



PECUTAN
AKHIR
BIOLOGI
A+

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10.00 PM

SATURDAY
5 MARCH 2023

LIVE AT



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SCAN TO
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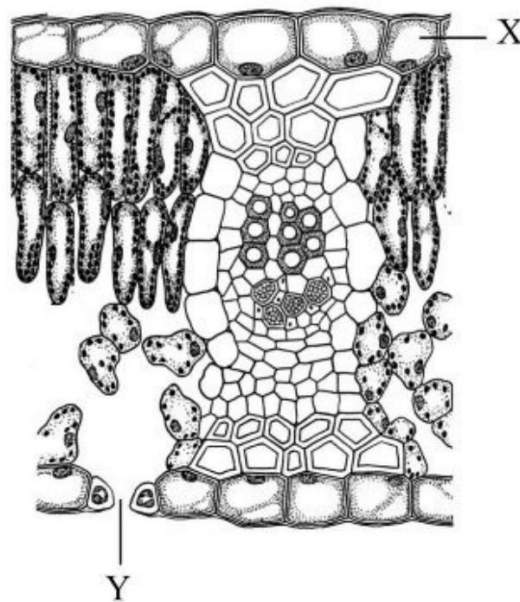
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BIOLOGY PAPER 2 (4551/2)
SECTION A (STRUCTURE-BASED)

Rajah 6.1 menunjukkan keratan rentas daun.

Diagram 6.1 shows a cross section of a leaf.



Rajah 6.1/ *Diagram 6.1*

- (a) Nyatakan **dua** adaptasi struktur X yang terdapat pada daun.
*State **two** adaptations of structure X found in leaves.*

.....
.....

[2 markah/ 2 marks]

- (b) Nyatakan peranan struktur berlabel Y dalam fotosintesis.
State the role of structure Y in photosynthesis.

.....

[1 markah/ 1 mark]

(c) Maklumat berikut adalah mengenai struktur Y.

The following information is about structure Y.

Proses pembukaan dan penutupan struktur Y dikawal oleh sel pengawal. Proses ini dipengaruhi oleh keamatan cahaya dan juga kehadiran air. Pada waktu pagi struktur Y akan tertutup dan ia akan terbuka pada waktu tengahari.

The process of opening and closing of structure Y is controlled by the guard cell. This process is affected by the light intensity and also the presence of water. In the morning the structure Y will be closed and it will open at noon.

Berdasarkan kenyataan di atas, terangkan bagaimana perubahan struktur Y dari waktu pagi sehingga waktu tengahari boleh berlaku?

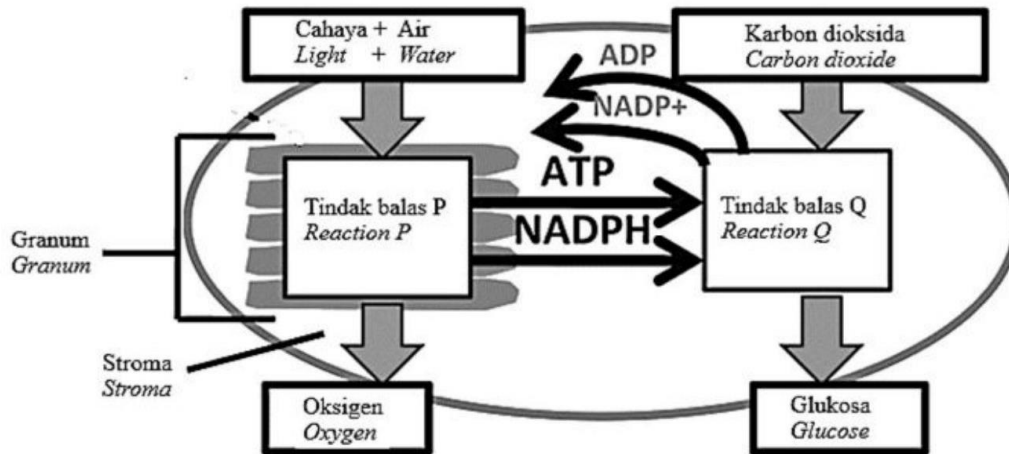
Based on the statement above, explain how can the change in structure Y from morning to afternoon occur?

.....
.....
.....
.....

[3 markah/ 3 marks]

- (d) Rajah 6.2 menunjukkan tindak balas yang berlaku di dalam komponen kloroplas semasa fotosintesis.

Diagram 6.2 shows the reactions that take place in the chloroplast components during photosynthesis.



Rajah 6.2/ Diagram 6.2

Berdasarkan Rajah 6.2, apakah perbezaan tindak balas P dan tindak balas Q.

Based on Diagram 6.2, what is the difference between reaction P and reaction Q.

Tindak balas P <i>Reaction P</i>	Tindak balas Q <i>Reaction Q</i>

[2 markah/ 2 marks]

8. Rajah 8.1 menunjukkan seorang individu yang menjalankan fermentasi X.
Diagram 8.1 shows an individual that carry out fermentation X.



Rajah 8.1/ *Diagram 8.1*

- (a) (i) Terangkan kepentingan proses fermentasi X.
Explain the importance of fermentation X process.

.....
.....
.....
.....

[2 markah / 2 marks]

- (ii) Nyatakan perbezaan antara proses fermentasi X dan respirasi aerob berdasarkan aspek berikut:

State the difference between fermentation X and aerobic respiration based on the following aspects:

Aspek <i>Aspect</i>	Fermentasi X <i>Fermentation X</i>	Respirasi Aerob <i>Aerobic respiration</i>
Penguraian glukosa <i>Breakdown of glucose</i>		
Hasil tindak balas penguraian glukosa <i>The product of the breakdown of glucose</i>		
Tempat berlaku <i>Places occur</i>		

[3 markah / 3 marks]

- (iii) Penghasilan yogurt menggunakan kaedah fermentasi X.

Terangkan mengapa yogurt menjadi rosak sekiranya tidak disimpan di dalam peti sejuk.

Yogurt production uses the fermentation X method.

Explain why yogurt spoils if it is not kept in the refrigerator.

.....

.....

.....

[2 markah / 2 marks]

- (b) Rajah 8.2 menunjukkan dinding bronkiol manusia normal dan seorang pelajar yang menghidapi penyakit P.

Diagram 8.2 shows the bronchiole wall of a normal human and a human suffering disease P.



Bronkiol normal
Normal bronchiole



Dinding bronkiol pesakit
menjadi bengkak dan menebal
*Inflamed and thickened
bronchiole wall*

Rajah 8.2 / *Diagram 8.2*

Pelajar ini aktif menyertai kejohanan sukan di sekolahnya. Beliau sentiasa membawa alat sedut bersamanya.

Wajarkan tindakannya yang sentiasa membawa alat sedut tersebut.

This student actively participates in sports tournaments at his school. He always carries an inhaler with him.

Justify his action of always carrying the inhaler.

.....

.....

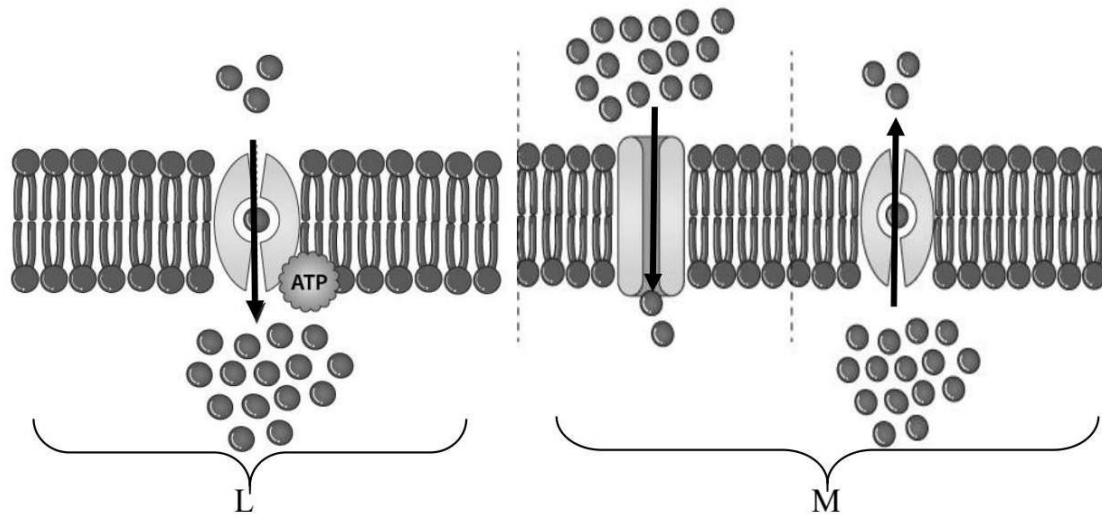
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.....

[2 markah / 2 marks]

4. Rajah 4 menunjukkan proses pergerakan bahan merentas membran plasma.

Diagram 4 shows a process of movement of substances across the plasma membrane.



Rajah 4
Diagram 4

(a)(i) Berdasarkan Rajah 4, namakan jenis pergerakan tersebut.

Based on Diagram 4, name the type of movement.

L:

M:

[2 markah]
[2 marks]

(ii) Nyatakan satu contoh bahan yang dapat merentasi membran plasma pada M.

State one example of substance that able to move across plasma membrane at M.

.....

[1 markah]
[1 mark]

(b) Bezakan kedua-dua proses L dan M.

Differentiate both processes L and M.

L	M

[2 markah]
[2 marks]

(c) Setelah bermain futsal, anda berasa dahaga dan menyedari kehilangan air dan elektrolit seperti kalium dan natrium melalui perpeluhan. Cadang dan terangkan strategi untuk menggantikan kehilangan kedua-dua bahan tersebut.

After playing futsal, you felt thirsty and realised that lost of water and electrolytes such as potassium and sodium through perspiration. Suggest and explain strategy to recover the lost of those substances.

.....

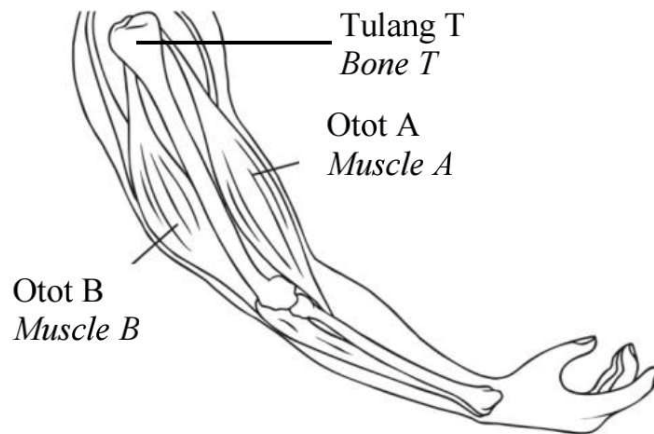
.....

.....

[2 markah]
[2 marks]

5. Rajah 5.1 menunjukkan pergerakan lengan yang melibatkan tisu yang berbeza.

Diagram 5.1 shows a movement of forearm involves different tissues.



Rajah 5.1

Diagram 5.1

(a) Berdasarkan Rajah 5.1, namakan jenis rangka dan tulang T

Based on Diagram 5.1, name type of skeleton and bone T

Jenis rangka :

Type of skeleton

Tulang T :

Bone T

[2 markah]

[2 marks]

(b) Terangkan bagaimana kedua-dua otot A dan B berfungsi seperti pergerakan lengan yang ditunjukkan dalam Rajah 5.1.

Explain how both muscles A and B work as the movement of the forearm shown in Diagram 5.1.

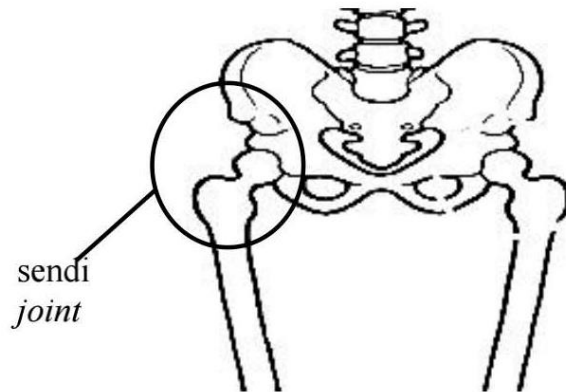
.....

[2 markah]

[2 marks]

(c) Rajah 5.2 menunjukkan sejenis sendi pada manusia.

Diagram 5.2 shows a type of joint in human.



Rajah 5.2

Diagram 5.2

Terangkan kesan jika sendi seperti Rajah 5.2 mengalami kerosakan.

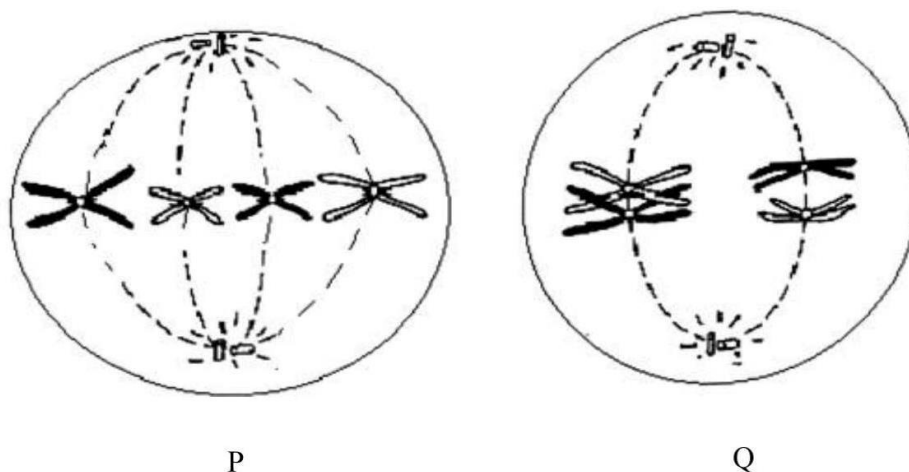
Explain the effect if joint as shown in Diagram 5.2 is damaged.

.....
.....
.....

[2 markah]
[2 marks]

8. Rajah 8.1 menunjukkan dua sel haiwan yang menjalani pembahagian sel P dan pembahagian sel Q.

Diagram 8.1 shows two animal cells undergoing cell divisions P and Q.



Rajah 8.1
Diagram 8.1

(a) Namakan jenis pembahagian sel P dan pembahagian sel Q.

Name the type of cell divisions P and Q.

P :

Q :

[2 markah]
[2 marks]

(b) Pembahagian sel Q adalah penting dalam pembiakan seks. Pembahagian sel ini memastikan bilangan kromosom dikekalkan dari satu generasi ke generasi yang seterusnya. Terangkan bagaimana ini berlaku.

Cell division Q is important in sexual reproduction. The cell division ensures the diploid number of chromosomes is maintained from one generation to another.

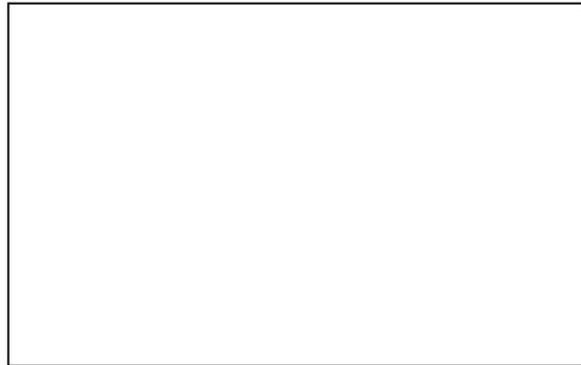
Explain how this occur.

.....

[2 markah]
[2 marks]

(c) Dalam ruang di bawah, lukis dan label peringkat selepas P.

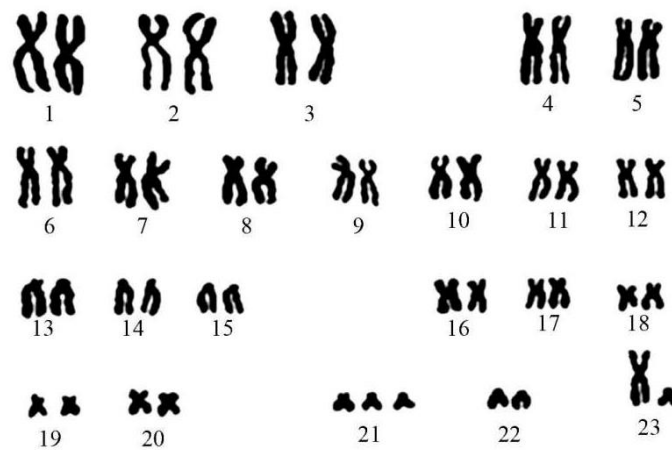
In the space below, draw and labelled the stage after P.



[2 markah]
[2 marks]

(d) Rajah 8.2 menunjukkan set lengkap kromosom seorang individu.

Diagram 8.2 shows a complete set of an individual chromosomes.



Rajah 8.2

Diagram 8.2

(i) Nyatakan penyakit genetik yang dihidapi oleh individu tersebut.

State the genetic disorder suffered by the individual.

.....

[1 markah]
[1 mark]

(ii) Terangkan bagaimana individu ini boleh menghadapi penyakit genetik tersebut.

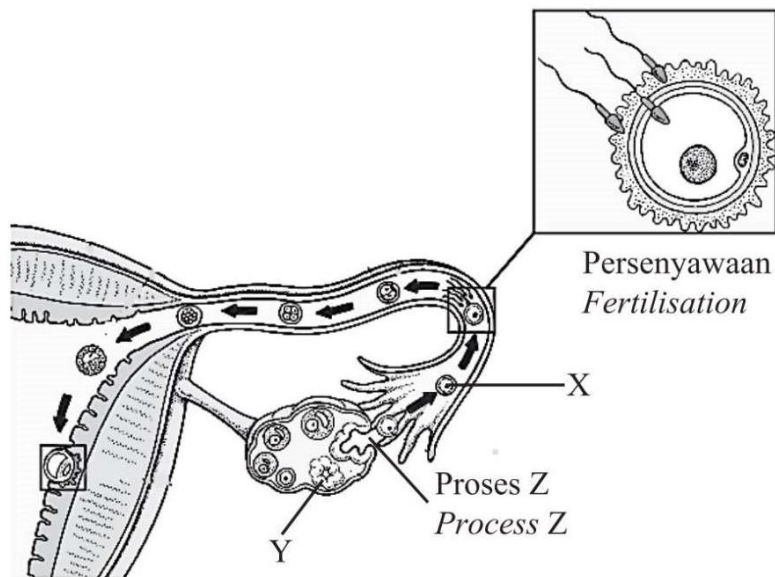
Explain how the individual get the genetic disease.

.....
.....
.....

[2 markah]
[2 marks]

5 Rajah 5.1 menunjukkan proses yang berlaku di ovari dan tiub Falopio.

Diagram 5.1 shows the processes that take place in the ovary and Fallopian tube.



Rajah 5.1
Diagram 5.1

(a) (i) Namakan struktur X.
Name structure X.

.....
[1 markah]
[1 mark]

(ii) Nyatakan hormon yang terlibat dalam proses Z.
State the hormone involved in the process Z.

.....
[1 markah]
[1 mark]

(iii) Terangkan kesan jika hormon yang dinyatakan di 5(a)(ii) tidak dihasilkan.
Explain the effect if the hormone stated in 5(a)(ii) is not produced.

.....
.....
.....
[2 markah]
[2 marks]

- (b) Struktur X telah disenyawakan di dalam tiub Falopio.
Terangkan peranan struktur Y semasa kehamilan.

Structure X was fertilised in the Fallopian tube.

Explain the role of structure Y during pregnancy.

.....

.....

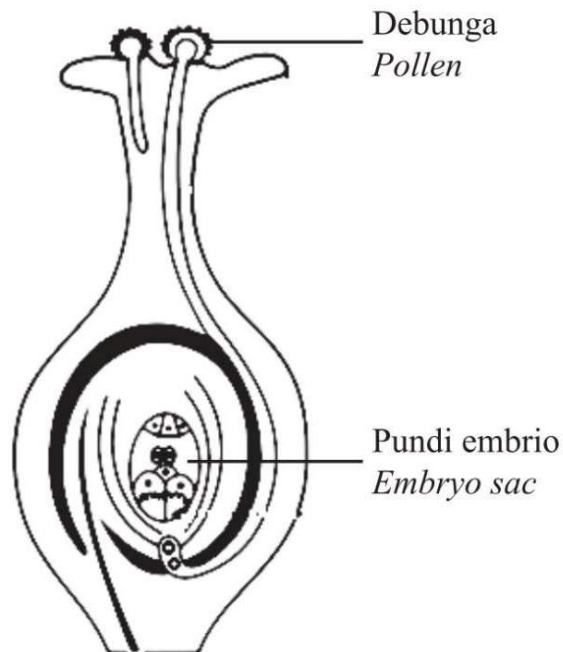
.....

.....

[2 markah]

[2 marks]

- (c) Rajah 5.2 menunjukkan proses persenyawaan di dalam tumbuhan berbunga.
Diagram 5.2 shows the fertilisation process in a flowering plant.



Rajah 5.2
Diagram 5.2

Nyatakan **satu** persamaan dan **satu** perbezaan antara persenyawaan dalam Rajah 5.1 dengan Rajah 5.2.

State one similarity and one difference between the fertilisation in Diagram 5.1 and Diagram 5.2.

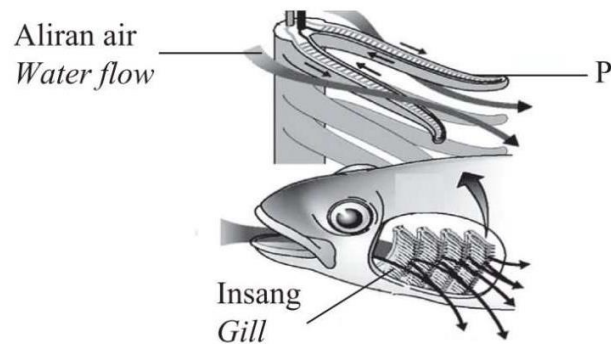
Persamaan :
Similarity

Perbezaan :
Difference

[2 markah]
 [2 marks]

6 Rajah 6.1 menunjukkan struktur respirasi ikan.

Diagram 6.1 shows the respiratory structure of fish.



Rajah 6.1
Diagram 6.1

- (a) (i) Berdasarkan Rajah 6.1, namakan P.
Based on Diagram 6.1, name P.

.....
[1 markah]
[1 mark]

- (ii) Ikan mempunyai bilangan P yang banyak. Apakah tujuannya?
Fish have a large number of P. What is the purpose?

.....
[1 markah]
[1 mark]

- (b) Kepekatan oksigen di udara adalah lebih tinggi berbanding di dalam air. Namun, sekiranya ikan berada di atas darat, ia akan tercungap-cungap kerana kekurangan oksigen.

Dengan menggunakan pengetahuan biologi anda, jelaskan mengapa perkara ini berlaku.

The concentration of oxygen in the air is higher than in water. However, if the fish is on land, it will be gasping due to lack of oxygen.

Using your biological knowledge, explain why this matter occurs.

.....
.....
.....
.....
[3 markah]
[3 marks]

- (c) Rajah 6.2 menunjukkan bronkus individu yang sihat dan bronkus individu yang menghidap bronkitis.

Diagram 6.2 shows bronchi of a healthy individual and bronchi of an individual with bronchitis.



Rajah 6.2
Diagram 6.2

- (i) Nyatakan **satu** faktor yang menyebabkan bronkitis.

*State **one** factor that causes bronchitis.*

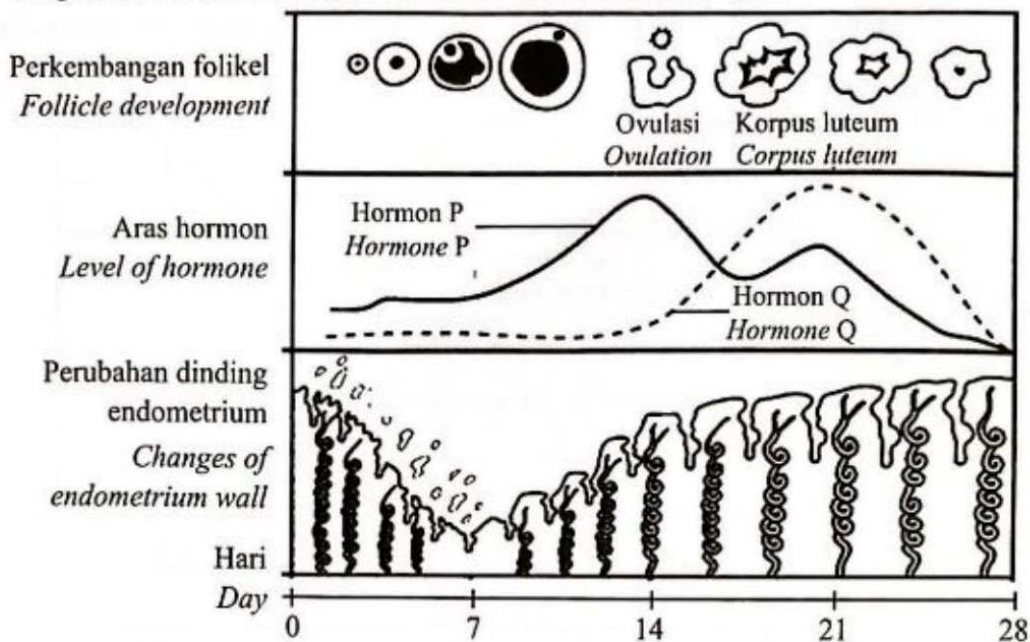
.....
[1 markah]
[1 mark]

- (ii) Terangkan perbezaan struktur bronkus yang normal dengan bronkus yang menghidap bronkitis.

Explain the differences between the structure of a normal bronchi and bronchi with bronchitis.

.....
.....
.....
[2 markah]
[2 marks]

5 Rajah 5 menunjukkan perubahan yang berlaku dalam satu kitar haid.
 Diagram 5 shows the changes that occurred in a menstrual cycle.



Rajah 5
 Diagram 5

(a) (i) Namakan hormon P.
 Name hormone P.

.....
 [1 markah]
 [1 mark]

(ii) Nyatakan peranan hormon P dalam kitar haid.
 State the role of hormone P in menstrual cycle.

.....
 [1 markah]
 [1 mark]

(b) Terangkan hubungan antara aras hormon Q dan perubahan dinding endometrium pada hari ke-14 hingga hari ke-21.
 Explain the relationship between the level of hormone Q and the changes of endometrium wall on day 14 to day 21.

.....

 [2 markah]
 [2 marks]

- (c) Puan S mengambil pil perancang bagi mencegah kehamilan. Pil tersebut mengandungi hormon Q dan sedikit hormon P. Doktor menasihati beliau supaya mengambil pil tersebut pada hari pertama kedatangan haid dan berhenti pada hari ke-22.

Madam S took contraceptive pills to prevent pregnancy. The pills contain hormone Q and small amount of hormone P. The doctor advised her to take the pill on the first day of menstruation and stop on the 22nd day.

Terangkan bagaimana pengambilan pil perancang dapat menghalang kehamilan.

Explain how taking contraceptive pills able to prevent pregnancy.

.....

.....

.....

[2 markah]

[2 marks]

- (d) Selepas ovulasi, korpus luteum terbentuk. Keadaan korpus luteum dan ketebalan dinding endometrium bergantung kepada persenyawaan di antara ovum dan sperma.

After ovulation, the corpus luteum is formed. The condition of corpus luteum and the thickness of endometrium wall depends on the fertilisation between ovum and sperm.

Nyatakan perbezaan bagi keadaan korpus luteum dan dinding endometrium dalam situasi berikut:

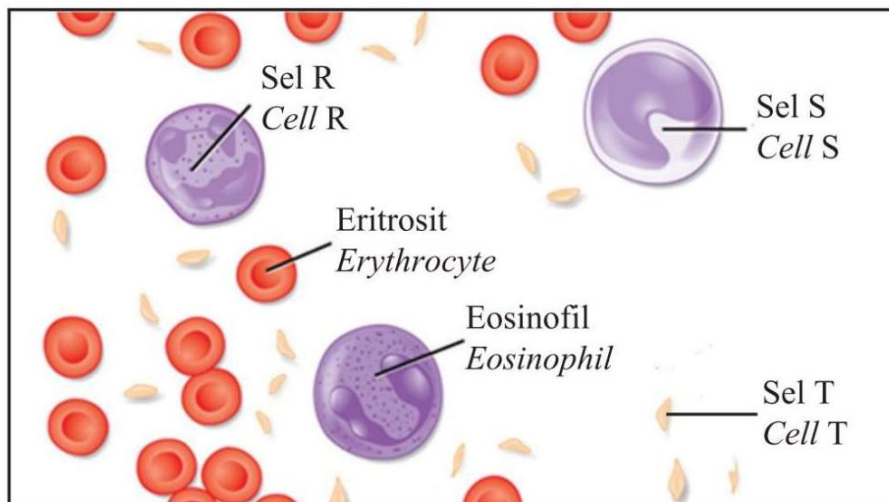
State the difference for the condition of corpus luteum and the endometrium wall in the following situation:

Situasi <i>Situation</i>	Persenyawaan berlaku <i>Fertilisation occurs</i>	Persenyawaan tidak berlaku <i>Fertilisation does not occur</i>
Keadaan korpus luteum <i>Condition of corpus luteum</i>		
Keadaan dinding endometrium <i>Condition of endometrium wall</i>		

[2 markah]

[2 marks]

- 8 Rajah 8.1 menunjukkan beberapa jenis sel darah manusia.
Diagram 8.1 shows several types of human blood cells.



Rajah 8.1
Diagram 8.1

- (a) (i) Nyatakan fungsi sel T.
State function of cell T.

.....
 [1 markah]
 [1 mark]

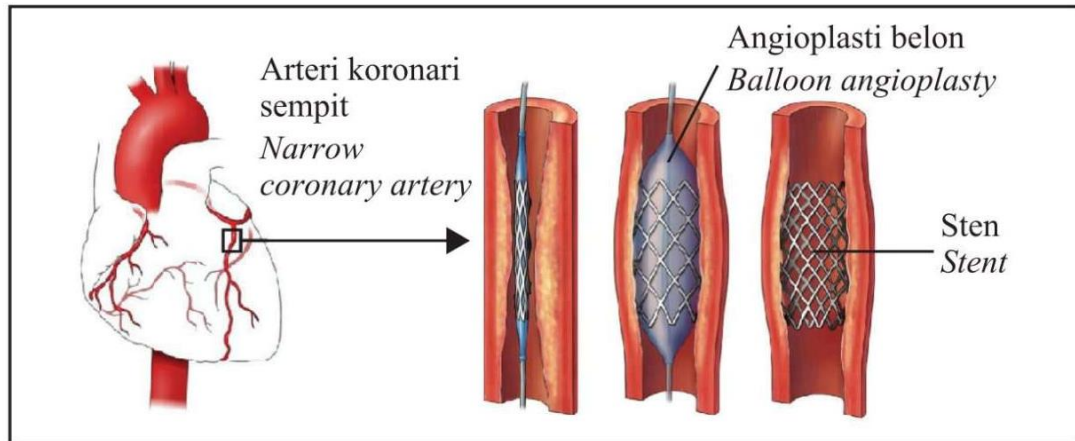
- (ii) Bandingkan sel R dan sel S.
Compare cell R and cell S.

.....

 [3 markah]
 [3 marks]

- (b) (i) Rajah 8.2 menunjukkan salah satu kaedah rawatan bagi merawat pesakit yang mengalami arteri koronari yang tersumbat.

Diagram 8.2 shows one of the methods for the treatment to treat patients with blocked coronary arteries.



Rajah 8.2
Diagram 8.2

Angioplasti koronari adalah satu prosedur yang melebarkan arteri yang sempit atau tersumbat. Prosedur ini melibatkan belon kecil yang dimasukkan secara sementara untuk melebarkan lumen arteri.

Justifikasikan kepentingan prosedur tersebut kepada pesakit.

Coronary angioplasty is a procedure to widen narrowed or blocked arteries. The procedure involves temporarily inserting a tiny balloon to widen the lumen of the artery.

Justify the importance of this procedure to the patient.

.....

.....

.....

.....

.....

[3 markah]
[3 marks]

- (ii) Cadangkan menu yang sesuai diambil oleh pesakit tersebut dalam pemakanan hariannya.

Suggest an appropriate menu should be taken by the patient in his daily diet.

.....

.....

.....

[2 markah]

[2 marks]

GOOD LUCK FOR BIOLOGY SPM 2022!