SULIT
4551/1
Biology
September 2009
1¼ jam

PEPERIKSAAN PERCUBAAN SPM 2009

BIOLOGY

Kertas 1

Satu Jam Lima Belas Minit

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIBERITAHU

1. *Kertas soalan ini adalah dalam dwibahasa mengandungi 50 soalan. Jawab* **semua** *soalan dalam tiap-tiap bahagian.*

2. *Soalan dalam bahasa Inggeris mendahului soalan yang sepadan dalam bahasa Melayu.*
3. *Rajah yang mengiringi soalan dimaksudkan untuk memberi maklumat yang berguna bagi menjawab soalan. Rajah tidak dilukis mengikut skala kecuali dinyatakan sebaliknya.*

4. *Penggunaan kalkulator saintifik yang* **tidak** *boleh diprogramkan adalah dibenarkan*.

Kertas soalan ini mengandungi 29 halaman bercetak .

1. Which organ consists of cells which has the highest density of rough endoplasmic reticulum ?
Organ manakah mengandungi sel-sel yang mempunyai kepadatan jalinan endoplasmik kasar paling tinggi?

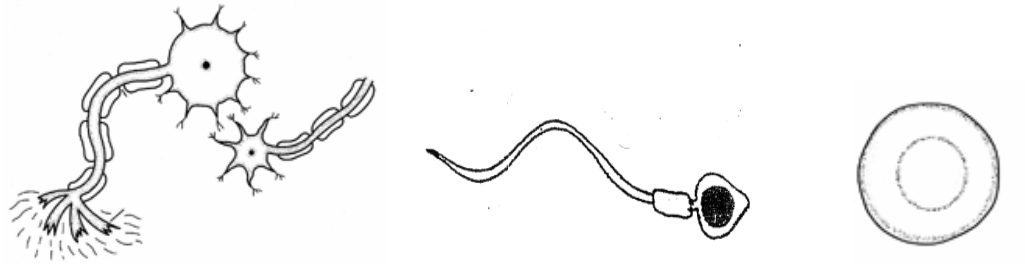
A Stomach
Perut

C Brain
Otak

B Heart
Jantung

D Kidney
Ginjal

2. Diagram 1 shows three types of cells.
Rajah 1 menunjukkan tiga jenis sel.



P **Q** **R**

Diagram 1

To which systems do the cells shown above belong?
Kepada system manakah sel-sel di atas dipadankan ?

	P	Q	R
A.	Digestive system *Sistem pencernaan]*	Respiratory system *Sistem respirasi*	Nervous system *Sistem saraf*
B.	Nervous system *Sistem saraf*	Reproductive system *Sistem pembiakan*	Circulatory system *Sistem peredaran*
C.	Respiratory system *Sistem respirasi*	Circulatory system *Sistem saraf*	Digestive system *Sistem pencernaan*
D.	Reproductive system *Sistem pembiakan*	Digestive system *Sistem pencernaan*	Nervous system *Sistem saraf*

3. Diagram 2 shows a unicellular organism living in freshwater pond.
Rajah 2 menunjukkan sejenis organisma unisel yang hidup di dalam kolam air tawar.

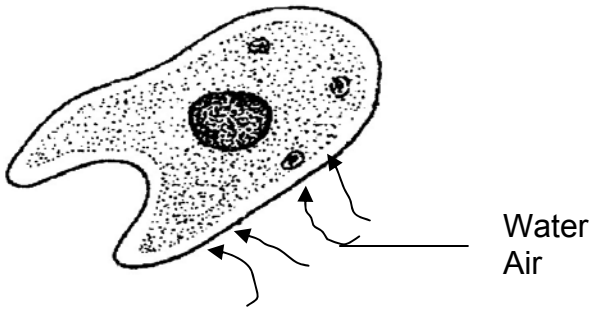


Diagram 2

Which process involves ın the movement of water ?
Apakah proses yang terlibat dalam pergerakan air.

A Diffusion
Resapan

B Osmosis
Osmosis

C Active transport
Pengangkutan aktif

D Facilitated diffusion
Resapan berbantu

4. Diagram 3 shows a cross section of a leaf.
Rajah 3 menunjukkan keratan rentas daun

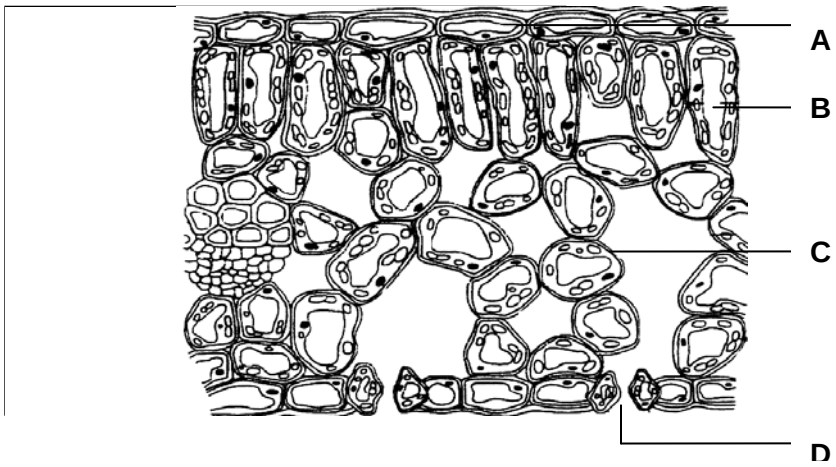


Diagram 3

Which of the cell labelled **A**, **B**, **C** and **D** does not contain chloroplast?

Antara sel yang berlabel A, B, C dan D yang manakah tidak mengandungi kloroplas?

5. Diagram 4 shows a type of plant tissue.
Rajah 4 menunjukkan sejenis tisu tumbuhan.

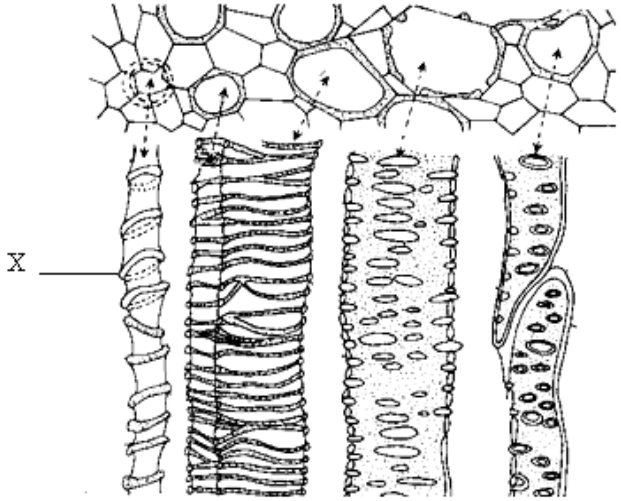


Diagram 4

What is the importance of the thickening of substance X to the plant tissue?
Apakah kepentingan penebalan bahan X terhadap tisu tersebut ?

A To transfer photosynthesis products
Untuk memindahkan hasil fotosintesis
B To give turgidity to the tissues
Untuk memberikan kesegahan kepada tisu
C To transfer water and mineral salts
Untuk memindahkan air dan garam mineral
D To give support and mechanical strength
Untuk memberikan sokongan dan kekuatan mekanikal

6. Which of the following sequence of organelles involved in the synthesis of extracellular enzymes is **correct**?
*Manakah di antara urutan berikut **betul** yang melibatkan organel dalam sintesis enzim luar sel?*

A Golgi apparatus→Ribosomes →Rough endoplasmic reticulum
Alat Golgi -→ Ribosom → Jalinan endoplasmik kasar
B Rough endoplasmic reticulum→Ribosomes→Golgi apparatus
Jalinan endoplasmik kasar → Ribosom → Alat Golgi
C Ribosomes→Golgi apparatus→Rough endoplasmic reticulum
Ribosom → Alat Golgi → Jalinan endoplasmik kasar
D Ribosomes→Rough endoplasmic reticulum→Golgi apparatus
Ribosom → Jalinan endoplasmik kasar → Alat Golgi]

7. Carrot slices are immersed in 0.1% sucrose solution. After 4 hours, the slices are found to be turgid and hard.
Hirisan lobak merah direndam di dalam larutan sukrosa 0.1%. Selepas 4 jam, hirisan itu didapati segah dan keras.

Which of the following statement explains this phenomenon?
Antara pernyataan berikut, yang manakah menerangkan fenomena ini ?

A The carrot cell wall prevent it from shrinking .
Dinding sel karot menghalangnya dari mengecut.
B The high concentration of the cell sap in the vacuole causes water to diffuse. .
Kepekatan yang tinggi dalam sap sel vakuol menyebabkan air meresap ke dalam Sel.
C The cell sap is hypotonic towards the sucrose solution.
Sap sel adalah hipotonik kepada larutan sukrosa.
D The carrot cell wall allows the sucrose molecules to diffuse into the cell.
Dinding sel karot membenarkan molekul selulosa meresap ke dalam sel.

8. Diagram 5 shows a cell after immersed into a particular solution.
Rajah 5 menunjukkan sel yang telah direndamkan ke dalam larutan tertentu.

Diagram 5

Which is experienced by the cell?
Apakah yang dialami oleh sel itu ?

A Crenation
Krenasi
B Plasmolysis
Plasmolisis
C Deplasmolysis
Deplasmolisis
D Haemolysis
Hemolisis

9. Diagram 6 shows the action of an enzyme on a substrate.
Rajah 6 menunjukkan tindakan enzim ke atas suatu substrat.

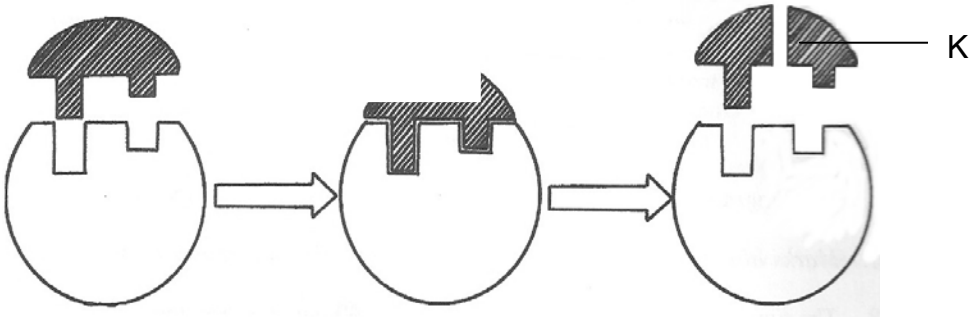


Diagram 6

What is represented by K?
Apakah yang diwakili oleh K?

A Enzyme
Enzim
B Enzyme-substrate complex
Kompleks-enzim substrat
C Products of reaction
Hasil tindak balas
D Substrate
Substrat

10. Based on the information below, name the enzyme that can be used.
Berdasarkan maklumat di bawah, namakan enzim yang sesuai digunakan.

Extracting agar jelly from seaweeds *Mengasingkan agar-agar daripada laut.]* Removing the seed coats from cereal grains *Mengeluarkan kulit dari bijirin*

A Zymase
Zimase
B Amylase
Amilase
C Celulase
Selulosa
D Protease
Protease

11. Diagram 7 shows a graph between the rate of reaction at different substrate concentration when factor Q is changed.
Rajah 7 menunjukkan graf diantara kadar tindak balas dan kepekatan substrat apabila faktor Q diubah.

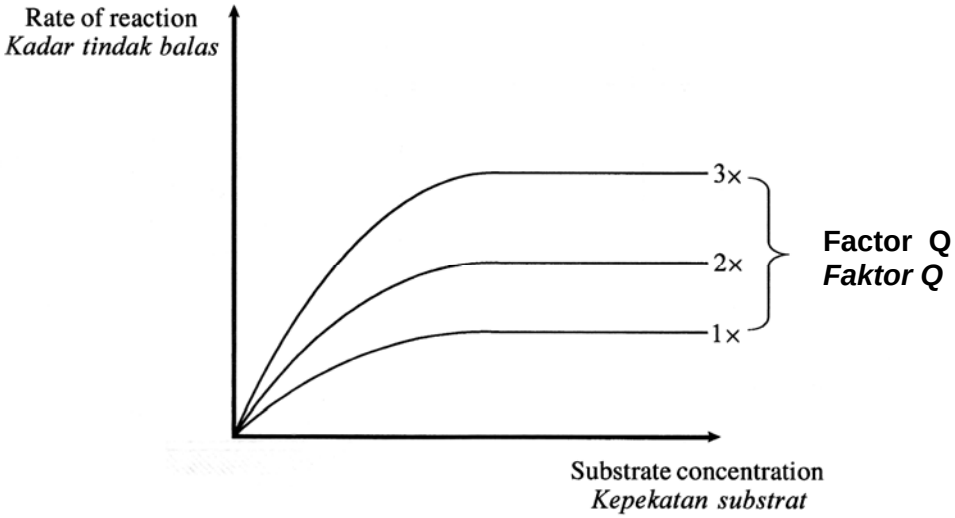


Diagram 7

What is factor Q ?
Apakah faktor Q ?

A pH
pH
B Time
Masa
C Inhibitor
Perencat
D Enzyme concentration
Kepekatan enzim

12. The following information shows starch molecules undergoing process M.
Maklumat berikut menunjukkan molekul kanji melalui proses M.

	Process M		**Process M**	
Starch *[Kanj]*	----------→	Maltose *Maltosa*	----------→	Glucose *Glukosa*

What is process M ?
Apakah proses M *?*

A Photosynthesis
Fotosintesis
B Hydrolisis
Hidrolisis
C Condensation
Kondensas]
D Polymerisation
Pempolimeran

13. Diagram 8 shows a cell cycle of an organism.
Rajah 8 menunjukkan kitar sel bagi suatu organisma.

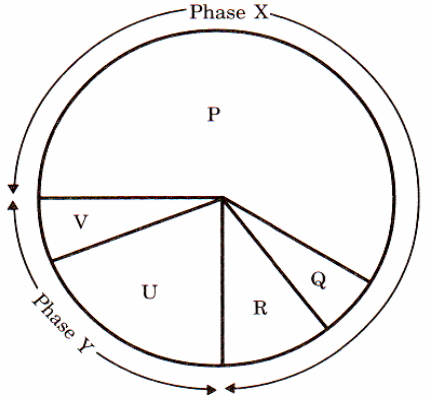


Diagram 8

Which of the following represent X and Y ?
Yang manakah di antara berikut mewakili X dan Y ?

	Phase X	Phase Y
A	Meiosis	Interphase
B	Interphase	Mitosis
C	Mitosis	Interphase
D	Interphase	Meiosis

14. The diploid chromosomes in a leaf cell of a maize plant is 20. If one of the homologous chromosome pair does not separate during the Meiosis 1, how many chromosomes can be found in the male nucleus of a pollen grain of maize ?
Nombor kromosom diploid dalam daun jagung ialah 20. Jika satu daripada Pasangan kromosom homolog tidak terpisah semasa Meiosis 1, berapakah bilangan kromosom yang mungkin didapati pada debunga daun jagung ?

A 9 B 10 C 20 D 18

15. Which of the following statements explain the importance of mitosis to cells?
Yang manakah di antara pernyataan berikut menerangkan kepentingan mitosis kepada sel ?

I . To ensure the chromosomal number is constant in all somatic cells.
Untuk memastikan bilangan kromosom adalah tetap dalam semua sel somatik.

II To ensure the daughter cells have the same number of chromosomes as the parent cell.
Untuk memastikan billangan kromosom adalah sama dengan biangan kromosom sel induk.

III To ensure that the genetic material in the daughter cells is the same as in the parent cell
Untuk memastikan bahan genetik sel anak dalah sama dengan sel induk.

IV To contribute to the genetic variation in the daughter cells.
Untuk menyumbangkan kepada variasi genetik dalam sel anak.

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

16. Diagram 9 shows the correct proportion for the various classes of food in the food pyramid.
R*ajah 9 menunjukkan nisbah yang betul bagi pelbagai kelas makanan dalam piramid makanan*.

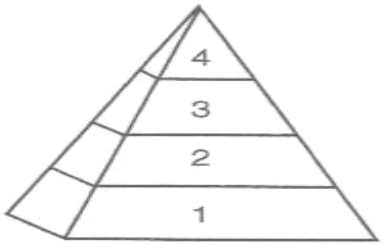


Diagram 9

Which of the following shows the correct classes of food in the pyramid?
Yang manakah di antara berikut menunjukkan kelas makanan yang betul dalam piramid makanan di atas?

	1	2	3	4
A	Fats	Proteins	Carbohydrates	Vitamins and minerals
B	Carbohydrates	Vitamins and minerals	Proteins	Fats
C	Proteins	Carbohydrates	Fats	Vitamins and minerals
D	Carbohydrates	Fats	Vitamins and minerals	Proteins

17. Diagram 10 shows the structure of the human alimentary canal.
Rajah 10 menunjukkan struktur salur alimentari manusia.

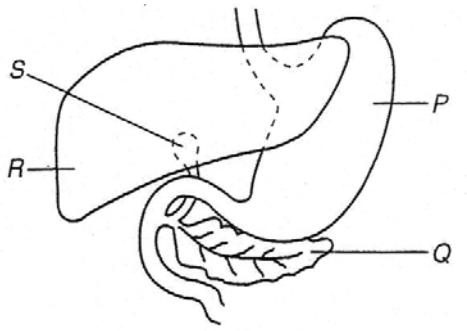


Diagram 10

Which organ produces the enzyme responsible for the breakdown of lipids ?
Organ manakah merembeskan enzim yang bertanggungjawab untuk pemecahan lipid?

A. S only
B. P and Q
C R and S
D Q only

18. Which adaptations help the villi to absorb nutrients efficiently?
Y*ang manakah penyesuaian vilus untuk menyerap nutrien secara berkesan?*

I Abundant in number
Bilangan yang banyak
II Thin walls
Dinding nipis
III Having blood capillaries
Mempunyai kapilari darah
IV Lacteals to absorb fatty acids and glycerol
Lakteal untuk menyerap asid lemak dan gliserol

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

19. When 0.4 g of groundnut is completely burnt, the temperature of 20 ml of water rise up from 30°C to 70°C. Calculate the energy value of the groundnut.
(Specific heat capacity of water is 4.2 Jg °C)
Bila 0.4g kacang tanah terbakar dengan lengkap, suhu 20 ml air meningkat daripada 30°C kepada 70°C. Hitung nilai tenaga kacang tanah ?
(Muatan haba tentu air ialah 4.2 Jg °C).

A 1.4 kJg^{-1}
B 3.4kJg^{-1}
C 8.4 kJg^{-1}
D 76.2 kJg^{-1}

20. Glucose + oxygen ⟶ Carbon dioxide + water + 38 ATP
Glukosa + oksigen ⟶ Karbon dioksida + air + 38 ATP

The above equation shows
Persamaan di atas menunjukkan

A. aerobic respiration
respirasi aerobik
B. anaerobic respiration
respirasi anaerobik
C condensation reaction
tindakbalas kondensasi
D hydrolytic reaction
tindakbalas hidrolitik

21. Which of the following organelle involves in the gaseous exchange in *Ameoba sp*?
Antara organel berikut yang manakah terlibat dalam pertukaran gas dalam Ameoba sp ?

A Cell wall
Dinding sel
B Nucleus
Nukleus
C Cell membrane
Membran sel
D Vacuole
Vakuol

22. Diagram 11 shows parts of the tracheal system of insect.
Rajah 11 menunjukkan sebahagian daripada sistem trakea pada serangga.

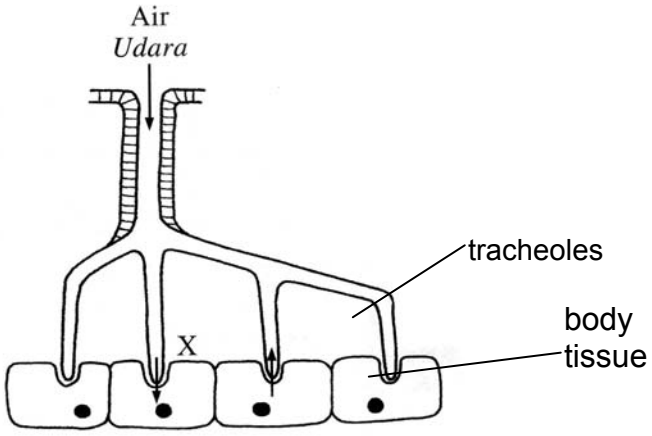


Diagram 11

What process occurs at X during the gas exchange of the insect?
Apakah proses yang berlaku di X semasa pertukaran gas bagi serangga tersebut?

A Diffusion
Resapan
B Osmosis
Osmosis
C Facilitated diffusion
Resapan berbantu
D Active transport
P*engangkutan aktif*

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

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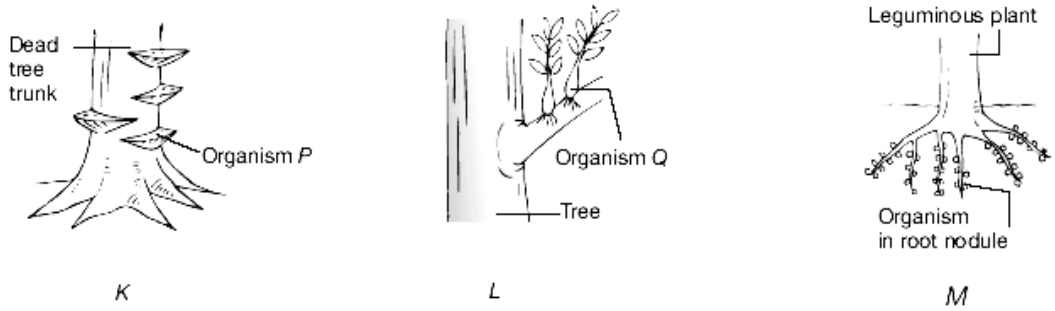


Diagram 12

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

24. Which of the following chemical substance is used to kill or prevent the multiplication of microorganisms in the wound?
Yang manakah di antara sebatian kimia berikut, digunakan untuk membunuh atau mencegah pembiakan mikroorganisma dalam luka ?

A Antiseptic
Antiseptik

B Antibiotic
Antibiotik

C Vaccine
Vaksin

D Disinfectant
Disinfektan

25. Nitrates and phosphates from farmland that flow into a lake caused rapid growth of algae .
What is described by the above situation ?
Nitrat dan fosfat yang dialirkan dari ladang ke dalam tasik telah menyebabkan pertumbuhan alga yang mendadak.
Apakah yang diterangkan oleh situasi di atas ?.

A Eutrophication
Eutrofikasi

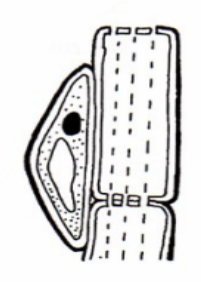
B Pesticide pollution
Pencemaran pestisid

C Fertilizer accumulation
Pengumpulan baja

D Colonisation
Pengkolonian

26. Diagram 13 shows plant cells.
Rajah 13 menunjukkan sel tumbuhan.
Which of the following cell is the product of meiosis?
Sel yang manakah di antara berikut adalah produk pembahagian sel meiosis?

A



B

C

D

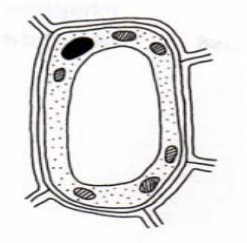


Diagram 13

27 Diagram 14 shows a part of a mangrove plant.
Rajah 14 menunjukkan satu bahagian tumbuhan paya bakau.

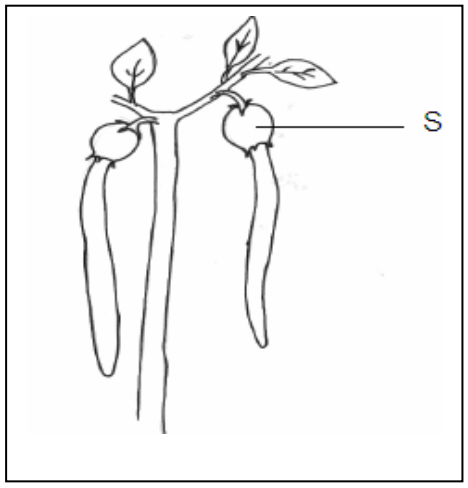


Diagram 14

What is structure S?
Apakah struktur S?

A. Succulent leaves
Daun sukulen
B. Pneumatophores
Pneumatofor
C. Vivipary seeds
Biji benih vivipari
D. Prop roots
Akar jangkang

28. Diagram 15 shows a stage in the blood clotting mechanism.
Rajah 15 menunjukkan satu peringkat di dalam mekanisme pembekuan darah.

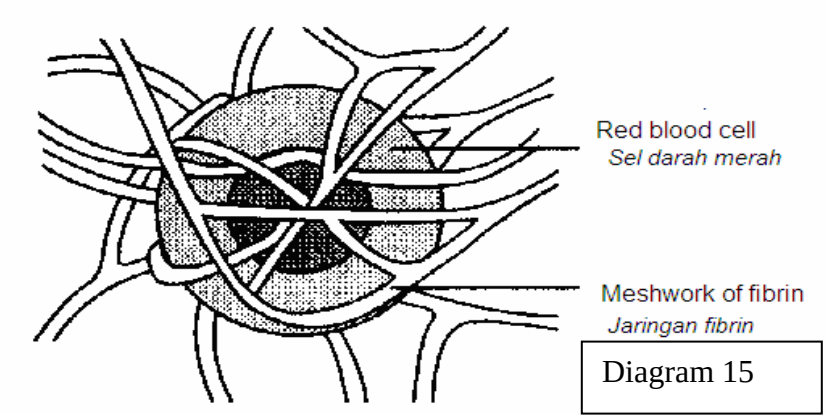


Diagram 15

Which of the following statement explains this stage?
Antara pernyataan berikut, yang manakah menerangkan peringkat ini?

A Thromboplastin converts prothrombin to thrombin
Tromboplastin menukarkan protrombin kepada trombin
B Thrombin converts fibrinogen to meshwork of fibrin.
Trombin menukarkan fibrinogen kepada jaringan fibrin
C Platelets stimulate the formation of meshwork of fibrin.
Platlet meransang pembentukan jaringan fibrin.
D Platelets release the thromboplastin to form meshwork of fibrin.
Platlet membebaskan tromboplastin untuk membentuk jaringan fibrin.

29. Diagram 16 shows a cross-section through the carpel of a flower before fertilization.
Rajah 16 menunjukkan keratan rentas melalui karpel bunga sebelum persenyawaan.

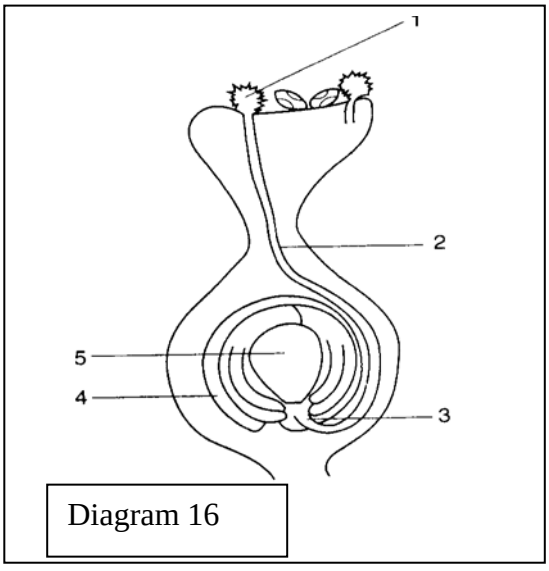


Diagram 16

Where are the position of male and female gametes before fertilization?
Di manakah kedudukan gamet jantan dan betina sebelum persenyawaan ?

	Male gamete	Female gamete
A	1	5
B	1	4
C	2	4
D	3	5

30. Diagram 17 shows part of the placenta.
Rajah 17 menunjukkan bahagian plasenta.

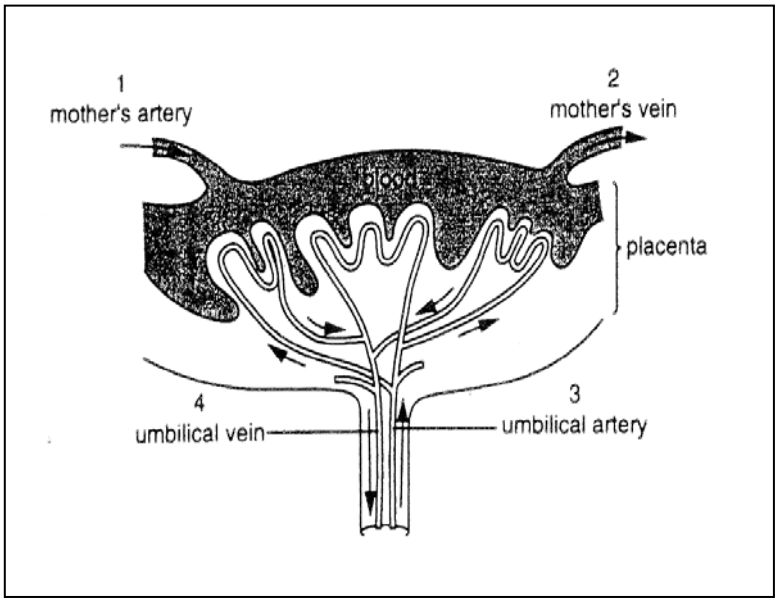


Diagram 17

In which parts do the blood contain the most oxygen and nutrients?
Di bahagian manakah darah mempunyai kandungan oksigen dan nutrien yang tinggi?

A 1 and 3
B 1 and 4
C 2 and 3
D 2 and 4

31. Diagram 18 shows the structure of a nephron.
Rajah 18 menunjukkan struktur nefron.

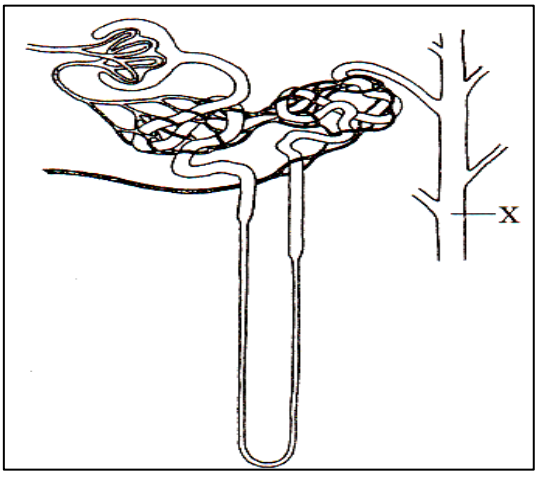


Diagram 18

Which of the following activities cause X to be more permeable to water ?
Yang manakah di antara aktiviti berikut menyebabkan X lebih telap kepada air ?

P - Drinking a lot of water
Minum air dengan banyak
Q - Eating salty foods
Makan makanan yang banyak
R - Not exercising
Tidak melakukan senaman
S - Playing sports
Bersukan

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

32. Diagram 19 shows the changes in the thickness of the uterus lining of a woman during her menstrual cycle. At which time is the woman most likely to be fertile?
[Rajah 19 menunjukkan perubahan ketebalan lapisan uterus seorang wanita semasa kitar haid. Pada masa yang manakah wanita itu mengalami waktu paling subur?]

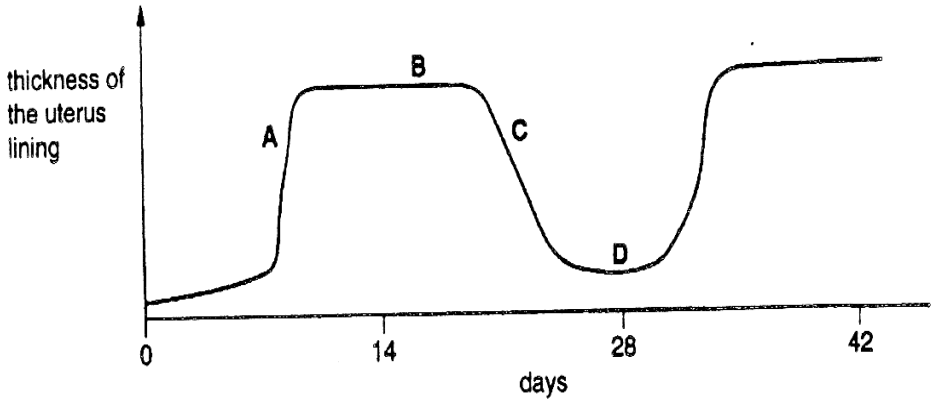


Diagram 19

33. The haemoglobin content of a pregnant mother is low. Which food should be taken to increase the haemoglobin content in her blood ?
Kandungan haemoglobin seorang ibu mengandung adalah rendah. Makanan manakah yang perlu diambil untuk meningkatkan kandungan hemoglobin dalam darahnya?

A Spinach
Bayam
B Potatoes
Kentang
C Tomato
Tomato
D Banana
Pisang

34. Diagram 20 shows a part of hind limp which consists of femur, tibia and fibula .
Rajah 20 menunjukkan bahagian anggota belakang yang terdiri dari femur, tibia dan fibula.

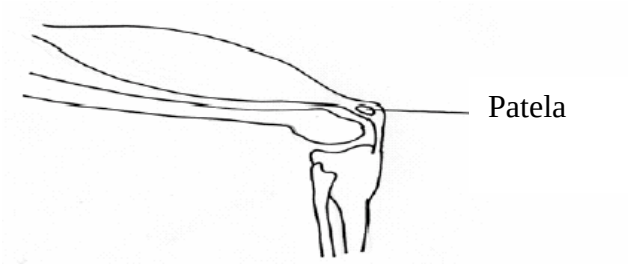


Diagram 20

Which of this action cannot be done if the patella is dislocated?
Manakah tindakan berikut tidak berlaku jika patela beralih tempat?

A Sitting down
Duduk

B Sleeping
Tidur

C Walking
Berjalan

D Straightening the leg
Meluruskan kaki

35. Diagram 21 shows the structures involved in reflex action.
Rajah 21 menunjukkan struktur yang terlibat dalam tindakan refleks.

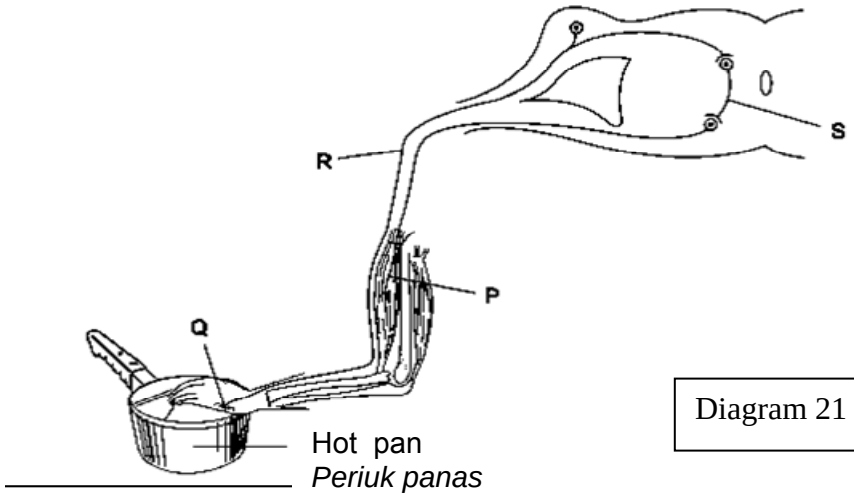


Diagram 21

Which of the following shows the correct sequence for the above action?
Antara berikut, manakah menunjukkan urutan yang betul bagi tindakan di atas?

A P → Q → R → S

B P→ S → R → Q

C Q → R → S → P

D Q → S → P → R

36. A farmer sprays all the mangoes in his farm with hormone X to ensure that all the mangoes ripen at the same time. What is hormone X?
Seorang petani menyembur semua buah manggadi ladang nya dengan hormon X bagi memastikan semua mangganya masak pada masa yang sama.
Apakah hormon X?

A Auxin
B Ethylene
C Cytokinin
D Gibberilin

37. Diagram 22 shows the structure of human brain.
Rajah 22 menunjukkan struktur otak manusia.

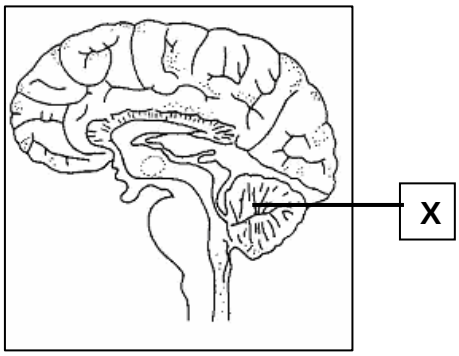


Diagram 22

What is X?
Apakah X?

A Cerebrum
Serebrum
B Cerebellum
Serebelum
C Spinal cord
Saraf tunjang
D Medula oblongata
Medula oblongata

38. The following statements is about hormone X.
Berikut adalah pernyatan tentang hormon X.

- Produced by corpus lutem and placenta
[Dihasilkan oleh korpus luteum dan placenta]
- Promotes growth of endometrium and prevents menstruation.
[Merangsang pertumbuhan endometrium dan menghalang haid]

What is hormone X?
[Apakah hormone X?]

A Oestrogen
Estrogen

B Progesterone
Progesteron

C Luteinising hormone
Hormon pelutinan

D Follicle stimulating hormone
Hormon perangsang folikel

39. Which of the following is **true** when the osmotic pressure in the blood decreases?
*Manakah di antara berikut **benar** sekiranya tekanan osmosis darah berkurangan?*

	Secretion of ADH ***Rembesan ADH***	**Reabsorption of water in kidney tubules** ***Penyerapan air oleh tubul ginjal***
A	Increase *Bertambah*	Increase *Bertambah*
B	Decrease *Berkurang*	Decrease *Berkurang*
C	Decrease *Berkurang*	Increase *Bertambah*
D	Increase *Bertambah*	Decrease *Berkurang*

40. Diagram 23 shows the stages in the development of follicle in the ovary of human.
Rajah 23 menunjukkan peringkat perkembangan folikel dalam ovari manusia.

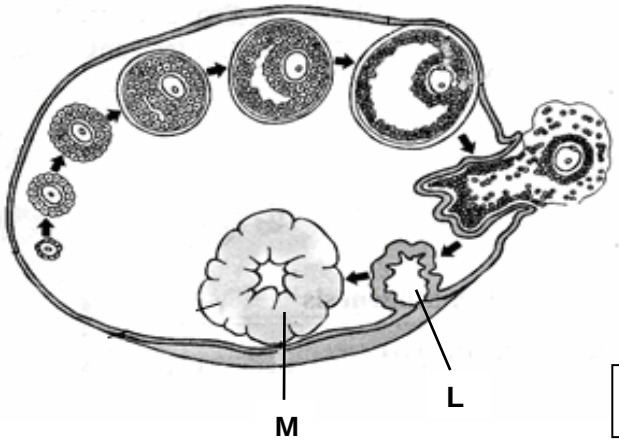


Diagram 23

What is the effect to the uterine wall when L developes into M?
Apakah kesan kepada dinding uterus apabila L berkembang menjadi M?

A It is repaired
Ia diperbaiki

B It breaks down
Ia terurai

C It thickens
Ia menebal

D Its thickness maintains
Ketebalannya dikekalkan

41. Melissa who is a carrier for colour blindness married to Aron a normal colour vision.
What is the probability that their son is colour blind?
Melisa adalah pembawa bagi buta warna berkahwin dengan Aron yang mempunyai penglihatan warna normal.
Apakah kemungkinan anak lelaki mereka adalah buta warna ?

A 0% C 50%

B 25% D 100%

42. A pair of fraternal twins are brought up by two different families and have the following characteristics.
Sepasang kembar seiras telah dibesarkan oleh dua keluarga yang berbeza dan mempunyai ciri seperti berikut.

Nini	:	Fat and fair complexion *Gemuk dan kulit cerah*
Nina	:	Thin and slightly dark complexion *Kurus dan kulit agak gelap*

Which factor causes the differences in the characteristics?
Faktor yang manakah menyebabkan perbezaan ciri pada kembar itu?

A Genetic
Genetik

B Environment
Persekitaran

C Gene mutation
Mutasi gen

D Chromosome mutation
Mutasi kromosom

43. Diagram 24 shows a red rose plant is crossed with a white rose plant.
The F1 generations that are produced are two red rose plants and two white rose plants. The allele for red rose plant, R is dominant to white rose plant, r.
Rajah 24 menunjukkan pokok ros merah dikacukkan dengan pokok ros putih. Generasi F1 yang terhasil adalah dua pokok ros merah dan dua pokok ros putih. Alel untuk pokok ros merah, R adalah dominan kepada alel ros putih, r.

Parents Phenotype *[Fenotip induk]*

Red Rose *[Ros merah]*

X

White Rose *[Ros putih]*

F1 generation Phenotype *[Fenotip generasi F1]*

Red Rose *[Ros merah]*

Red Rose *[Ros merah]*

White Rose *[Ros Putih]*

White Rose [*Ros Putih]*

Diagram *24*

What is the genotype of the parents?
Apakah genotip bagi induk?

	Red Rose	White Rose
A	RR	Rr
B	Rr	Rr
C	Rr	rr
D	RR	rr

44. Diagram 25 shows ultrafiltration that occurs in the kidney.
Rajah 25 menunjukkan ultraturasan yang berlaku dalam ginjal.

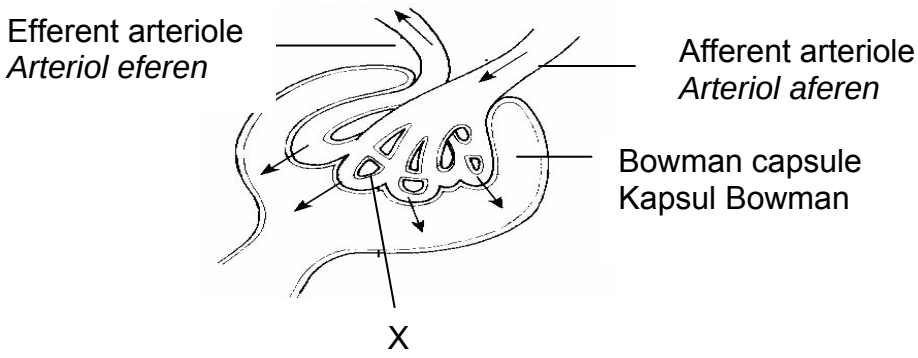


Diagram 25

What are the substances that can move across X ?
Apakah bahan yang dapat merentasi X?

A Fibrinogen
Fibrinogen
B Leucocyte
Leukosit
C Erythrocyte
Eritrosit
D Amino acid
Amino asid

45. Diagram 26 shows a shirt with a blood stain before and after being washed with detergent containing enzyme.
Rajah 26 menunjukkan baju dengan kesan darah sebelum dan selepas dibasuh dengan pencuci mengandungi enzim.

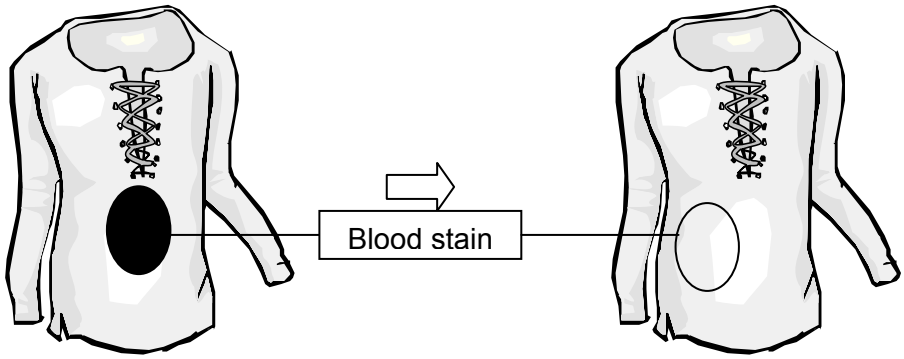


Diagram 26

Which is the most suitable enzyme and temperature to give the result shown?
Yang manakah enzim dan suhu yang paling sesuai untuk menghasilkan keputusan seperti di atas?

	Enzyme	Temperature
A	Lipase	37°C
B	Protease	18°C
C	Lipase	18°C
D	Protease	37°C

46. Diagram 27 shows a pair of chromosomes in a cell of an organism.
Rajah 27 menunjukkan sepasang kromosom dalam sel suatu organisma.

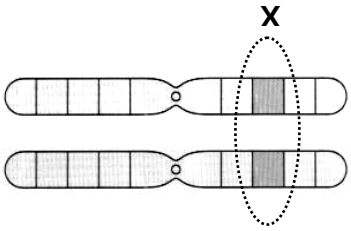


Diagram 27

What is X ?
Apakah X ?

A Allele C Nucleotide

B Gene D Chromosome

47. Diagram 28 shows the regulation of human body temperature.
Rajah 28 menunjukkan pengawalan suhu badan manusia.

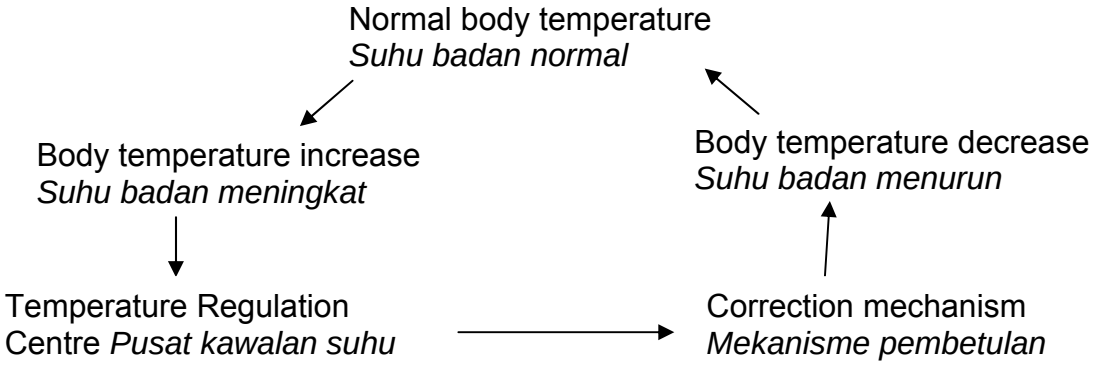


Diagram 28

Which of the following correction mechanism occur ?
Antara berikut yang manakah mekanisme pembetulan yang berlaku?

I. Vasodilation
Pemvasodilatan
II. Erector muscle contract
Otot erektor mengecut]
III Vasoconstriction
Pemvasocerutan
IV Decrease in metabolic rate
Kadar metabolisme menurun

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

48. Diagram 29 shows the graphs of two types of variation .
Rajah 29 menunjukkan graf untuk *dua jenis variasi.*

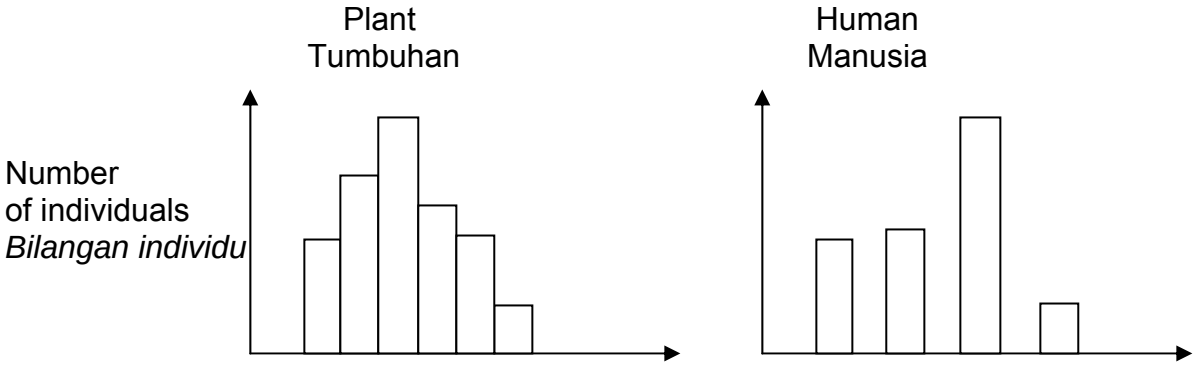


Diagram 29

What type of variation shown in each population ?
Apakah jenis variasi ditunjukkan dalam setiap populasi ?

	Human Manusia	Plant Tumbuhan
A	Continuous	Discontinuous
B	Continuous	Continuous
C	Discontinuous	Discontinuous
D	Discontinuous	Continuous

49. The following food chain is found in a fresh water pond.
Rantai makanan berikut terdapat dalam kolam air tawar.

Phytoplankton → water fleas → fish
Fitoplankton → kutu air → ikan

Which of the following shows the relative amount of biological mass in the food chain ?
Manakah di antara berikut menunjukkan amaun jisim biologi relatif dalam rantai makanan ?

	Phytoplankton Fitoplankton	Water flea Kutu air	Fish Ikan
A	5g	15g	60g
B	30g	60g	15g
C	60g	5g	30g
D	60g	30g	5g

50. Diagram 30 shows a graph of the level of antibody in blood of two patients, P and Q whom have been given vaccination twice.
Rajah 30 menunjukkan graf aras antibodi dalam darah bagi dua pesakit, P dan Q yang telah diberi suntikan vaksin sebanyak dua kali.

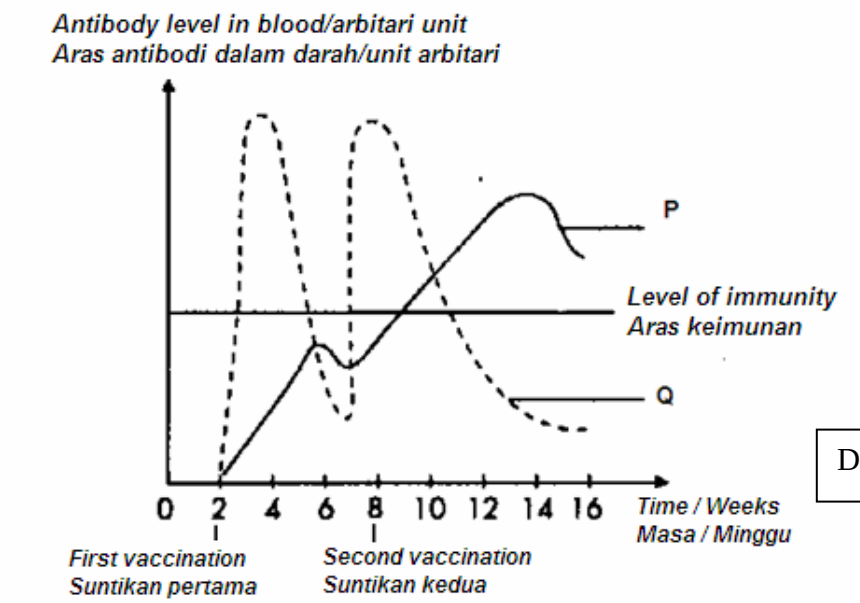


Diagram 30

Which of the following will be the type of immunisation acquired by these two patients?
Antara berikut yang manakah merupakan jenis keimunan yang diperoleh oleh kedua-dua pesakit?

	P	Q
A	Artificial acquired active immunity *Keimunan aktif buatan*	Artificial acquired passive immunity *Keimunan pasif buatan*
B	Artificial acquired passive immunity *Keimunan pasif buatan*	Artificial acquired active immunity *Keimunan aktif buatan*
C	Natural acquired passive immunity *Keimunan pasif semulajadi*	Natural acquired active immunity *Keimunan aktif semulajadi*
D	Natural acquired active immunity *Keimunan aktif semulajadi*	Natural acquired passive immunity *Keimunan aktif semulajadi*

END OF QUESTION PAPER
KERTAS SOALAN TAMAT.