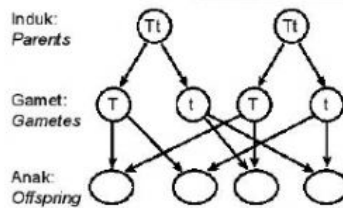


Soalan Objektif

1. Rajah 1 menunjukkan pewarisan ketinggian pada pokok kacang.
Diagram 1 shows the inheritance of height in pea plants.

KBAT Menganalisis



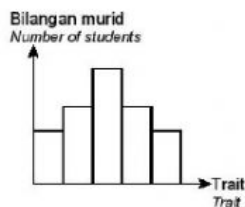
Rajah 1 / Diagram 1

Apakah nisbah yang mungkin bagi kacukan tersebut?

What is the expected ratio of the cross?

- A 1 tinggi : 1 kerdil
1 tall : 1 dwarf
- B 2 tinggi : 1 kerdil
2 tall : 1 dwarf
- C 1 tinggi : 3 kerdil
1 tall : 3 dwarf
- D 3 tinggi : 1 kerdil
3 tall : 1 dwarf

2. Rajah 2 menunjukkan carta palang yang mewakili sejenis variasi.
Diagram 2 shows the bar chart representing a type of variation.



Rajah 2 / Diagram 2

Trait yang manakah diwakili oleh carta bar itu?

Which trait is represented by the bar chart?

- A Ketinggian
Height
- B Kumpulan darah
Blood group
- C Jenis cap jari
Type of finger print
- D Jenis cuping telinga
Type of ear lobe

3. Rajah 3 menunjukkan suatu sel yang mengalami pembahagian sel.
Diagram 3 shows a cell undergoing cell division.



Rajah 3 / Diagram 3

Apakah struktur L?

What is the structure of L?

- A Nukleus
Nucleus
- B Sitoplasma
Cytoplasm
- C Kromosom
Chromosome
- D Membran sel
Cell membrane

4. Antara yang berikut, yang manakah disebabkan oleh mutasi gen?

Which of the following is caused by gene mutation?

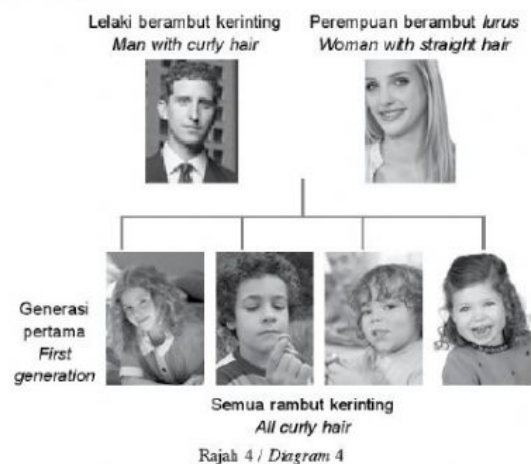
- A Buta warna
Colour blindness
- B Sindrom Down
Down's syndrome
- C Sindrom Turner
Turner's syndrome
- D Sindrom Klinefelter
Klinefelter's syndrome

5. Albert telah mewarnakan rambut hitamnya menjadi merah. Kemudian, dia mencukur rambutnya sehingga botak. Selepas beberapa bulan, rambut Albert kembali tumbuh dengan warna hitam. Faktor yang manakah mempengaruhi keadaan itu?
Albert dyed his black hair red. Then, he shaved his head. After a few months, Albert's hair grew back in black colour. Which factor influences this situation? KBAT Menganalisis

- A Genetik
Genetic
- B Persekitaran
Environment
- C Mutasi gen
Gene mutation
- D Mutasi kromosom
Chromosome mutation

6. Rajah 4 menunjukkan seorang lelaki berambut keriting berkahwin dengan seorang perempuan berambut lurus. Kesemua anak mereka berambut keriting.
Diagram 4 shows a man with curly hair married to a woman with straight hair. All their children have curly hair. 'K' ialah gen dominan bagi rambut keriting dan 'k' adalah gen resesif bagi rambut lurus.

Diagram 4 shows a man with curly hair married to a woman with straight hair. All their children have curly hair. 'K' is the dominant gene for curly hair and 'k' is the recessive gene for straight hair.



Rajah 4 / Diagram 4

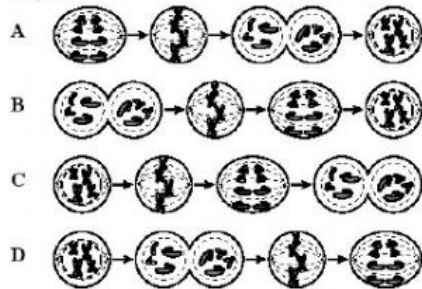
Apakah pasangan gen bagi ibubapa tersebut?

What are the pairs of genes for the parents? **KBAT** Menganalisis

	Lelaki / Man	Perempuan / Woman
A	Kk	kk
B	KK	kk
C	Kk	KK
D	Kk	Kk

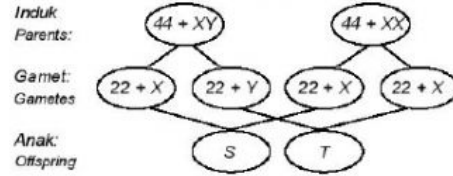
7. Antara yang berikut, yang manakah urutan peringkat mitosis yang betul?

SPM 2012 Which of the following is the correct sequence of the mitosis stages?



8. Rajah 5 menunjukkan rajah skema pewarisan bagi manusia. Diagram 5 shows the schematic diagram of inheritance in human beings.

SPM 2012



Rajah 5 / Diagram 5

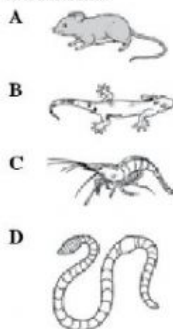
Apakah S dan T?

What are S and T?

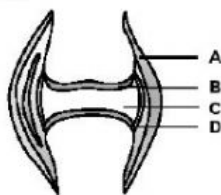
	S	T
A	44 + XX	44 + XX
B	44 + XX	44 + XY
C	44 + XY	44 + XX
D	44 + XY	44 + XY

Soalan Objektif

9. Antara haiwan berikut, yang manakah memiliki rangka luar?
Which of the following animals has an exoskeleton?



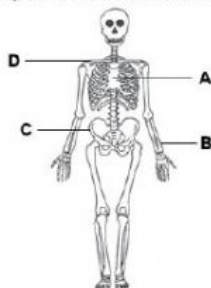
10. Rajah 1 menunjukkan sendi sinovia manusia.
Diagram 1 shows a human synovial joint.



Rajah 1 / Diagram 1

Antara bahagian A, B, C atau D, yang manakah menyerap hentakan dan mengurangkan geseran antara kedua-dua hujung tulang?
Which of the parts, A, B, C or D, absorbs shock and reduces friction between the ends of bones?

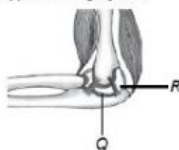
11. Rajah 2 menunjukkan rangka manusia.
Diagram 2 shows the human skeleton.



Rajah 2 / Diagram 2

Antara tulang A, B, C atau D, yang manakah sebahagian daripada rangka paksi?
Which bone, A, B, C or D, forms part of the axial skeleton?

12. Rajah 3 menunjukkan sendi siku iaitu sejenis sendi engsel.
Diagram 3 shows an elbow joint which is a type of hinge joint.



Rajah 3 / Diagram 3

Apakah bahagian Q dan R?
What are parts Q and R?

	Q	R
A	Membran sinovia Synovial membrane	Bendalir sinovia Synovial fluid
B	Rawan Cartilage	Bendalir sinovia Synovial fluid
C	Membran sinovia Synovial membrane	Ligamen Ligament
D	Rawan Cartilage	Ligamen Ligament

13. Rajah 4 menunjukkan lengan manusia.
Diagram 4 shows human's forearm.

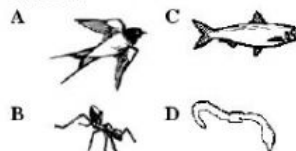


Rajah 4 / Diagram 4

Apakah X?
What is X?

- A Rawan
Cartilage
B Triceps
Triceps
C Ligamen
Ligament
D Tendon
Tendon

14. Haiwan manakah mempunyai rangka hidrostatik?
Which animal has a hydrostatic skeleton?



15. Antara penyesuaian berikut, yang manakah membantu tumbuhan untuk terapung?
Which of the following adaptations help plants to float?

- I Tisu aerenkima
Aerenchyma tissues
II Batang berkayu
Woody stem
III Kesegahan sel
Cell turgidity
IV Daun lebar
Broad leaves

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

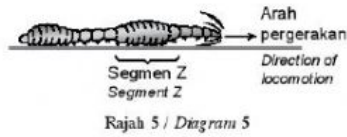
16. Nenek Huda mengalami masalah penyakit sistem rangka seperti berikut:
Huda's grandmother suffers from disorder of the skeletal system as follows:

- Tulang rapuh dan mudah patah
Fragile and brittle bones
- Tulang porous dan jisim berkurangan
Porous bones and bone mass decreases

Apakah penyakit yang dialami oleh nenek Huda?
What is the disease suffered by Huda's grandmother?

- A Distrofi otot
Muscle dystrophy
B Arthritis
Arthritis
C Osteoporosis
Osteoporosis
D Kejang otot
Muscle cramp

17. Rajah 5 menunjukkan pergerakan seekor cacing tanah.
Diagram 5 shows the locomotion of an earthworm.



Rajah 5 / Diagram 5

Antara yang berikut, yang manakah benar mengenai tindakan otot pada segmen Z?

Which of the following is true about the actions of muscles in segment Z?

	Otot membujur Longitudinal muscle	Otot lingkar Circular muscle
A	Mengecut Contracts	Mengecut Contracts
B	Mengendur Relaxes	Mengendur Relaxes
C	Mengecut Contracts	Mengendur Relaxes
D	Mengendur Relaxes	Mengecut Contracts

18. Rajah 6 menunjukkan sejenis akar sokongan.
Diagram 6 below shows a type of supportive root.



Rajah 6 / Diagram 6

Antara pokok-pokok berikut, yang manakah mempunyai jenis akar tersebut?

Which of the following trees has this type of root?

- A Jagung
Maize
- B Pokok angsa
Casuarina tree
- C Pokok durian
Durian tree
- D Kacang panjang
Long bean

Soalan Objektif

19. Pernyataan berikut adalah berkaitan dengan kempen anti-dadah.
The following statement is about an anti-drug campaign.

"Bersama memerangi dadah"
"Together against drug"

Apakah kaitan antara pernyataan itu dengan koordinasi badan?
What is the relationship between the statement and body coordination?

- A Kadar degupan jantung menurun
The rate of heartbeat decreases
B Memperlahankan gerak balas terhadap rangsangan
Slows down reactions to stimuli
C Kebanyakan neuron dimusnahkan
Most of the neurones are destroyed
D Aktiviti otak menjadi cepat
The brain activities become rapid

20. Seorang pesakit menghidap penyakit goiter. Apakah kelenjar endokrin yang gagal berfungsi?
A patient is suffering from goitre. Which endocrine gland is malfunctioning?

- A Tiroid C Pankreas
Thyroid Pancreas
B Adrenal D Pituitari
Adrenal Pituitary

21. Antara kelenjar yang berikut, yang manakah merupakan kelenjar utama yang mengawal penghasilan hormon dari kelenjar-kelenjar endokrin yang lain?
Which of the following glands is the master gland that controls the production of hormones from other endocrine glands?

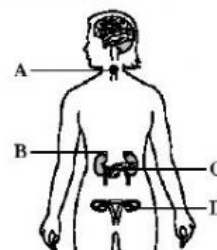
- A Kelenjar adrenal
Adrenal glands
B Kelenjar tiroid
Thyroid gland
C Kelenjar pituitari
Pituitary gland
D Pankreas
Pancreas

22. Hormon yang manakah mengawal kadar metabolisme dalam tubuh badan manusia?
Which hormone controls the body's metabolism rate in human?

- A Oksitosin
Oxytocin
B Prolaktin
Prolactin
C Tioksina
Thyroxine
D Insulin
Insulin

23. Rajah 1 menunjukkan kelenjar endokrin bagi seorang remaja perempuan. Dia mengalami kitar haid yang tidak teratur.
Rajah 1 menunjukkan kelenjar endokrin bagi seorang remaja perempuan. Dia mengalami kitar haid yang tidak teratur.

Antara bahagian berlabel A, B, C dan D, yang manakah tidak berfungsi dengan baik?
Diagram 1 shows the endocrine glands of a teenage girl. She has an irregular menstrual cycle. Which of the parts labelled A, B, C or D is malfunctioning?

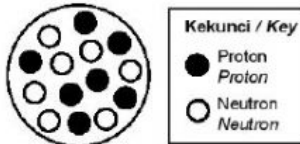


Rajah 1 / Diagram 1

24. Antara aktiviti-aktiviti berikut, yang manakah boleh menjejaskan minda?
Which of the following activities can affect the mind?
- A Bersukan
Doing sport
B Bekerja kuat
Working hard
C Mengambil dadah
Taking drugs
D Terperangkap dalam kesesakan lalu lintas
Getting trapped in traffic congestion

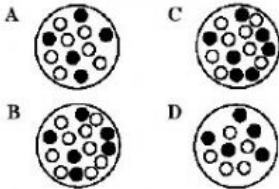
Soalan Objektif

25. Rajah 1 menunjukkan nukleus bagi satu atom X.
Diagram 1 shows the nucleus of atom X.



Rajah 1 / Diagram 1

Antara yang berikut, yang manakah isotop bagi atom X?
Which of the following is the isotope for atom X? **KBAT** Menganalisis



26. Antara yang berikut, yang manakah sebatian ion?
Which of the following is an ionic compound?

- A Besi / Iron
B Plumbum bromida / Lead bromide
C Ammonia / Ammonia
D Oksigen / Oxygen

27. Nombor nukleon bagi atom P ialah 20 dan nombor neutron ialah 10. Apakah bilangan protonnya?
The nucleon number of atom P is 20 and the neutron number is 10. What is the number of protons?

- A 10 C 30
B 20 D 40

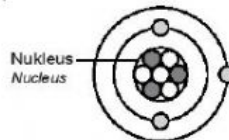
28. Rajah 2 menunjukkan suatu Jadual Berkala yang tidak lengkap. Antara unsur A, B, C dan D, yang manakah mempunyai 22 proton?
Diagram 2 shows an incomplete Periodic Table. Which element, A, B, C or D has 22 protons?

Rajah 2 / Diagram 2

29. Pernyataan yang manakah betul tentang struktur atom?
Which statement is correct about the structure of atom?

- A Mempunyai satu nukleus / Has a nucleus
B Neutron bercas positif / Positively-charged neutron
C Nukleus terdiri daripada elektron sahaja / The nucleus consists of electrons only
D Jisim proton sama dengan jisim elektron / The mass of proton is equal to the mass of electron

30. Rajah 3 menunjukkan struktur bagi atom P.
Diagram 3 shows the structure of atom P.



Rajah 3 / Diagram 3

Antara pernyataan berikut, yang manakah benar tentang proton?
Which of the following statements is true about proton?

- A Atom P mempunyai empat proton / Atom P has four protons
B Proton bercas negatif / Proton is negatively-charged
C Proton terletak di dalam nukleus / Proton is located in the nucleus
D Proton bergerak mengelilingi nukleus / Proton moves around the nucleus

31. Rajah 4 menunjukkan satu unsur dalam Jadual Berkala.
Diagram 4 shows an element in the Periodic Table.

13	Al
	Aluminium
	27

Rajah 4 / Diagram 4

Berapakah bilangan elektron bagi atom tersebut?
What is the number of electrons of the atom?

- A 13
B 14
C 27
D 40

32. Rajah 5 menunjukkan Jadual Berkala yang tidak lengkap.
Diagram 5 shows an incomplete Periodic Table.

Rajah 5 / Diagram 5

Antara yang berikut, yang manakah sifat X yang betul?
Which of the following is the correct property of X?

- A Pudar / Dull
B Penebat haba yang baik / Good heat insulator
C Takat lebur yang rendah / Low melting point
D Boleh mengkonduksikan elektrik / Able to conduct electricity

33. Jadual 1 menunjukkan unsur P, Q, R dan S dengan bilangan proton, bilangan elektron dan bilangan neutron masing-masing.
Table 1 shows elements P, Q, R and S with their respective number of protons, electrons and neutrons.

Unsur / Element	P	Q	R	S
Bilangan proton / Number of protons	5	6	6	7
Bilangan elektron / Number of electrons	5	6	6	7
Bilangan neutron / Number of neutrons	6	6	7	7

Jadual 1 / Table 1

Unsur-unsur yang manakah adalah isotop?
Which elements are isotopes?

- A P dan / and Q
B P dan / and R
C Q dan / and R
D R dan / and S