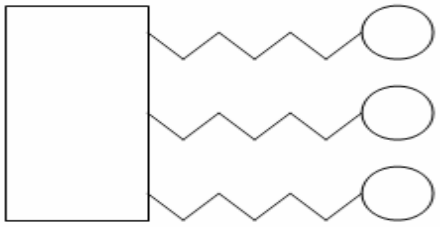


Diagram 16
Rajah 16

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

29. Diagram 17.1 shows the chromosomes of a parent cell.
Rajah 17.1 menunjukkan kromosom dalam sel induk.

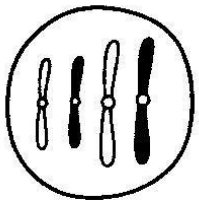
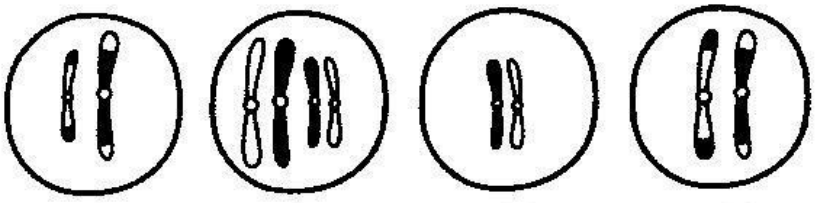


Diagram 17.1
Rajah 17.1

Diagram 17.2 shows the possible combinations of chromosomes in the daughter cells when the parent cell divides.
Rajah 17.2 menunjukkan kemungkinan gabungan kromosom dalam sel anak apabila sel induk membahagi.



W X Y Z

Diagram 17.2
Rajah 17.2

[Lihat sebelah

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

30. Diagram 18 shows a phase during meiosis.
Rajah 18 menunjukkan satu fasa semasa meiosis.

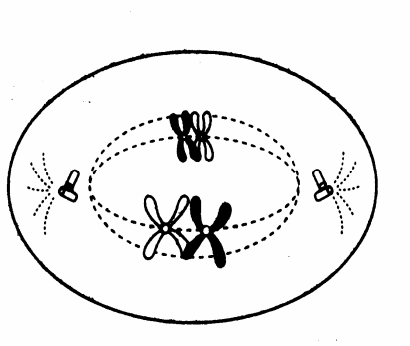


Diagram 18
Rajah 18

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

A Produce daughter cell with equal number of chromosome as the parent cell.
Menghasilkan sel anak yang mempunyai bilangan kromosom yang sama dengan sel induk.

B Cause crossing over occurs between homologous chromosome.
Menyebabkan pindah silang berlaku antara kromosom homolog.

C Halved the number of chromosome in each daughter cell.
Bilangan kromosom dalam sel anak menjadi separuh.

D Produce variation in gamete
Menghasilkan variasi pada gamet.

[Lihat sebelah

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

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

Table 1
Jadual 1

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

	Lime juice *Jus limau*	Papaya juice *Jus betik*
A	45.0	27.8
B	27.8	12.5
C	44.0	12.5
D	55.0	44.0

[Lihat sebelah

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

$$C_6H_{12}O_6 \longrightarrow 2C_3H_6O_3 + 150\ kJ$$

Which statement explain why muscle cells needs more oxygen just after the activity.
Apakah pernyataan yang menerangkan kenapa sel otot memerlukan lebih oksigen sebaik sahaja selepas aktivit tersebuti.

A To transfer lactic acid from muscle tissue to the liver.
Memindahkan asid laktik dari tisu otot ke hati.

B To oxidize lactic acid to produce energy
Mengoksidakan asid laktik bagi menghasilkan tenaga.

C To oxidize lactic acid to glucose
Mengoksidakan asid laktik kepada glukosa.

D To convert glucose to glycogen.
Menukarkan glukosa kepada glikogen

33. Diagram 19 shows the energy flow from producer to secondary consumer.
Rajah 19 menunjukkan aliran tenaga daripada pengeluar kepada pengguna sekunder.

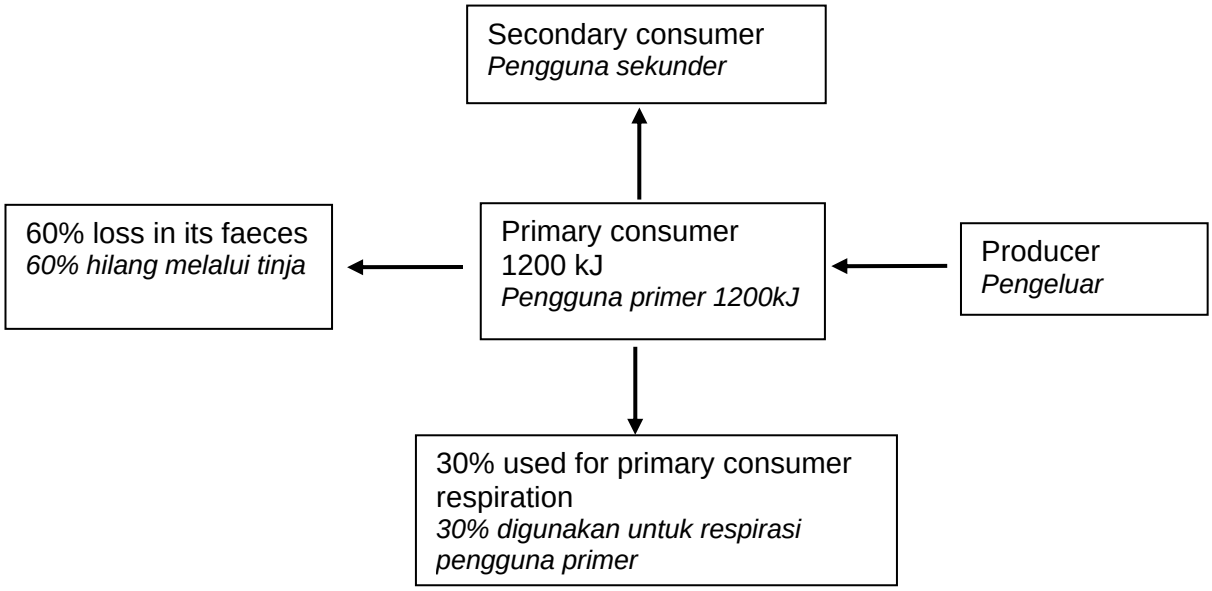


Diagram 19
Rajah 19

What is the total energy passed down to the secondary consumer?
Apakah jumlah tenaga yang diterima oleh pengguna sekunder?

A 1080 kJ C 360 kJ

B 720 kJ D 120 kJ

34. 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 nucleus haploid dalam ovul bergabung dengan dua nucleus gamet jantan*.
III	One male gamete nucleus fuses with the female nucleus to form a diploid zygote. *Satu nuklues gamet jantan bergabung dengan nuklues betina untuk membentuk zigot yang diploid*.
IV	Two polar nuclei fuse with one male nucleus to form the endosperm. *Dua nuklues kutub bergabung dengab satu nucleus gamet jantan membentuk endosperma.*

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

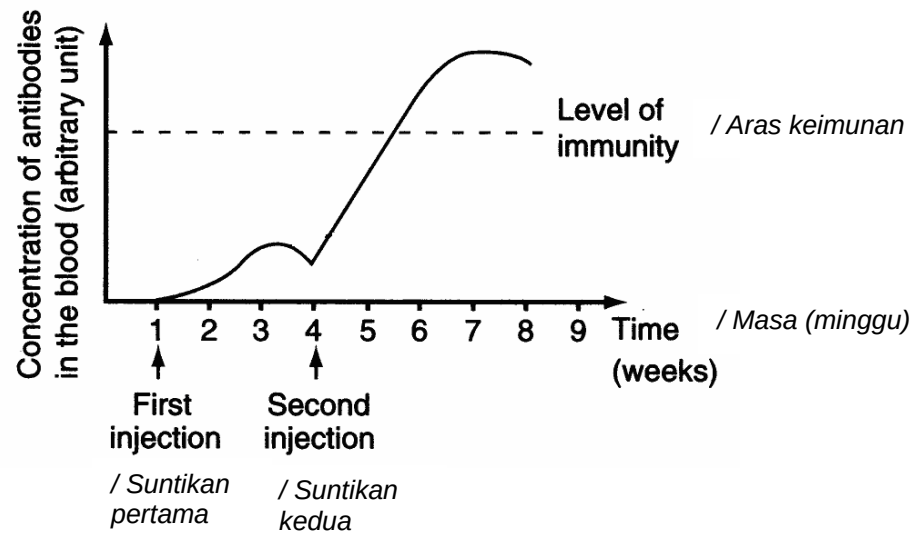
35. Which of the following is the correct sequence representing the stages in ozone depletion.
Antara berikut yang manakah menunjukkan tuurutan yang betul tentang peringkat dalam penipisan lapisan ozon.

I	CFCs releases chlorine atoms *Atom klorin membebaskan CFCs*
II	Chlorine atoms react with ozone molecules *Atom klorin bertindak dengan molekul ozon*
III	CFCs breaks down with the presence of Ultraviolet radiations *CFCs diuraikan dengan kehadiran sinar ultraungu*.

A III → I → II
B II → III → I
C II → I → III
D I → II → III

[Lihat sebelah

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



Graph 1
Graf 1

Which 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 mengandungi serum yang boleh meningkatkan aras antibodi.

B Second injection is required to boost level of immunity.
Suntikan kedua diperlukan untuk meningkatkan aras keimunan.

C Both injections contains pathogen which control production of antibody.
Kedua-dua suntikan mengandungi pathogen yang mengawal penghasilan antibodi.

D Second injection contains higher level of antibody.
Suntikan kedua mengandungi aras antibody yang lebih tinggi.

37. Diagram 20 shows the structure of human forearm.
Rajah 20 menunjukkan struktur anggota hadapan manusia.

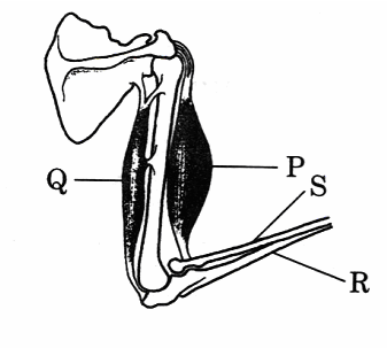


Diagram 20
Rajah 20

What happens to the parts P, Q, R and S which cause the arm to be in the position as shown in the diagram?
Apakah yang berlaku kepada bahagian P,Q dan S yang menyebabkan lengan berada dalam keadaan seperti rajah tersebut?

	P	Q	S
A	Relaxes *Mengendur*	Contracts *Mengecut*	Is pushed downwards *Ditolak kearah bawah*
B	Contracts *Mengecut*	Relaxes *Mengendur*	Is pushed downwards *Ditolak kearah bawah*
C	Relaxes *Mengendur*	Contracts *Mengecut*	Is pulled upward *Ditarik kearah atas*
D	Contracts *Mengecut*	Relaxes *Mengendur*	Is pulled upward *Ditarik kearah atas*

38.

Blushing or flushing of the skin leads to heat lost from the body.

Kemerahan pada kulit menyebabkan kehilangan haba daripada badan.

Which of the following statement explains the condition?
Antara pernyataan berikut yang manakah menerangkan keadaan tersebut?

A Dilation of blood capillaries
Pengembangan kapilari darah

B Constriction of blood capillaries
Pencerutan kapilari darah

C Erythrocytes increase in number due to heat lost
Bilangan eritrosit bertambah disebabkan oleh kehilangan haba.

D Erythrocytes dilates due to absorption of heat
Eritrosit mengembang disebabkan oleh penyerapan haba.

39. Diagram 21 shows stages in the development of an embryo sac in the ovule of flowering plant.
Rajah 21 menunjukkan peringkat dalam perkembangan pundi embrio dalam ovul tumbuhan berbunga.

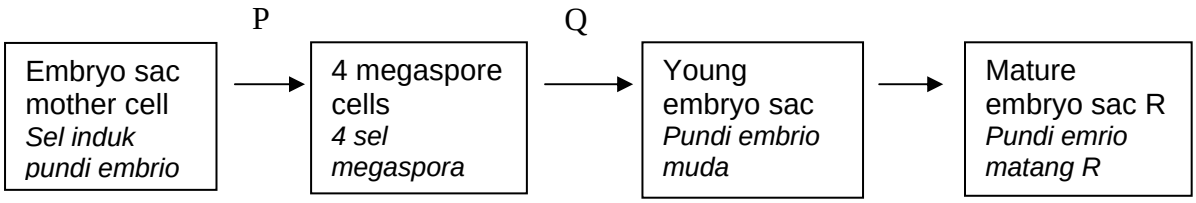


Diagram 21
Rajah 21

What are process P, Q and structure R ?
Apakah proses P, Q dan struktur R?

	Process P *Proses P*	Process Q *Proses Q*	Structure R *Struktur R*
A	Mitosis *Mitosis*	Meiosis *Meiosis*	4 haploid nuclei *4 nukleus haploid*
B	Mitosis *Mitosis*	Meiosis *Meiosis*	8 haploid nuclei *8 nukleus haploid*
C	Meiosis *Meiosis*	Mitosis *Mitosis*	4 haploid nuclei *4 nukleus haploid*
D	Meiosis *Meiosis*	Mitosis *Mitosis*	8 haploid nuclei *8 nukleus haploid*

40. Diagram 22 shows a method of producing fruits from flowering plants using auxin hormone.
Rajah 22 menunjukkan satu kaedah menghasilkan buah daripada tumbuhan berbunga menggunakan hormon auksin.

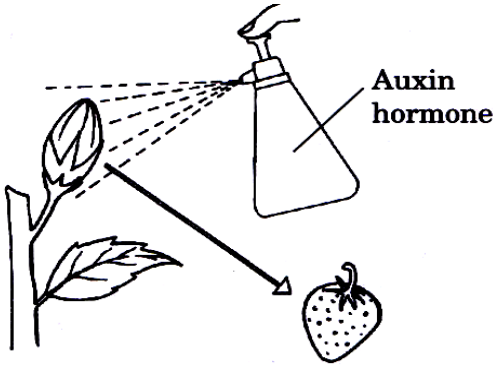


Diagram 22
Rajah 22

Which is true about the characteristic of the fruit formed?
Antara berikut yang manakah benar tentang cirri buah yang terbentuk.

A The fruit is sweeter
Buah adalah lebih manis

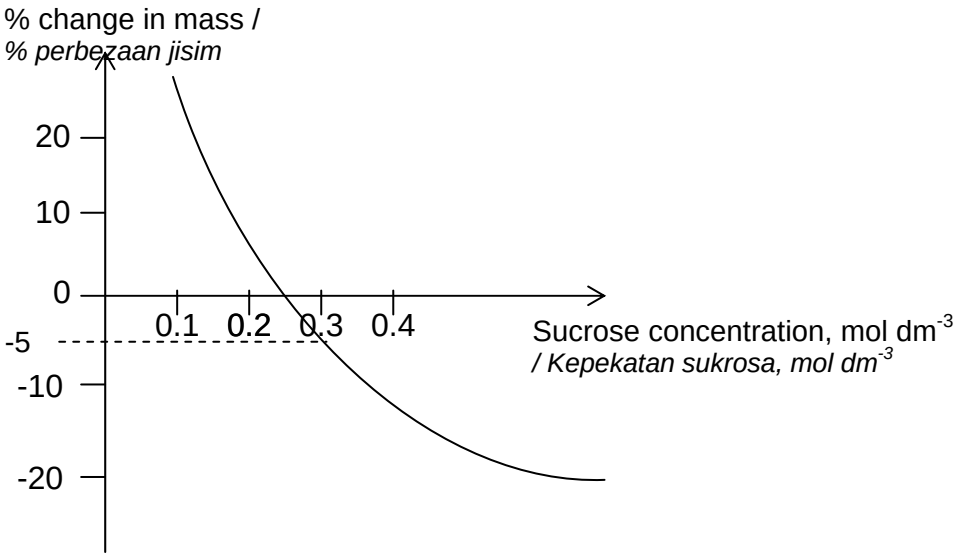
B The fruit is more sekulen
Buah adalah lebih sekulen

C The fruit has more fibre
Buah mengandungi lebih fiber

D The fruit does not have seeds
Buah tidak mengandungi biji benih

[Lihat sebelah

41. Graph 2 shows the percentage change in mass of potato cylinders in sucrose solutions of various concentrations.
Graf 2 menunjukkan peratus perubahan jisim selinder kentang dalam larutan sukrosa yang pelbagai kepekatan.



Graph 2
Graf 2

If the average initial weight of each potato cylinder is 3.50 g, what is the average final weight of the potato cylinders that have been immersed in the 0.3 mol dm^{-3} sucrose solution?
Jika purata jisim bagi setiap selindar kentang adalah 3.50 g, apakah purata berat akhir bagi selindar kentang yang telah direndam dalam 0.3 mol dm^{-3} larutan sukrosa?

A 3.00 g
B 3.15 g
C 3.33 g
D 3.68 g

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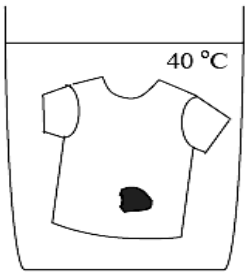
42. Diagram 23 shows a dirty shirt which will be cleaned using a detergent containing enzyme
Rajah 23 menunjukkan sehelai baju kotor yang akan di basuh dengan menggunakan serbuk pencuci mengandungi enzim.

Diagram 23
Rajah 23

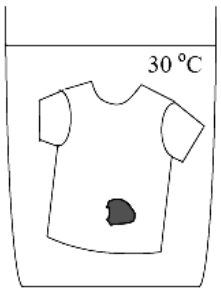
Which of the following treatment is the fastest to clean the grease?
Antara berikut, yang manakah rawatan paling cepat membersihkan tompok minyak tersebut?

A



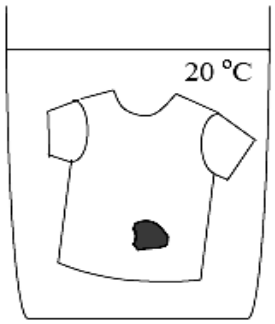
Detergent with Amylase
Pencuci dengan amilase

C



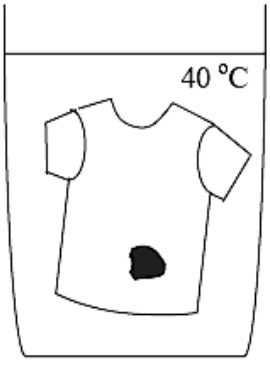
Detergent with protease
Pencuci dengan protease

B



Detergent with amylase
Pencuci dengan amilase

D



Detergent with lipase
Pencuci dengan lipase

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43. Diagram 24 shows a cell cycle of an organism.
Rajah 24 menunjukkan kitar sel bagi satu organisma.

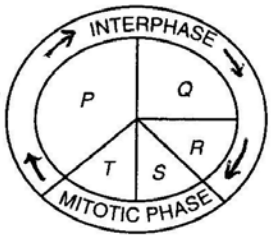

Diagram 24
Rajah 24

A respiratory inhibitor is introduced into the culture containing a dividing cell at phase Q. Which of the following will occur to the cell.
Perencat respirasi diletakkan kedalam kultur yang mengandungi sel yang sedang membahagi pada fasa Q.Apakah yang akan berlaku kepada sel tersebut?

A The cell increase in size
Sel tersebut mengalami pertambahan saiz.

B The cell double its number
Sel tersebut mengganda bilangannya.

C The cell fails to divide
Sel tersebut gagal membahagi.

D The cell breaks down
Sel tersebut terurai

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

Bat caught and marked on the first catch *Kelawar ditangkap dan ditanda pada tangkapan pertama*	70
Bat caught on the fifth night *Kelawar ditangkap pada malam ke lima*	60
Bat marked on the second catch *Kelawar bertanda pada tangkapan kedua*	2

What is the population size of bats in the cave.
Apakah saiz populasi kelawar dalam gua tersebut.

A 260 C 2100

B 2030 D 2380

45.

A young plant has all its root hair removed. The rate of transpiration of the plant is drops.

Satu tumbuhan muda telah dibuang akar rerambutnya. Kadar transpirasi tumbuhan tersebut menurun.

Which of the following statement correctly explain the condition.
Antara pernyataan berikut yang manakah menerangkan keadaan tersebut.

A Reduce surface area for absorption of water.
Mengurangkan luas permukaan untuk penyerapan air.

B Reduce rate of water transport.
Mengurangkan kadar pengangkutan air.

C Reduce rate of evapouration.
Mengurangkan kadar penyerapan.

D Reduce capillarity action.
Mengurangkan tindakan kapilari.

46. Diagram 25 shows a excretory system of a person with gallstone at X.
Rajah 25 menunjukkan sistem perkumuhan yang mempunyai batu karang pada X.

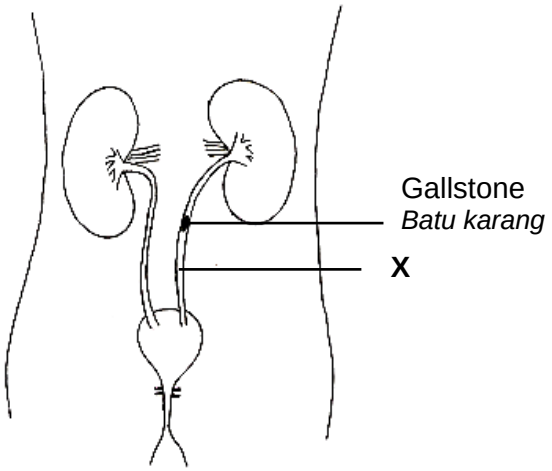

Diagram 25
Rajah 25

Which is the best method to treat the gallstone?
Apakah kaedah terbaik untuk merawat batu karang tersebut.

A Cut and remove X.
Potong dan keluarkan X.

B Drink plenty of water to dislodge X.
Minum banyak air untuk menanggalkan X.

C Use laser to break down the gallstone at X.

Guna pancaran laser untuk memecahkan batu karang pada X.

D Cut and remove the kidney connected to X.
Potong dan keluarkan ginjal yang bersambung dengan X.

47. A scientist crossed two heterozygous pea plants with round and yellow seeds. From this cross, he obtains 32 plants with wrinkled and green seeds. If round and yellow alleles are dominant, what is the number of plants with wrinkled and yellow seeds will he get from this cross?
Seorang saintis telah mengacuk dua pokok kacang heterozigous untuk benih yang licin dan berwarna kuning. Hasil daripada kacukan ini, dia dapat 32 pokok yang berbenih kedut dan berwarna hijau. Jika alel licin dan kuning adalah dominan, berapa pokok berbenih kedut dan kuning dia boleh dapat daripada kacukan ini?

A 33 C 96

B 64 D 288

48. Diagram 25 shows the result of the monohybrid cross between trait rambutan tree P and rambutan tree Q, 50% of the offspring are tall and 50% are dwarf.
Rajah 25 di bawah menunjukkan keputusan kacukan monohybrid bagi pokok rambutan R dan rambutan Q. 50% dari anak yang terhasil kesemuanya tinggi manakala 50% lagi kerdil.

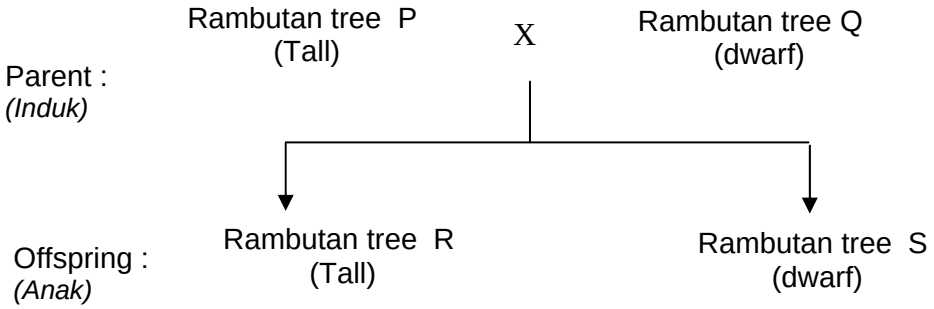

Diagram 25
Rajah 25

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?

A 0% C 50%

B 25% D 75%

49. Diagram 26 shows a change in the structure of two chromosomes undergoing mitosis after being exposed to radioactive rays for 2 hours.
Rajah 26 menunjukkan perubahan struktur yang berlaku pada kromosom yang menjalani mitosis setelah terdedah pada sinaran radioaktif selama 2 jam.

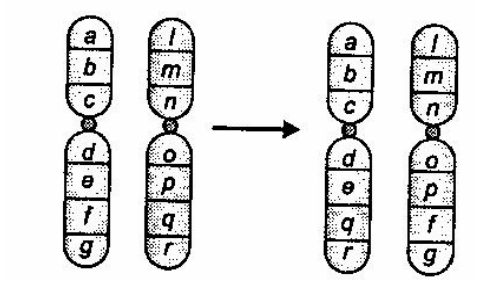

Diagram 26
Rajah 26

What type of mutation is this ?
Apakah jenis mutasi ini?

A Deletion
Pelenyapan

B Duplication
Penggandaan

C Translocation
Translokasi

D Inversion
Penyongsangan

50. A male Down Syndrome married to a female Down Syndrome. What is the probability of the couple having children.
Seorang lelaki Down Syndrom berkahwin dengan seorang perempuan Down syndrom. Apakah kebarangkalian untuk pasangan ini memperolehi anak.

A 0%

B 25%

C 50%

D 100%

END OF QUESTION PAPER

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