MODUL
PERKEMBANGAN PEMBELAJARAN
SPM 2019

MPP 3

BIOLOGI
KERTAS 1

NAMA : ...

KELAS : ...

DIBIAYAI OLEH KERAJAAN NEGERI TERENGGANU

Answer all questions.
Jawab semua soalan.

1. Diagram 1 shows a type of cell
Rajah 1 menunjukkan sejenis sel .

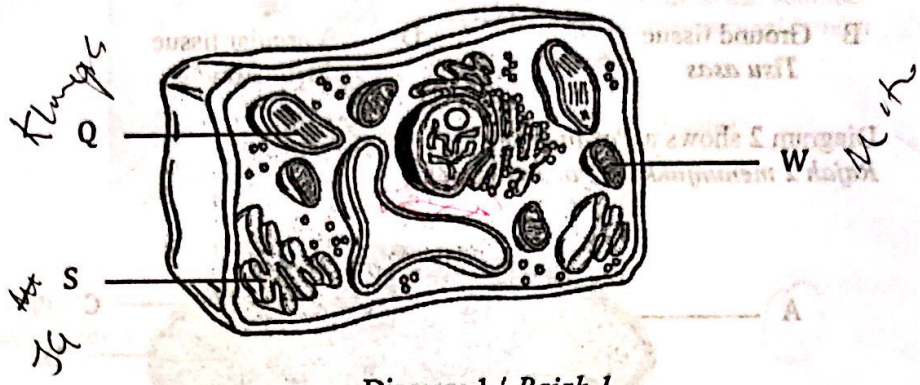


Diagram 1 / *Rajah 1*

What are Q, S and W?
Apakah Q, S dan W?

	Q	S	W
A	Chloroplast *Kloroplas*	Rough Endoplasmic Reticulum *Jalinan endoplasma kasar*	Mitochondria *Mitokondrion*
B	Vacuole *Vakuol*	Golgi apparatus *Jasad golgi*	Mitochondria *Mitokondrion*
C	Chloroplast *Kloroplas*	Smooth Endoplasmic Reticulum *Jalinan endoplasma licin*	Mitochondria *Mitokondrion*
D	Mitochondria *Mitokondrion*	Smooth Endoplasmic Reticulum Jalinan endoplasma licin	Chloroplast *Kloroplas*

2. Which organelle synthesis lipid?
Organel manakah yang mensintesis lipid?

A Lysosom
Lisosom

B Golgi Apparatus
Jasad Golgi

C Rough Endoplasmic Reticulum
Jalinan Endoplasma Kasar

D Smooth Endoplasmic Reticulum
Jalinan Endoplasma Licin

3. Which of the following tissues is not a plant tissue?
Tisu yang manakah bukan tisu tumbuhan?

A Meristem tissue
Tisu meristem

B Ground tissue
Tisu asas

C Connective tissue
Tisu penghubung

D Vascular tissue
Tisu vaskular

4. Diagram 2 shows a *Paramecium sp.*
Rajah 2 menunjukkan Paramecium sp.

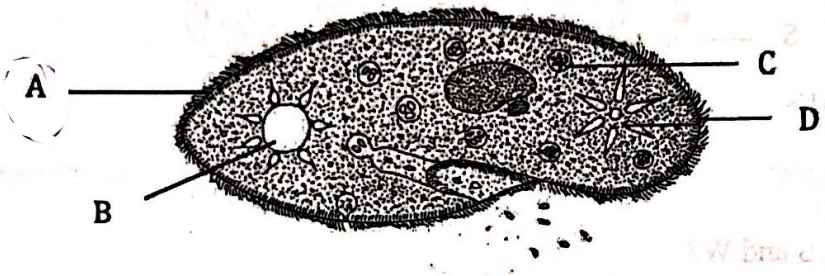


Diagram 2/*Rajah 2*

Which labeled parts of a *Paramecium sp.* A, B, C or D is involved in locomotion?
Antara bahagian Paramecium berlabel A, B, C atau D yang manakah terlibat dalam pergerakan?

5. Diagram 3 shows an organ in the human body.
Rajah 3 menunjukkan satu organ dalam badan manusia.

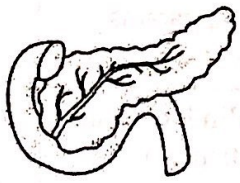


Diagram 3/ *Rajah 3*

Which internal factor is regulated by this organ?
Apakah faktor dalaman yang dikawal atur oleh organ ini?

A. The level of carbon dioxide
Aras karbon dioksida

B. The blood osmotic pressure
Tekanan osmosis darah

C. The body temperature
Suhu badan

D. The blood glucose level
Aras glukosa darah

6. Diagram 3 shows the apparatus set-up to demonstrate process X.
Rajah 3 menunjukkan susunan radas untuk menunjukkan proses X.

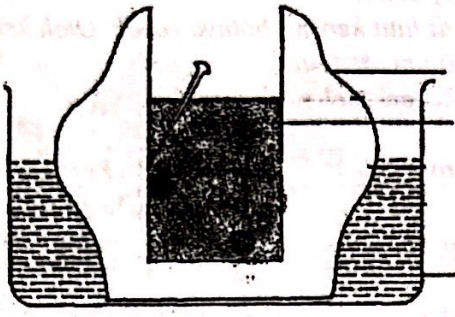


Diagram 3/ *Rajah 3*

What is process X?
Apakah proses X

A. Osmosis
Osmosis

B. Active transport
Pengangkutan aktif

C. Simple diffusion
Resapan ringkas

D. Facilitated diffusion
Resapan berbantu

7. Which of the following processes involves active transport?
Antara proses berikut, yang manakah melibatkan pengangkutan aktif?

A. Absorption of water by the root hair of plant.
Penyerapan air oleh rerambut akar tumbuhan.

B. Absorption of glucose through the villi in the small intestine.
Penyerapan glukosa melalui vilus di dalam usus kecil.

C. Movement of sodium ions into the cells lining of the kidney tubules.
Pergerakan ion natrium ke dalam dinding sel tubul ginjal.

D. Gaseous exchange between the alveoli and blood capillaries during respiration.
Pertukaran gas di antara alveolus dan kapilari darah semasa respirasi.

8. A fisherman drifted in the sea after his boat was damaged. Due to being too thirsty, the fisherman drank the sea water.
What will happen to his body cells?
Seorang nelayan terhanyut di laut kerana botnya rosak. Oleh kerana terlalu haus, nelayan tersebut telah meminum air laut.
Apakah yang akan berlaku kepada sel-sel badannya?

	Keadaan sel darah merah	Pergerakan air
A	Haemolysed *Mengalami hemolisis*	Water diffuses into the red blood cell *Air meresap masuk ke dalam sel darah merah*
B	Crenated *Mengalami krenasi*	Water diffuses into the red blood cell *Air meresap masuk ke dalam sel darah merah*
C	Haemolysed *Mengalami hemolisis*	Water diffuses out of the red blood cell *Air meresap keluar dari sel darah merah*
D	Crenated *Mengalami krenasi*	Water diffuses out of the red blood cell *Air meresap keluar dari sel darah merah*

9. Which of the following represents the hydrolysis of triglycerides?
Antara berikut manakah mewakili hidrolisis trigliserida?

A. Glycerol + Fatty acids ⟶ Triglycerides
Gliserol + Asid lemak ⟶ *Trigliserida*

B. Glyserol + Fatty acids ⟶ Triglycerides + water
Gliserol + Asid lemak ⟶ *Trigliserida + air*

C. Triglycerides ⟶ Glycerol + Fatty acids
Trigliserida ⟶ *Gliserol + Asid lemak*

D. Triglycerides + Air ⟶ Glycerol + Fatty acids
Trigliserida + Air ⟶ *Gliserol + Asid lemak*

10. Which of the following statements about protein is **not true**?
*Antara pernyataan berikut, yang manakah **tidak benar** tentang protein?*

A. The monomer of protein is amino acid
Monomer bagi protein adalah asid amino

B. Non-essential amino acids cannot be synthesised in human
Asid amino tidak perlu tidak boleh disintesis dalam manusia

C. The linear sequence of amino acids in protein molecule is called the primary structure
Urutan linear asid amino dalam molekul protein dipanggil struktur primer

D. An example of a quartenary- structured proteins is haemoglobin
Satu contoh protein berstruktur kuaterner adalah hemoglobin.

11 Diagram 4 shows the lock and key hypothesis of enzyme action.
Rajah 4 menunjukkan hipotesis mangga dan kunci bagi tindakan enzim.

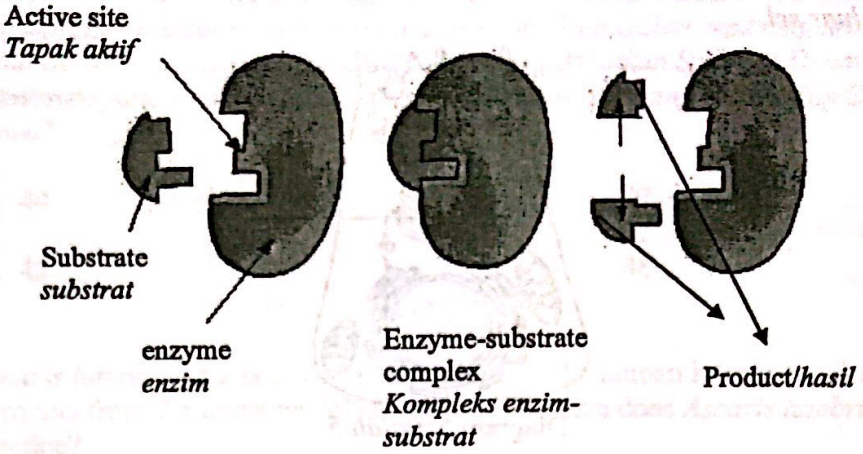


Diagram 4/ *Rajah 4*

What properties of enzymes are shown in diagram 4?
Apakah ciri-ciri enzim yang ditunjukkan dalam rajah 4?

I. Enzyme action are spesific.
Tindakan enzim adalah spesifik.

II. Enzymes are altered at the end of the reactions which they catalyse.
Enzim berubah pada akhir tindak balas yang dimangkinkan olehnya.

III. Enzymes combine with the substrates to form enzymes-substrate complexes.
Enzim bergabung dengan substrat untuk membentuk kompleks enzim-substrat.

IV Enzymes are affected by temperature.
Enzim dipengaruhi oleh suhu.

A. I and III
I dan III

B. II and III
II dan III

C. II and IV
II dan IV

D. III and IV
III dan IV

12. Diagram 5 shows organelles involved in the production and secretion of an extracellular enzyme.
Rajah 5 menunjukkan organel yang terlibat di dalam penghasilan dan perembesan enzim luar sel.

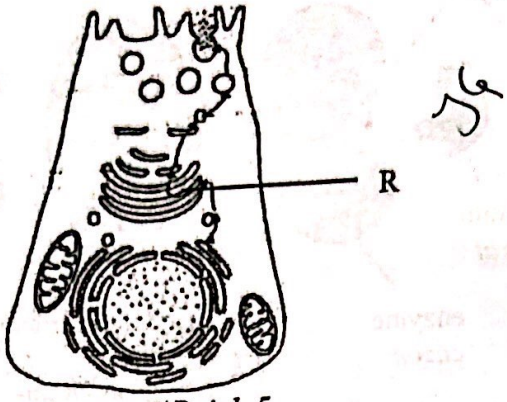


Diagram 5/*Rajah 5*

What would happen to the process if R is absent?
Apakah yang akan berlaku kepada proses tersebut sekiranya R tiada?

A. Proteins are not modified
Protein tidak diubahsuai

B. Proteins are not transcripted
Protein tidak ditranskripsi

C. Proteins are not synthesized
Protein tidak disintesiskan

D. Proteins are not secreted
Protein tidak dirembeskan

13. If an organism has 40 chromosomes in its somatic cells, how many chromosomes are there in a daughter cells that is formed through mitosis?
Jika suatu organisma mempunyai 40 kromosom di dalam sel somanya, berapakah bilangan kromosom yang terdapat di dalam sel anak yang terbentuk melalui mitosis?

A. 20

B. 40

C. 60

D. 80

14. Diagram 6 shows the cell cycle. At which phase is DNA synthesized and replicated?
Rajah 6 menunjukkan kitar sel. Pada fasa manakah DNA disintesis dan direplikasi?

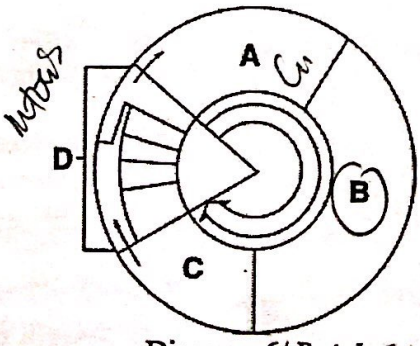


Diagram 6/*Rajah 6*

15. Human diploid cells have 46 chromosomes. Failure of one of the homologous pairs of chromosomes to separate during meiosis I leads to Down's Syndrome. How many chromosomes are there in the diploid cells of a person with Down's Syndrome?
Sel diploid manusia mempunyai 46 kromosom. Kegagalan sepasang kromosom homolog berpisah semasa meosis I boleh mengakibatkan Sindrom Down. Berapakah kromosom yang terdapat dalam sel diploid seseorang yang menghidap Sindrom Down?

A. 44
B. 45
C. 47
D. 48

16. *Ascaris lumbricoides* is a worm which lives in the human intestine and absorbs nutrients from the intestine. What types of nutrition does *Ascaris lumbricoides* practice?
Ascaris lumbricoides ialah cacing yang hidup di dalam usus manusia dan menyerap nutrient daripada usus. Apakah jenis nutrisi yang dilakukan oleh Ascaris lumbricoides?

A. Parasitism
Parasitisme
B. Autrotrophism
Autrotrofisme
C. Saprophytism
Saprofitisme
D. Commensalism
Komensalisme

17. A boy lack of haemoglobin because his diet is deficient in a certain mineral
Seorang budak lelaki kekurangan hemoglobin kerana gizinya kekurangan mineral tertentu

What disease is he suffering from and what mineral is lacking in his diet?
Apakah penyakit yang dihidapi oleh budak lelaki itu dan apakah mineral yang kurang dalam gizinya?

	Disease/ *Penyakit*	Mineral/ *Mineral*
A	Anaemia / *Anemia*	Iron/ *Besi*
B	Haemophilia / *Hemofilia*	Magnesium/ *Magnesium*
C	Scurvy / *Skurvi*	Phosphorus / *Fosforus*
D	Rickets/ *Riket*	Calcium / *Kalsium*

18. The following results were obtained when an experiment was carried out to determine the calorific value of a cashew nut.
Keputusan berikut diperoleh apabila satu eksperimen dilakukan untuk menentukan nilai kalori gajus.

Mass of the chasew nut/ *Jisim gajus*	= 0.6 g
Mass of the water/ *jisim air*	= 20 g
Initial temperature of water/ *suhu awal air*	= 30 °C
Final temperature of water/ *suhu akhir air*	=76 °C

A. 1.61 kJ^{-1}

B. 3.22 kJ^{-1}

C. 6.44 kJ^{-1}

D. 12.88 kJ^{-1}

19. Green plant absorb oxgygen and release carbon dioxide in low light intensity. Which of the following shows the process that occurs in the plant cells?
Tumbuhan hijau menyerap oksigen dan membebaskan karbon dioksida dalam keadaan keamatan cahaya yang rendah. Antara yang berikut, yang manakah menunjukkan proses yang berlaku dalam sel tumbuhan?

A. Photosynthesis only
Fotosintesis sahaja

B. Respiration only
Respirasi sahaja

C. Photosynthesis at a higher rate than respiration
Fotosintesis pada kadar yang lebih tinggi daripada respirasi

D. Respiration at a higher rate than photosynthesis
Respirasi pada kadar yang lebih tinggi daripada fotosintesis

20. Diagram 7 shows an interaction between two organism
Rajah 7 menunjukkan interaksi antara organisma

Diagram 7/*Rajah 7*

Which of the following pairs of organism do not interact in the same way?
Antara pasangan organisma berikut, yang manakah tidak berinteraksi dengan cara yang sama ?

A. The owl and the rat
Burung hantu dan tikus

B. Barnacles anda the crab
Teritip dan ketam

C. The pigeon orchid and a tree
Orkid merpati dan pokok

D. Sea anemones and the clown fish
Buran laut dan ikan inggu

21. Table 1 shows the result of an estimation of the population of plant X by using the quadrat sampling technique. Ten quadrats, each measuring 1m x 1m are used.
Jadual 1 menunjukkan keputusan anggaran populasi tumbuhan X dengan menggunakan Teknik persampelan kuadrat. Sepuluh kuadrat yang setiap satunya berukuran 1m x 1m digunakan.

Quadrat number *Nombor kuadrat*	1	2	3	4	5	6	7	8	9	10
Number of plant X *Bilangan tumbuhan X*	18	7	14	0	9	0	6	10	13	0

Table 1 / *Jadual 1*

What is the frequency of plant X ?
Apakah kekerapan tumbuhan X ?

A. 50%
B. 60%
C. 70%
D. 80%

22. Diagram 8 shows the label on a bottle of orange juice.
Rajah 8 menunjukkan label pada satu botol jus oren.

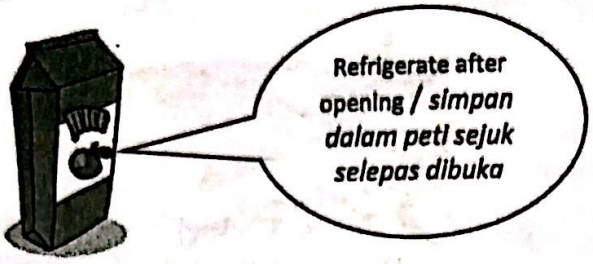


Diagram 8 / *Rajah 8*

Why it is necessary to keep the orange juice refrigerated after it has been opened?
Mengapakah jus oren itu perlu disimpan di dalam peti sejuk selepas dibuka?

A. Bacteria are killed at low temperature
Bakteria dimusnahkan pada suhu rendah

B. Bacteria cannot grow at low temperature.
Bakteria tidak boleh bertumbuh pada suhu rendah.

C. Bacteria are not found in the refrigerator
Bakteria tidak terdapat di dalam peti sejuk.

D. The orange juice contains enzymes which are active at the room temperature
Jus oren mengandungi enzim yang aktif pada suhu bilik.

23. Diagram 9 shows the process carried out by a farmer to make compost.
Rajah 9 menunjukkan proses yang dilakukan oleh seorang petani untuk membuat kompos.

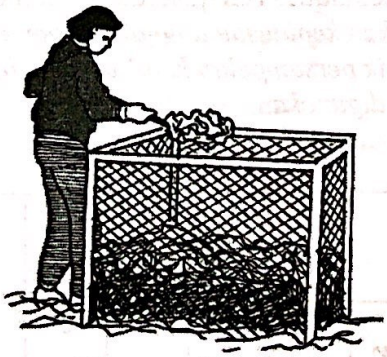


Diagram 9/ *Rajah 9*

Which organism involves in this process?
Organisma manakah yang terlibat dalam proses ini?

A. Algae
Alga

B. Virus
Virus

C. Bacteria
Bakteria

D. Protozoa
Protozoa

24. Diagram 10 shows a human activity
Rajah 10 menunjukkan satu aktiviti manusia

Diagram 10/ *Rajah 10*

Which of the following is the effect of this activity ?
Antara yang berikut, yang manakah merupakan kesan aktiviti ini?

A. Water pollution
Pencemaran air

B. Thermal pollution
Pencernaan terma

C. Loss of biodiversity
Kehilangan biokepelbagaian

D. Many aquatic organisms will die
Banyak hidupan akuatik akan mati

25. Diagram 11 refers to an effect of water pollution.
Rajah 11 merujuk kepada kesan pencemaran air.

Which of the following is th
Antara yang berikut, yang n

A. Heavy metal
Logam berat

B. Oil spill
Tumpahan minyak

D. Sulphate salt
Garam sulfat

26. Diagram 12 shows a longitudinal cross section of human heart
Rajah 12 menunjukkan satu keratan membujur jantung manusia

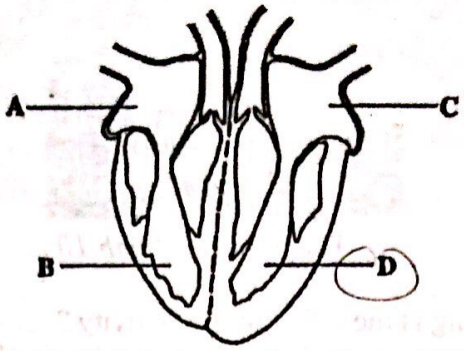


Diagram 12/*Rajah 12*

Which of the part label A, B, C and D pumps the blood to all parts of the body?
Antara bahagian berlabel A, B, C dan D, yang manakah mengepam darah ke seluruh bahagian badan?

27. Diagram 13 shows the swollen legs of a person suffering from elephantiasis
Rajah 13 menunjukkan kaki membengkak seseorang individu yang menghidap penyakit untut.

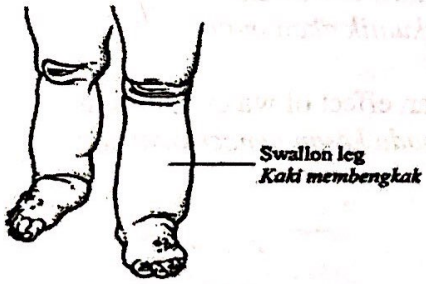


Diagram 13/ *Rajah 13*

Which of the following is true about Diagram 13?
Antara berikut, yang manakah benar tentang Rajah 13?

A Clogged blood vessel prevent blood from returning to the blood flow
Salur darah yang tersumbat menghalang darah memasuki aliran darah

B Clogged blood vessels prevent interstitial fluid from returning to the blood flow
Salur darah yang tersumbat menghalang cecair interstis memasuki aliran darah

C Clogged lymph vessels prevent interstitial fluid from returning to the blood flow
Salur limfa yang tersumbat menghalang cecair interstis memasuki aliran darah

D Clogged lymph vessels prevent blood from returning to the blood flow
Salur limfa yang tersumbat menghalang darah memasuki aliran darah

28 Diagram 14 shows the concentration of antibody in the blood of individual P after two injections.
Rajah 14 menunjukkan kepekatan antibodi dalam darah individu P selepas dua suntikan.

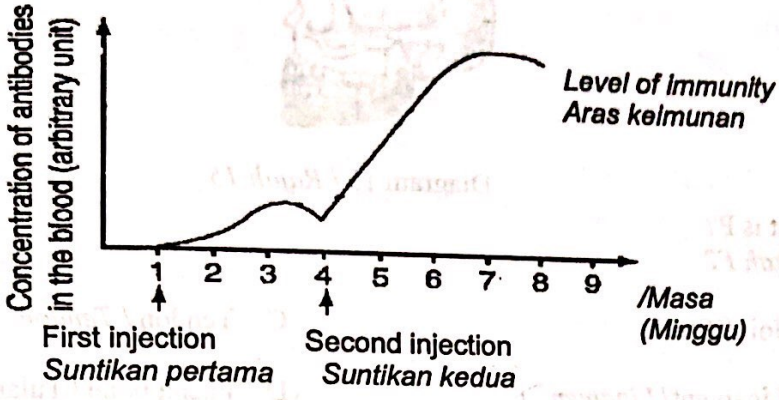


Diagram 14 / *Rajah 14*

Which of the following are **true** about Diagram 14?
*Antara berikut, yang manakah **benar** tentang Rajah 14?*

A The type of immunity achieve by P is artificial passive immunity
Jenis keimunan bagi individu P ialah keimunan pasif buatan

B Individual P is injected by antiserum
Individu P disuntik dengan antiserum

C After first injection, the concentration of antibody in the blood increase
Selepas suntikan pertama, kepekatan antibodi dalam darah meningkat

D After second injection, the concentration of antibody in the blood increase above immunity level
Selepas suntikan kedua, kepekatan antibodi dalam darah meningkat melepasi aras keimunan

29. What is the process in which water moves from the roots to the upper part of a plant and involves evaporation?
Apakah proses di mana air bergerak dari akar ke bahagian atas tumbuhan dan melibatkan proses sejatan?

A. Guttation
Gutasi

B. Translocation
Translokasi

C Transpiration
Transpirasi

D The transpirational pull
Tarikan transpirasi

30 Diagram 15 shows a human skull
Rajah 15 menunjukkan tengkorak manusia.

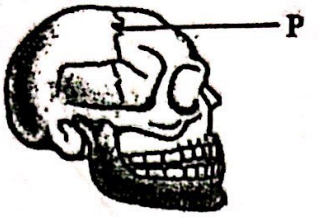


Diagram 15 / *Rajah 15*

What is P?
Apakah P?

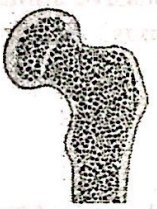
A Joint/*Sendi*

B Ligament/ *Ligamer*

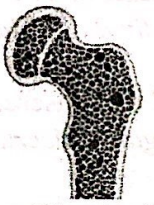
C Tendon / *Tendon*

D Facial bone / Tulang muka

31. Diagram 16 shows a cross section of a human bone.
Rajah 16 menunjukkan keratan rentas tulang manusia.



Normal bone
Tulang normal



Disease Q
penyakit Q

Diagram 16/*Rajah 16*

What is disease Q?
Apakah penyakit Q?

A. Osteoporosis
Osteoporosis

B. Arthritis
Artritis

C. Osteoarthritis
Osteoartritis

D. Muscular distrophy
Distrofi otot

32. Which of the following support woody plant?
Antara yang berikut, yang manakah menyokong tumbuhan berkayu?

I Aerenchyma tissues
Tisu aerenkima

II Xylem
Xilem

III Turgitidy of the cell
Kesegahan sel

IV Tracheids
Trakeid

A. I and II
I dan II

C. II and IV
II dan IV

B. I and III
I dan III

D. III and IV
III dan IV

33. Diagram 15 shows the main components involved in coordination and response towards stimulus?
Rajah 15 menunjukkan komponen utama yang terlibat dalam koordinasi dan gerakbalas terhadap rangsangan?

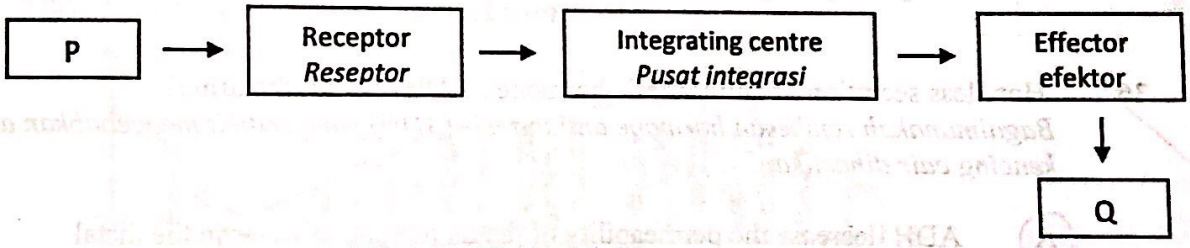


Diagram 15 / *Rajah 15*

What are P and Q represent?
Apakah yang diwakili oleh P dan Q?

	P	Q
A	Rangsangan / *Stimulus*	Response / Gerakbalas
B	Response / *Gerakbalas*	Stimulus / Rangsangan
C	Brain / Otak	Spinal cord / Saraf tunjang
D	Spinal cord / Saraf tunjang	Brain /Otak

A

34 A man lost his memory after involves in an accident. Which part of the brain is injured?
Seorang lelaki hilang daya. ingatan selepas terlibat dalam suatu kemalangan. Bahagian otak yang manakah telah tercedera?

A Medulla Oblongata
Medula oblongata

B Hypothalamus
Hipotalamus

C Cerebellum
Serebellum

D Cerebrum
Serebrum

35 Which types of drugs makes the heart beat faster, raises the blood pressure and makes it hard for a person to fall asleep?
Jenis dadah yang manakah menjadikan degupan jantung lebih cepat, meingkatkan tekanan darah dan menyukarkan seseorang untuk tidur?

A. Narcotics
Narkotik

B. Stimulant
Dadah perangsang

C. Depressant
Dadah penenang

D. Hallucinogens
Dadah khayalan

36 How less secretion of anti-diuretic hormone (ADH) dilutes the urine?
Bagaimanakah rembesan hormone antidiuresis (ADH) yang sedikit menyebabkan air kencing cair dihasilkan?

A ADH decrease the permeability of the membrane to water in the distal convulated tubules
ADH mengurangkan ketelapan membran terhadap air dalam tubul berlingkar Distal

B ADH increase the permeability of the membrane to water in the proximal convulated tubules
ADH meningkatkan ketelapan membran terhadap air dalam tubul berlingkar proksimal

C ADH causes more salt to be reabsorbed
ADH menyebabkan lebih banyak garam diserap semula

D ADH causes absorption of water as urine passes through the collecting duct
ADH menyebabkan penyerapan semula air semasa air kencing melalui duktus pengumpul

37. Diagram 16 shows a cross section of a male reproductive organ.
Rajah 16 menunjukkan keratan rentas organ pembiakan lelaki.

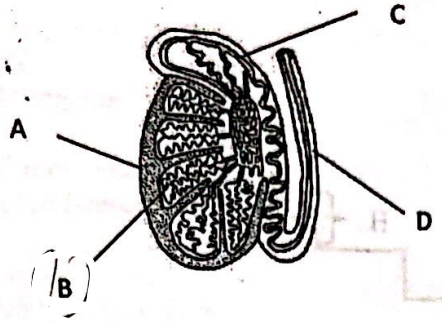


Diagram 16 / *Rajah 16*

Where does sperm production occur?
Dimanakah penghasilan sperma berlaku?

38 Diagram 17 shows the changes in the thickness of the uterus wall during the menstrual cycle.
Rajah 17 menunjukkan perubahan pada ketebalan dinding uterus semasa kitar haid.

Thickness of endometrium / *Penebalan*

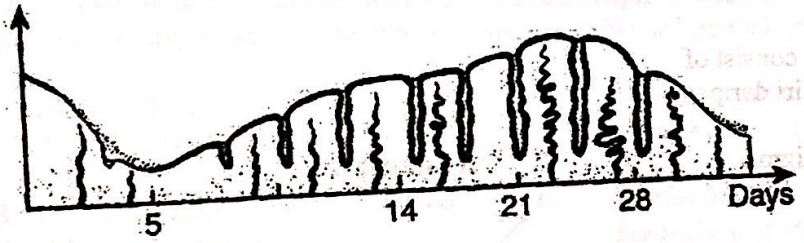


Diagram 17
Rajah 17

What process occur at day 14?
Proses apakah yang berlaku pada hari ke 14?

A Ovulation / *pengovulan*
B Pregnancy / *kehamilan*
C Menstruation / *menstruasi*
D Abortion / *keguguran*

39. Diagram 18 shows the growth curve of an insect.
Rajah 18 menunjukkan graf pertumbuhan serangga.

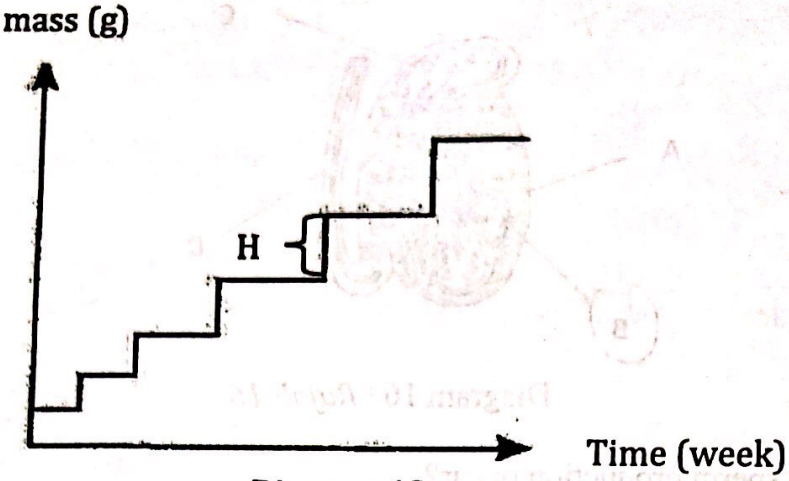


Diagram 18
Rajah 18

What happens at H?
Apa yang berlaku pada H?

A Pertumbuhan /*Growth*

B Ecdysis / *Eksdisis*

C Regeneration / *Pertumbuhan semula*

D Pertambahan jisim kering / *Dry mass increase*

40. An ovule consist of
Ovul terdiri daripada

I The stigma
Stigma

II The ovary
Ovari

III The integument
Integumen

IV The embryo sac
Pundi embrio

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

41. Which of the following are not the effect of secondary growth of a plant?
Antara yang berikut, yang manakah bukan merupakan kesan pertumbuhan sekunder bagi tumbuhan?

I Increase in high
Peningkatan ketinggian

II Production of more vascular bundle
Penghasilan lebih banyak berkas vaskular

III Production of more leaves
Penghasilan lebih banyak daun

IV Production of cork cells
Penghasilan sel gabus

A. I , II dan III
I , II dan III

B. I , III and IV
I , III dan IV

C. II ,III and IV
II ,III dan IV

D. All of the above
Semua di atas

42. A recessive allele will only shows its effect in an offspring when it
Alel resesif hanya akan menunjukkan kesannya pada anak apabila alel itu

A. Is sex-linked
Adalah terangkai seks

B. Is homozygous
Adalah homozigot

C. is heterozygous
adalah heterozigot

D. comes from the mother
berasal daripada ibunya

43. In the pea plant, the allele for yellow stem (Y) is dominant over the allele for green stem (y). A cross between a plant with a yellow stem and a plant with a green stem gave rise to 101 yellow plant and 95 green plant in the F1 generation. What is the genotype of the parent plant?
Dalam pokok kacang pea, alel bagi batang bewarna kuning *(Y) adalah dominan terhadap alel bagi* batang bewarna hijau(y). Kacukan antara satu pokok yang berbatang kuning dengan satu pokok yang berbatang hijau menghasilkan 101 batang pokok berbatang kuning dan 95 pokok berbatang hijau dalam generasi F1. Apakah genotip bagi pokok induk?

A. YY and yy
YY dan yy

B. YY and Yy
YY dan Yy

C. Yy and yy
Yy dan yy

D. Yy and YY
Yy dan YY

44. Diagram 19 shows a pair of chromosomes in a cell of an organism.
Rajah 19 menunjukkan sepasang kromosom dalam sel suatu organisma.

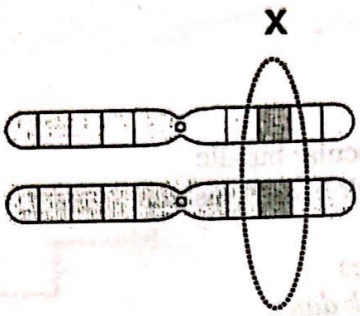


Diagram 19
Rajah 19

What is X?
Apakah X?

A Alelle
Alel

B Homologous chromosome
Kromosom homolog

C Phenotype
Fenotip

D Heterozygote
Heterozigot

45. Diagram 20 shows the karyotype of an individual.
Rajah 20 menunjukkan kariotip bagi seorang individu.

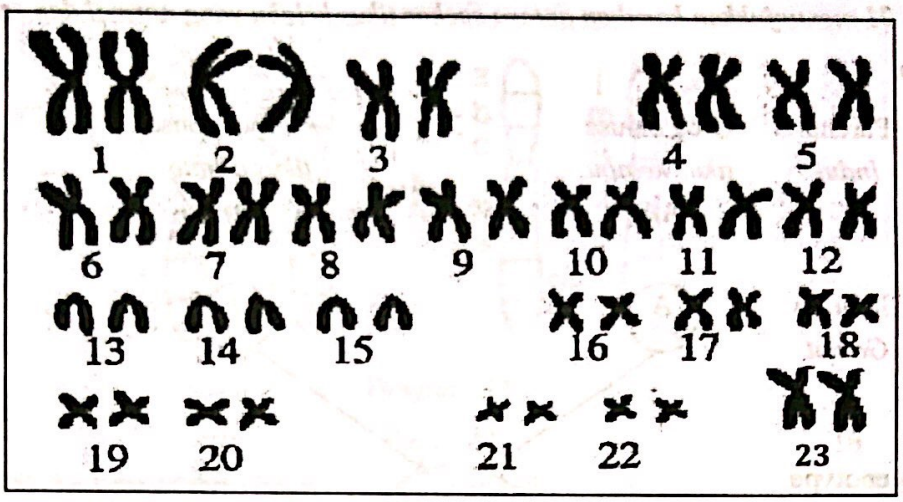


Diagram 20
Rajah 20

Which of the following shows the number of chromosomes in gamete produced by the individual?
Manakah antara berikut menunjukkan bilangan kromosom pada gamet yang dihasilkan oleh individu itu?

A 22 + Y
B 22 + X
C 22 + XX
D 44 + XX

46 Faridah who is a carrier for colour blindness married to Ramli, a normal colour vision. What is the probability that their son is a colour blind?
Faridah merupakan pembawa bagi buta warna berkahwin dengan Ramli yang mempunyai penglihatan warna normal. Apakah kemungkinan anak lelaki mereka adalah buta warna?

A 0%
B 25%
C 50 %
D 100 %

47. Diagram 21 shows a cross between a normal grey-coloured mouse and an albino mouse.

Rajah 21 menunjukkan kacukan antara seekor tikus kelabu yang normal dan seekor tikus albino.

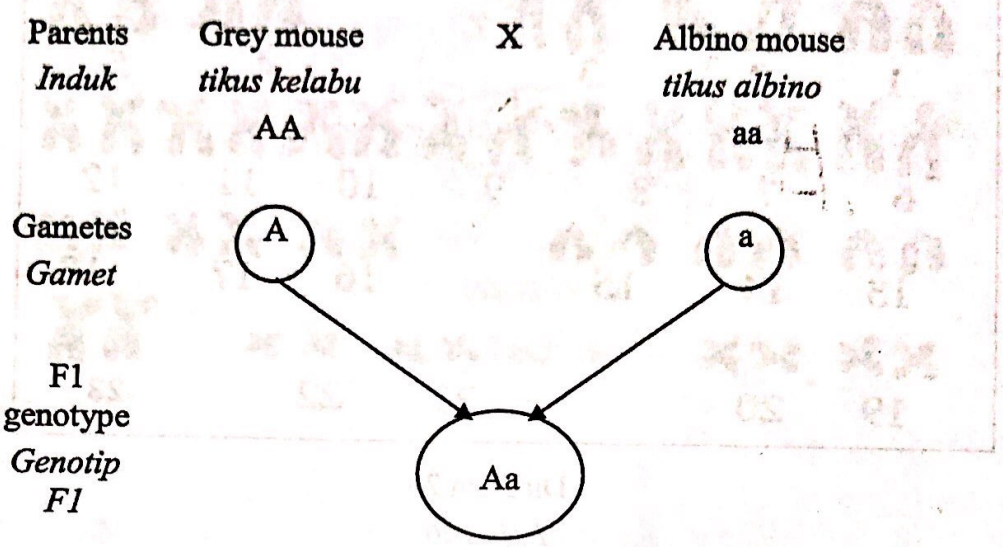


Diagram 21
Rajah 21

Which genotypes would result from a cross between the F1 mouse and an albino mouse?
Manakah genotip hasil daripada kacukan antara tikus F1 dan tikus albino?

A Aa only / *Aa sahaja*

B AA only / *AA sahaja*

C Aa and aa / Aa dan aa

D AA and Aa / *AA dan Aa*

48 Diagram 22 shows a type of chromosomal mutation.

Rajah 22 menunjukkan sejenis mutasi kromosom.

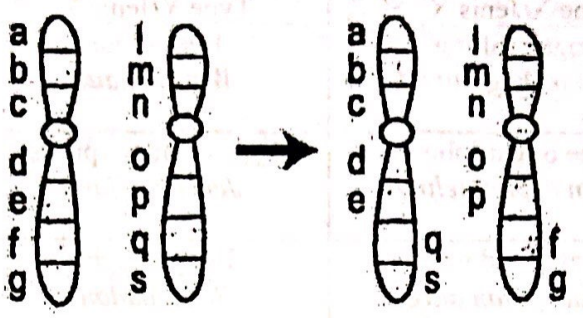


Diagram 22

Rajah 22

What is the type of this chromosomal mutation?

Apakah jenis mutasi kromosom ini?

A Deletion/P*elenyapan*

B Inversion/P*enyongsangan*

C Duplication/P*enggandaan*

D Translocation/*Translokasi*

49 Diagram 23 shows two types of variation among human.

Rajah 23 menunjukkan dua jenis variasi antara manusia.

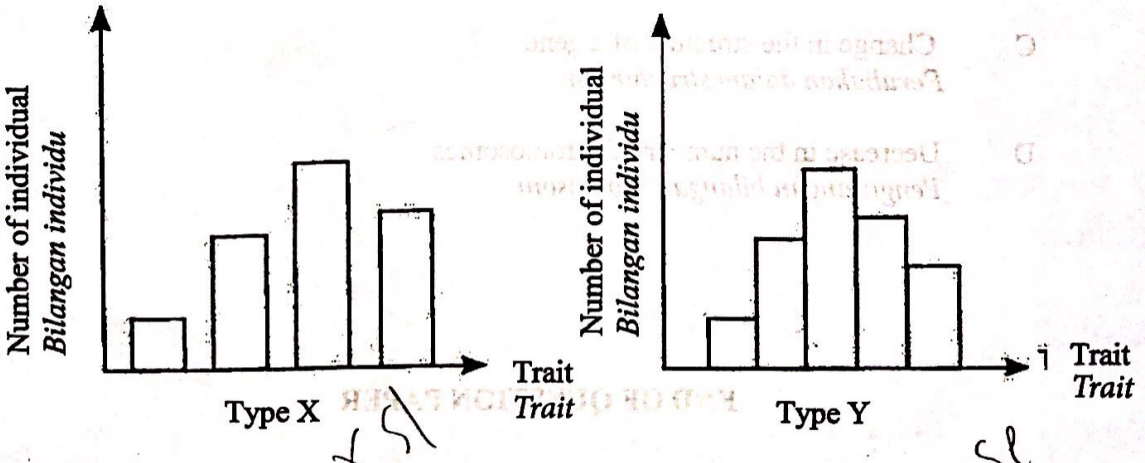


Diagram 23

Rajah 23

Which of the following are the examples of variation for type X and type Y?

Antara berikut manakah menunjukkan contoh variasi bagi jenis X dan Y?

	Type X/Jenis X	Type Y/Jenis Y
A	Tongue rolling *Kebolehan menggulung lidah*	Eye colour *Warna mata*
B	Type of ear lobe *Lekapan cuping telinga*	Type of finger prints *Jenis cap jari*
C	Type of blood group *Jenis kumpulan darah*	Body weight *Berat badan*
D	Skin colour *Warna kulit*	Type of hair *Jenis rambut*

50 A man suffers from Down's Syndrome. What causes this genetic disorder?
Seorang lelaki menghidap Sindrom Down. Apakah yang menyebabkan kecacatan genetik ini?

A Homologous chromosomes fail to seperate during meosis
Kromosom homolog gagal berpisah semasa meosis

B Lack of iron in diet
Kekurangan ferum dalam gizi

C Change in the structure of a gene
Perubahan dalam struktur gen

D Decrease in the number of chromosomes
Pengurangan bilangan kromosom

END OF QUESTION PAPER

KERTAS SOALAN TAMAT