

KOLEKSI SOALAN SPM PERCUBAAN NEGERI
FORM 5 BIOLOGY CHAPTER 4: REPRODUCTION AND GROWTH

QUESTION 1 - 2014 PAHANG

Diagram 5.1 shows female hormonal levels during the menstrual cycle.

Rajah 5.1 menunjukkan aras hormon perempuan semasa kitaran haid.

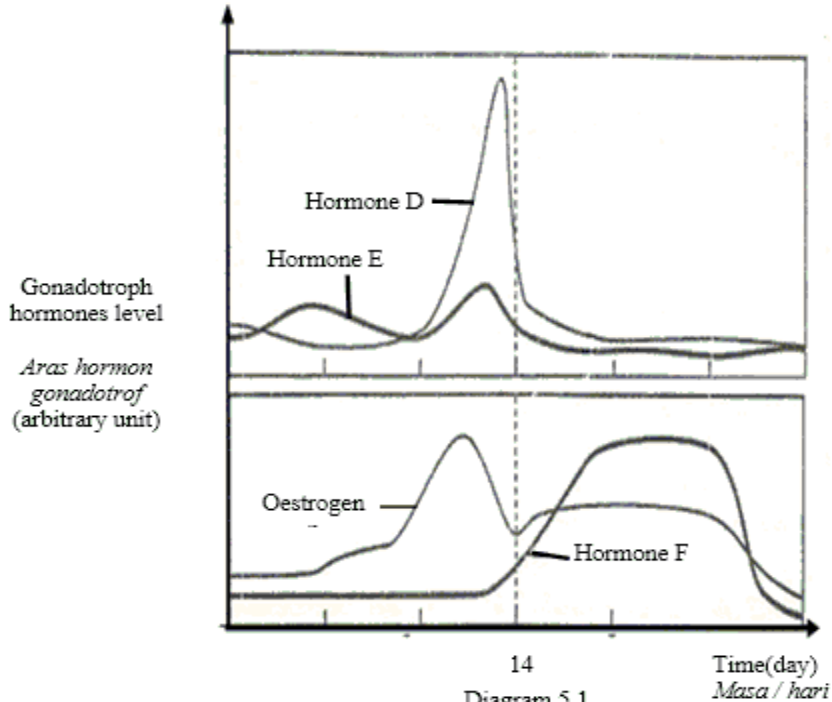


Diagram 5.1
Rajah 5.1

- (a) (i) Based on Diagram 5.1, name hormone D and E.
Berdasarkan Rajah 5.1, namakan hormon D dan E.

Hormone/*Hormon* D : _____

Hormone/*Hormon* E : _____

[2 marks]
 [2 markah]

- (ii) Explain the function of hormone D and E.
Terangkan fungsi hormon D dan E.

Hormone/*Hormon* D : _____

Hormone/*Hormon* E : _____

[2 marks]
 [2 markah]

(iii) Relate the level of hormone F to changes in thickness of the endometrium.

Hubungkan aras hormon X dengan perubahan dalam ketebalan endometrium

[2 marks]
[2 markah]

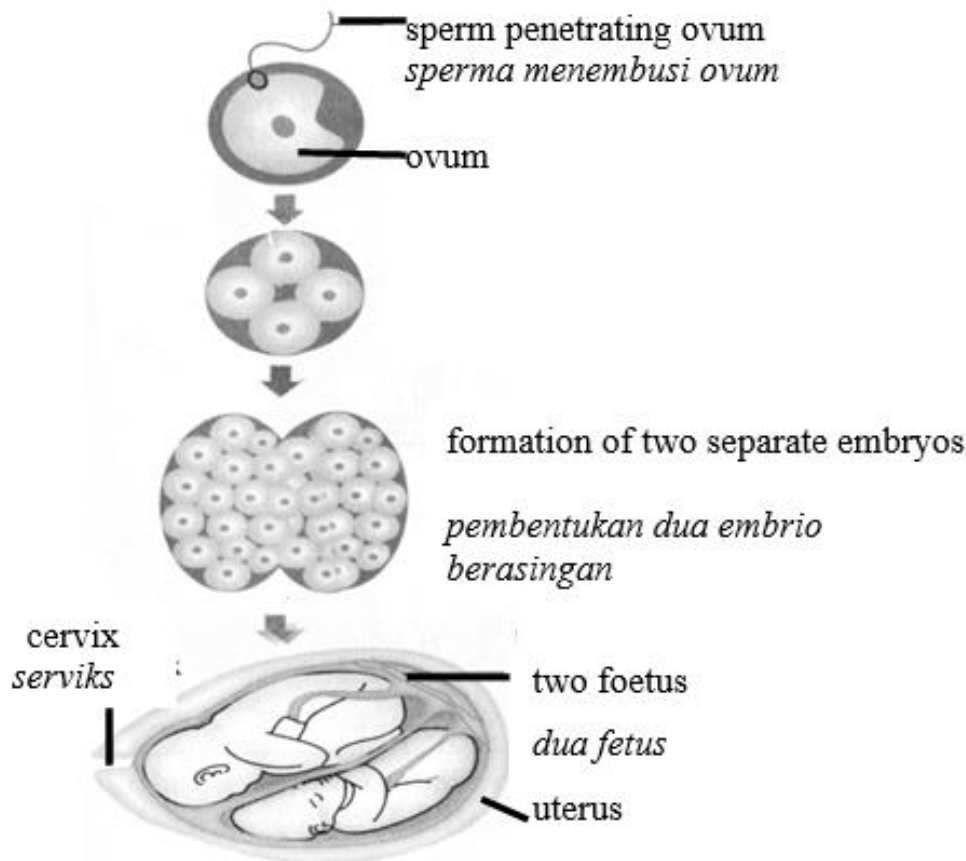


Diagram 5.2
Rajah 5.2

Diagram 5.1 shows the formation of identical twins.
Rajah 5.1 menunjukkan pembentukan kembar seiras.

- (b) (i) The production of sperm and ovum occurs through a cell division process. State the process.
Penghasilan sperma dan ovum berlaku melalui proses pembahagian sel. Nyatakan proses tersebut.

[1 mark]
[1 markah]

- (i) There are two main types of twins based on their mode of formation, one of it is shown in Diagram 5.2. State the other types of the twins and two differences between the twins in table below.

Terdapat dua jenis kembar berdasarkan mod pembentukan, salah satunya seperti ditunjukkan dalam Rajah 5.2. Nyatakan jenis kembar yang kedua dan perbezaan di antara keduanya dalam jadual di bawah.

Identical twins	

[3 marks]
[3markah]

- (c) Why are annual growth rings very distinct in wood from temperate forests?

Mengapa gelang tahunan pokok daripada hutan negara empat musim sangat jelas?

[2 marks]
[2 markah]

Suggested Answer

a.i	Hormone D: LSH / luteinising hormone Hormone E: FSH / follicle stimulating hormone							
a.ii	Hormone D: stimulates ovulation / growth of corpus luteum / secretion of oestrogen and progesterone Hormone E: stimulates growth of follicles (in ovary)							
a.iii	P1: Hormone F is progesterone P2: (the hormone) is to maintain the thickening of endometrium / uterus wall P3: the higher level of progesterone, the thicker the endometrium / uterus wall							
b.i	Meiosis							
ii	<table border="1"> <tr> <td>Identical twins</td> <td><u>*Non identical / fraternal twins – 1 mark</u></td> </tr> <tr> <td>D1. A sperm fertilises an ovum</td> <td>D1. 2 sperms fertilises 2 ovums seperately</td> </tr> <tr> <td>D2. form an embryo // develop into a foetus</td> <td>D2. forms 2 embryos // develop into 2 feotus</td> </tr> </table>		Identical twins	<u>*Non identical / fraternal twins – 1 mark</u>	D1. A sperm fertilises an ovum	D1. 2 sperms fertilises 2 ovums seperately	D2. form an embryo // develop into a foetus	D2. forms 2 embryos // develop into 2 feotus
Identical twins	<u>*Non identical / fraternal twins – 1 mark</u>							
D1. A sperm fertilises an ovum	D1. 2 sperms fertilises 2 ovums seperately							
D2. form an embryo // develop into a foetus	D2. forms 2 embryos // develop into 2 feotus							

	D3. has one placenta	D3. has 2 placenta	
	D4. so, sharing placenta	D4. has its own placenta	
	D5. same genetic constituent	D4. different genetic constituent	
	D6. same physical features	D6. different physical features	
	D7. same gender	D7. same / different gender	
			Any 2 + 1*
c	P1: the activity of vascular cambium is not uniform throughout the year P2: in spring, the cambium is more active P3: and forms larger and thinner-walled xylem vessels P4: in autumn, the cambium less active P5: so forms narrower vessels/ fibre		

QUESTION 2 - PAHANG JUJ

Diagram 5.1 shows the structure of plant reproduction organ.

Rajah 5.1 menunjukkan struktur organ pembiakan tumbuhan.

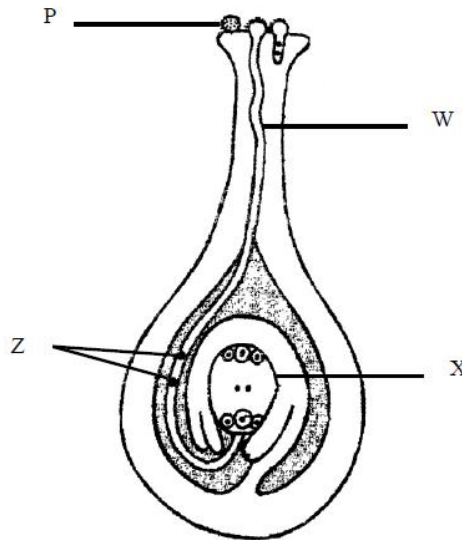


Diagram 5
Rajah 5

(a) Based on Diagram 5, name the structures W, X and Z.

Berdasarkan Rajah 5, namakan struktur W, X dan Z.

W: _____

X: _____

Z: _____

[3 marks]

(b) (i) Explain the function of structure W.

Terangkan fungsi struktur W.

[2marks]

(ii) Describe the process occur when the structure W enters the structure X.

Huraikan proses yang berlaku bila struktur W memasuki struktur X.

[3marks]

(c) Explain the process in (b)(ii) is important for the survival of flowering plant.

Terangkan bagaimana proses dalam (b)(ii) penting untuk kemandirian tumbuhan berbunga.

[3marks]

(d) Suggest how to prevent the germination of structure P.

Cadangkan bagaimana mencegah percambahan struktur P.

[2marks]

Suggested Answer

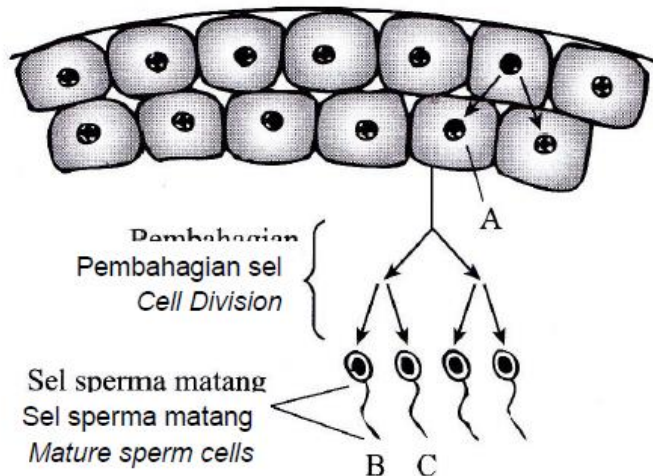
(a)	W: Tiub debunga X: Pundi embrio Y: Gamet jantan
(b) (i)	P1 - (tiub debunga) memanjang dan bertumbuh melalui stil P2 - ke arah ovari/ ovul P3 - dengan merembeskan enzim untuk mencernakan / menguraikan tisu yang dilaluinya
(ii)	P1 - Satu gamet jantan/ struktur Z bercantum dengan sel telur untuk menghasilkan zigot diploid P2: Gamet jantan yang satu lagi akan bercantum dengan dua nukleas kutub untuk membentuk nukleus (endosperma) yang triploid P3 - dikenali sebagai persenyawaan ganda dua

(c)	<p>P1 : (Akibat pembahagian secara meiosis), mewujudkan variasi dalam keturunan</p> <p>P2: zigot diploid yang terhasil memastikan maklumat genetik dapat diturunkan dalam spesies yang sama.</p> <p>P3: memastikan makanan embrio tersedia ada semasa percambahan biji benih bagi menjamin kejayaan anak tumbuhan</p> <p>P4: Buah melindungi biji benih dan membantu pencaran biji benih ke tempat yang jauh</p> <p>P5: Memastikan persaingan intraspesies dapat dielakkan untuk menjamin kejayaan kemandirian tumbuhan</p>
(d)	<p>P1 : letakkan di tempat yang kering</p> <p>P2 : simpan di dalam bekas yang kedap udara</p>

QUESTION 3 - 2014 JOHOR BATU PAHAT

Diagram 5.1 shows a formation process of sperm in a human testis.

Rajah 5.1 menunjukkan proses pembentukan sperma dalam testis manusia.



Rajah 5.1
Diagram 5.1

(a)(i) Name cell A and state the number of chromosome in cell A and cell B.

Namakan sel berlabel A dan nyatakan bilangan kromosom sel A dan sel B.

CellA/SelA: _____

Type of cell Jenis sel	Cell A/Sel A	Cell B/Sel B
Number of chromosome Bilangan kromosom		

(2 markah / 2 marks)

(ii) Explain what is happen that cause the difference number of chromosome between cell A and cell B.

Terangkan apa yang berlaku yang menyebabkan perbezaan bilangan kromosom antara sel A dan sel B.

[2marks]

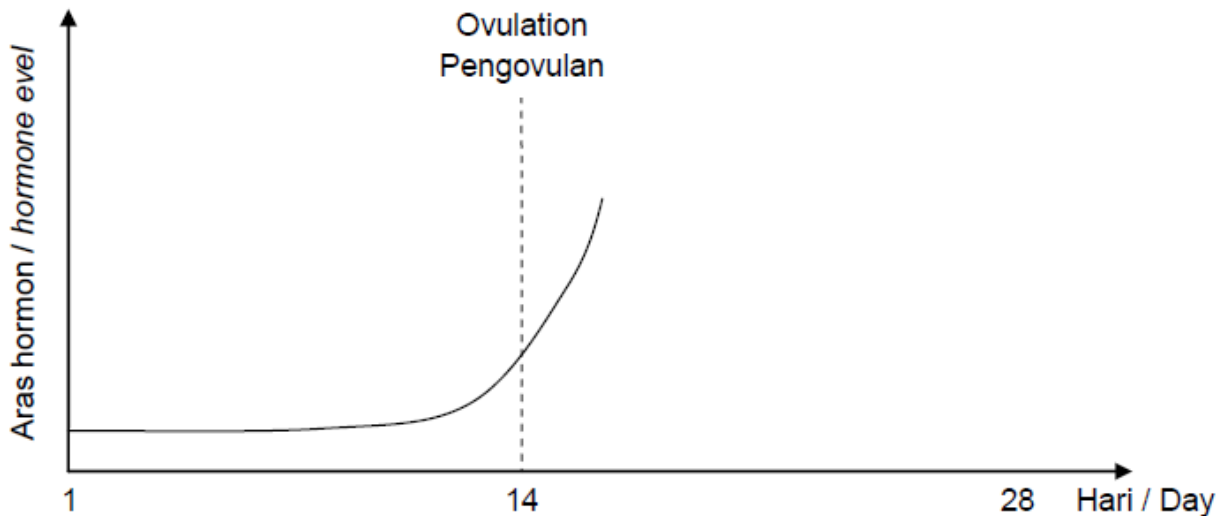
(b) Explain the importance of gamete in humans.

Terangkan kepentingan pembentukan gamet dalam manusia.

[2marks]

(c) Diagram 5.2 below ii a graph that shows the level of progesterone hormone until day 16 in menstruation cycle of a woman.

Rajah 5.2 di bawah ialah graf yang menunjukkan aras hormon progesteron sehingga hari ke-16 dalam kitar haid pada seorang wanita.



Rajah 5.2
Diagram 5.2

Fertilisation process is not occur.

Didapati bahawa proses persenyawaan tidak berjaya berlaku.

(i) In the graph above, complete the graph to shows the level of progesterone hormone after day 16 in that woman.

Pada graf di atas, lengkapkan graf tersebut bagi menunjukkan aras hormon progesteron selepas hari ke-16 pada wanita tersebut.

[1 mark]

- (ii) Based on your answer in (e)(i), explain the relationship between the level of progesterone hormone with menstruation cycle in that woman.

Berdasarkan jawapan pada (e)(i), terangkan hubungan aras hormone progesteron dengan kitar haid pada wanita tersebut.

[2marks]

- (d) Human chorionic gonadotrophin hormone (HCG) has a similar role to luteinising hormone (LH).

Hormon korionik gonadotrop (HCG) manusia mempunyai peranan yang sama seperti hormon peluteinan (LH).

A woman has a problem conceiving due the failure in ovulation. The woman becomes pregnant after a doctor has given her injection of HCG.

Seorang wanita menghadapi masalah tidak boleh hamil disebabkan kegagalan dalam pengovulan. Wanita itu telah hamil selepas doktor memberikannya suntikan HCG.

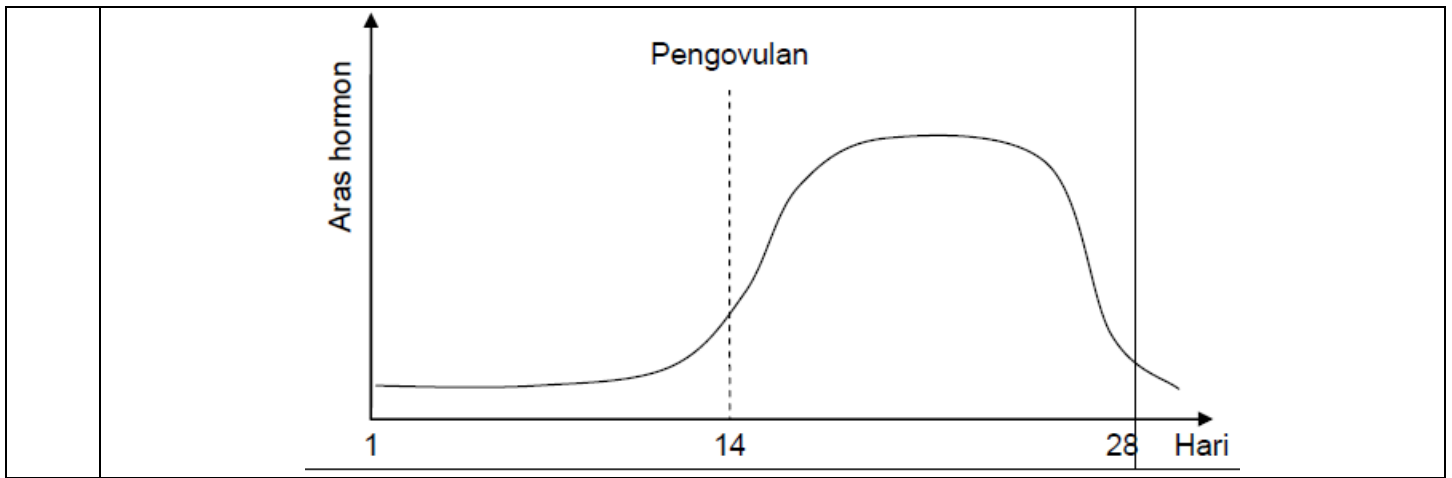
Explain how HCG injection enable the process of pregnancy.

Terangkan bagaimana suntikan HCG membolehkan proses kehamilan.

[3marks]

Suggested Answer

(a)	Set A: Spermatozit primer						
(i)	<table border="1"><thead><tr><th>Jenis sel</th><th>Sel A</th><th>Sel B</th></tr></thead><tbody><tr><td>Bilangan kromosom</td><td>46</td><td>23</td></tr></tbody></table>	Jenis sel	Sel A	Sel B	Bilangan kromosom	46	23
Jenis sel	Sel A	Sel B					
Bilangan kromosom	46	23					
(ii)	<ul style="list-style-type: none">- Sel B mempunyai bilangan kromosom yang separuh daripada sel A- Setelah menjalani proses pembahagian meiosis						
(b)	<ul style="list-style-type: none">- Bagi mengekalkan bilangan kromosom diploid (2n) dari generasi ke generasi- Membolehkan variasi genetik berlaku pada keturunan- Meningkatkan kesinambungan spesies						
(c)	Pada grad di atas, lengkapkan graf tersebut bagi menunjukkan aras hormon						
(i)	progesterone selepas hari ke-15 pada wanita tersebut.						



QUESTION 4- 2014 KELANTAN

Diagram 5.1 shows the thickness of endometrium wall of a normal female while Diagram 5.2 shows the follicle development in ovaries and menstrual cycle calendar.

Rajah 5.1 menunjukkan penebalan dinding endometrium seorang wanita normal manakala Rajah 5.2 menunjukkan perkembangan folikel dalam ovari serta kalendar kitar haid.

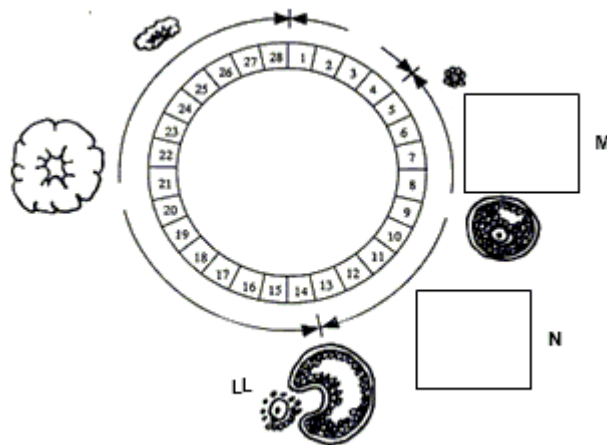
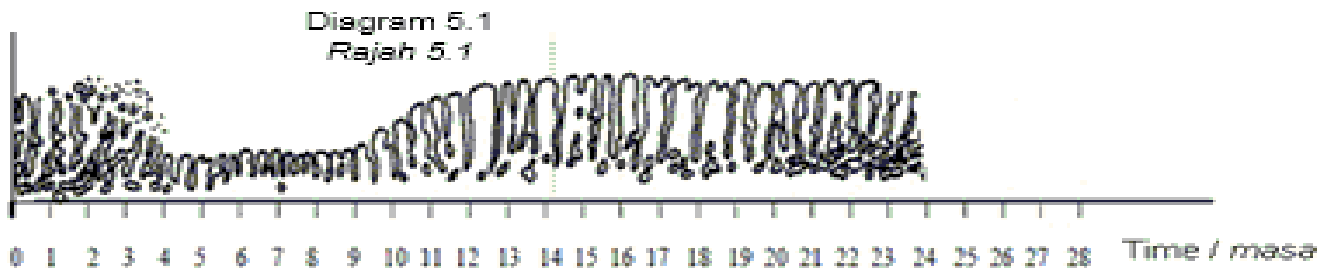


Diagram 5.2

(a)(i) Name the process L
Namakan proses L

[1 markah]

(ii) State the hormone which causes the process in (a)(i)
Nyatakan hormon yang menyebabkan proses di (a)(i)

[1 markah]

(b) Complete the diagrams of the follicle development in boxes M and N
Lengkapkan rajah perkembangan folikel dalam petak M dan N

[2 markah]

(c)(i) On diagram 5.1, complete the graph to show the changes in thickness of endometrium wall based menstrual cycle calendar on diagram 5.2
Pada rajah 5.1, lengkapkan graf untuk menunjukkan perubahan pada ketebalan dinding endometrium berdasarkan calendar kitaran haid pada rajah 5.2

[1 markah]

(ii) Explain why the thickness of the endometrium changes in the way shown in (c)(i)
Terangkan mengapa ketebalan dinding endometrium berubah seperti yang ditunjukkan di (c)(i)

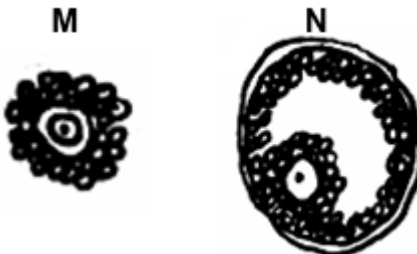
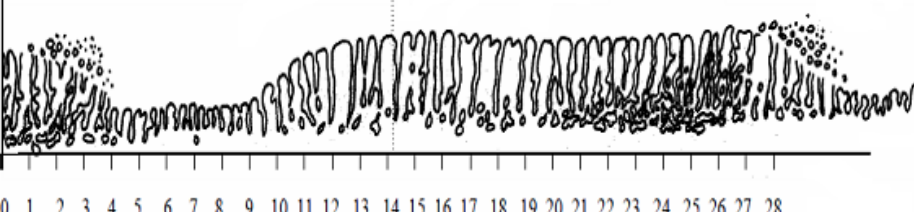
[3 markah]

(d) A modern woman takes family planning pills which containing estrogen and progesterone hormone to make sure them not get pregnant. Explain the effect of this hormone in preventing pregnancy.

Wanita moden mengambil pil perancang keluarga yang mengandungi hormon estrogen dan progesteron untuk memastikan mereka tidak hamil. Terangkan kesan hormon ini dalam membantu mencegah kehamilan.

[4 markah]

Suggested Answer

(a)(i) (ii)	Pengovulan/ovulasi Hormon LH
(b)	
(c)(i)	
(ii)	<p>Boleh menerangkan mengapa ketebalan dinding endometrium berubah : Pada hari ke 24, korpus luteum mulai merosot</p>
(ii)	<p>Penghasilan hormone progesterone oleh korpus luteum semakin berkurang</p> <ul style="list-style-type: none"> - aras proesteron yang semakin berkurang menyebabkan dinding endometrium runtuh - menyebabkan haid
(d)	<p>Boleh menerangkan kesan hormon estrogen dan progesteron dalam membantu mencegah kehamilan :</p> <ul style="list-style-type: none"> - estrogen dalam pil perancang merencat penghasilan FSH - menyebabkan folikel graf tidak berkembang - tiada penghasilan oosit sekunder - progesteron dalam pil perancang pula merencat penghasilan FSH dan LH - ketiadaan FSH menyebabkan folikel graf tidak berkembang - ketiadaan LH menyebabkan ovulasi tidak berlaku - perempuan tidak akan hamil

QUESTION 5 - MELAKA POTENSI GEMILANG

Diagram 10 shows a longitudinal section of a flower during fertilization.

Rajah 10 menunjukkan keratan membujur bunga semasa persenyawaan.

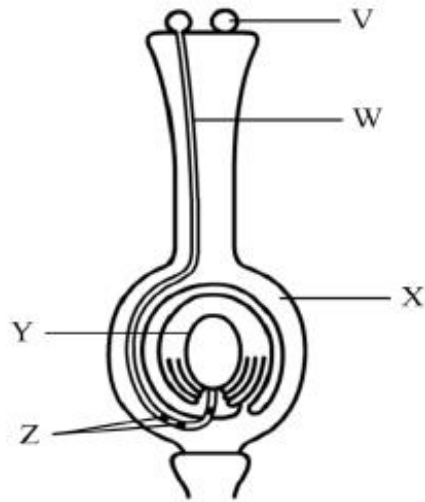


Diagram 10

Rajah 10

(a) Name the structures W, X, Y and Z.

Namakan struktur W, X, Y dan Z.

W: _____

X: _____

Y: _____

Z: _____

[4marks]

(b)(i) Draw a section through the ovule, showing all cells in Y. Labels the cells involved in fertilization.

Lukis keratan melalui ovul yang menunjukkan semua sel dalam Y. Label sel-sel yang terlibat dalam persenyawaan.

[3marks]

(ii) What is the significance of having two Z structures in the fertilization?
Apakah signifikan mempunyai dua struktur Z dalam persenyawaan?

[2 markah]

(c) Structure V has to be kept dormant for future research purposes.
Struktur V hendak disimpan dorman untuk kegunaan penyiasatan di masa depan.

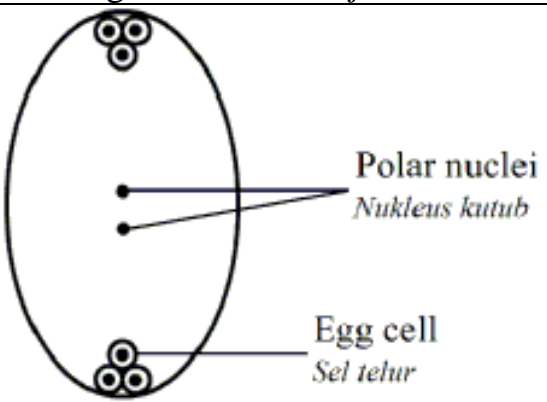
(i) Explain how V can be prevented from germinating.
Jelaskan bagaimana V boleh dielakkan daripada bercambah.

[2 markah]

(ii) Suggest one method to stimulate the germination of V if it is to be germinated.
Cadangkan satu kaedah untuk merangsang percambahan V jika ia ingin dicambahkan.

[1 markah]

Suggested Answers

(a)	<p>W: Pollen tube / pollen <i>Tiub debungan</i> X : Ovary / <i>Ovari</i> Y : Embryo sac / <i>Pundi embrio</i> Z : Male gamete / <i>Gamet jantan</i></p>
(b) (i)	 <p>The diagram shows an oval-shaped embryo sac. At the top, there are three small circles representing polar nuclei. At the bottom, there are three small circles representing an egg cell. Labels with lines pointing to the top circles read 'Polar nuclei' and 'Nukleus kutub'. Labels with lines pointing to the bottom circles read 'Egg cell' and 'Sel telur'.</p>
(ii)	<p>- One Z structure fertilizes an egg cell to form a diploid zygote. <i>Satu struktur Z memsenyawakan satu sel telur untuk membentuk zigot diploid</i> - One more Z structure fuses with two polar nuclei to form a triploid zygote <i>Satu lagi struktur Z bergabung dengan dua nukleus kutub membentuk zigot triploid</i></p>

(c)	- Keep V in a dry place / <i>Simpan V di tempat kering</i>
(i)	- Moisture initiates germination. / <i>Kelembapan mencetuskan percambahan</i>
(ii)	Spraying a sugary solution onto V. / <i>Menyembur larutan gula ke atas V.</i>

QUESTION 5 - MELAKA POTENSI GEMILANG

Diagram 11 shows two types of twins

Rajah 11 menunjukkan dua jenis anak kembar

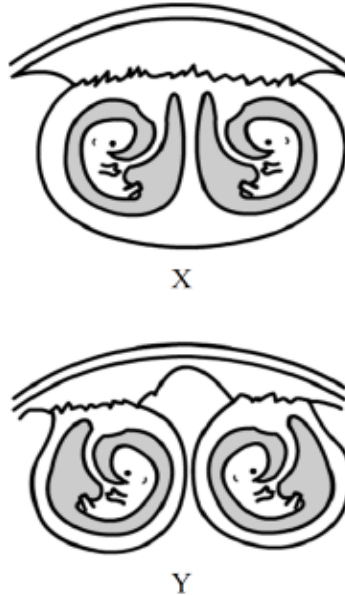


Diagram 11

(a) (i) Name the types of twins X and twins Y.

Namakan jenis kembar X dan Y.

[2 markah]

(ii) Explain how twins Y are formed.

Jelaskan bagaimana kembar Y terbentuk.

[2 markah]

(b) State two functions of placenta.

Nyatakan dua fungsi plasenta.

[2 markah]

- (c) State two differences between twins X and Y.
Nyatakan dua perbezaan antara kembar X dan Y.

[2 markah]

- (d) Explain why twins X that are brought up by two different adopted families do not have the same body size when they are adult.
Jelaskan mengapa kembar X yang dibesarkan oleh dua keluarga angkat yang berbeza tidak serupa badan size apabila dewasa.

[2 markah]

- (e) Give two reasons why a woman who is pregnant should not smoke.
Berikan dua sebab mengapa seorang perempuan yang disahkan hamil tidak patut merokok.

[2 markah]

Suggested Answers

(a)	X : Identical twins <i>Kembar seiras</i>
(i)	Y : Fraternal twins <i>Kembar tak seiras</i>
(ii)	When two ova are released from an ovary at the same time, the ova are fertilised by two different sperms at the same time and two different zygotes are formed, <i>Apabila dua ovum dibebaskan dari ovari pada masa yang sama, setiap ovum disenyawakan oleh dua sperma berlainan pada masa yang sama dan dua zigot berlainan terbentuk.</i>
(b)	- Provides nutrients for the growth of the foetus <i>Membekalkan nutrien untuk perkembangan fetus</i> - Secretes oestrogen and progesterone <i>Merembaskan oestrogen dan progesteron</i>
(c)	- Twins X share the same placenta whereas twins Y have separate placentae. <i>Kembar X berkongsi satu plasenta yang sama manakala kembar Y mempunyai plasenta yang berbeza.</i> - Twins X are similar in physical appearance but twins Y are not. <i>Kembar X sama dari segi rupa fizikal manakala kembar Y tidak</i>
(d)	They have different eating habits and different daily activities. <i>Mereka mempunyai tabiat makan yang berbeza dan aktiviti harian yang berbeza</i>
(e)	- Nicotine can diffuse through the placenta to the foetus and may cause brain damage <i>Nikotin boleh meresap melalui plasenta kepada fetus dan boleh menyebabkan kerosakan otak</i>

- Carbon monoxide can diffuse through the placenta to the foetus and will deprive the foetal tissues from obtaining oxygen.
Karbon monoksida boleh meresap melalui plasenta ke fetus dan akan menghalang tisu fetus daripada mendapat oksigen

QUESTION 6 - 2014 SELANGOR SG. PELEK

Diagram 5 shows the ovarian cycle in human.
Rajah 5 menunjukkan kitar ovari dalam manusia.

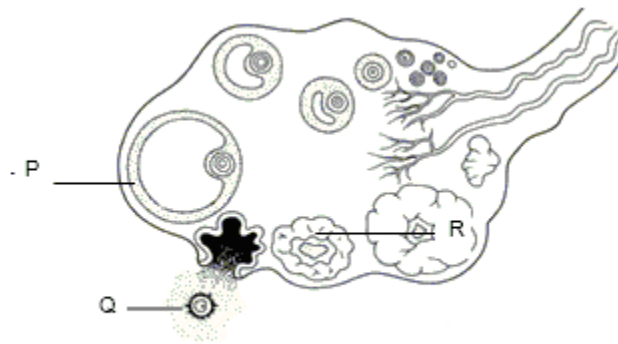


Diagram 5
Rajah 5

(a) Name structures P and R.
Namakan struktur P dan R.

P : _____

R : _____

[2 marks/2 markah]

(b) Explain how structure Q can be released from the ovary.
Terangkan bagaimana struktur Q dibebaskan daripada ovari.

[2 marks/2 markah]

(c) (i) Explain the role of R if fertilisation takes place in the fallopian tube.
Terangkan peranan R jika persenyawaan berlaku dalam tiub falopian.

[2 marks/2 markah]

- (ii) Justify how pregnant mother can maintain her pregnancy as R will degenerates after three months of pregnancy.

Jelaskan bagaimana ibu yang sedang mengandung itu boleh mengekalkan kehamilannya apabila R musnah selepas tiga bulan kehamilannya.

[2 marks/2 markah]

- (d) After giving birth, mothers are encouraged to give some colostrum (mother's milk) to the baby.

Explain the importance of colostrum to the newborn.

Selepas melahirkan anak, ibu-ibu digalakkan memberikan kolostrum (susu ibu) kepada bayinya.

Terangkan kepentingan kolostrum kepada bayi yang baru lahir itu.

[2 marks/2 markah]

- (e) A happily married couple unable to have children because the wife has a blockage in the Fallopian tube.

Describe how the couple can overcome this condition to have their own baby.

Satu pasangan bahagia yang telah berkahwin tetapi mereka gagal mendapat anak kerana tiub Fallopian isteri tersumbat.

Huraikan bagaimana pasangan tersebut mengatasi masalah itu bagi mendapat anak mereka sendiri.

[2 marks/2 markah]

Suggested Answers

(a)	P : Graafian follicle R : Corpus luteum
(b)	Able to name how structure Q is released from the ovary. P1 : by ovulation P2 : due to high concentration of LH P3 : cause rupture of Graafian follicle
(c) (i)	Able to explain the role of R if fertilisation takes place. Answer : P1 : R secretes progesterone P2 : to thicken the endometrium P3 : for implantation of embryo in uterus

(ii)	<p>Able to justify how pregnant mother can maintain her pregnancy if R degenerates.</p> <p>Answer : P1 : Placenta will take over the role of R P2 : by secreting progesterone P3 : to maintain the thickness of endometrium</p>
(d)	<p>Able to explain the importance of colostrum.</p> <p>Answer : P1 : colostrum is rich with antibodies from mother P2 : provide temporary immunity to baby against infection P3 : give passive natural immunity</p>
(e)	<p>Able to describe how the couple overcome infertility.</p> <p>Answer : P1: carry out in vitro fertilisation (IVF) or GIFT P2 : ovum from the wife and sperm from the husband are fertilised in the test tube containing culture solution P3 : then embryo is inserted into the wife's uterus for implantation</p>

QUESTION 7 - 2014 SELANGOR SG. PELEK

Diagram 8.1 shows the structure of a flower. P, Q and R are parts of the flower that plays a role in reproduction.

Rajah 8.1 menunjukkan struktur suatu bunga. P, Q dan R adalah bahagian pada bunga yang memainkan peranan dalam pembiakan.

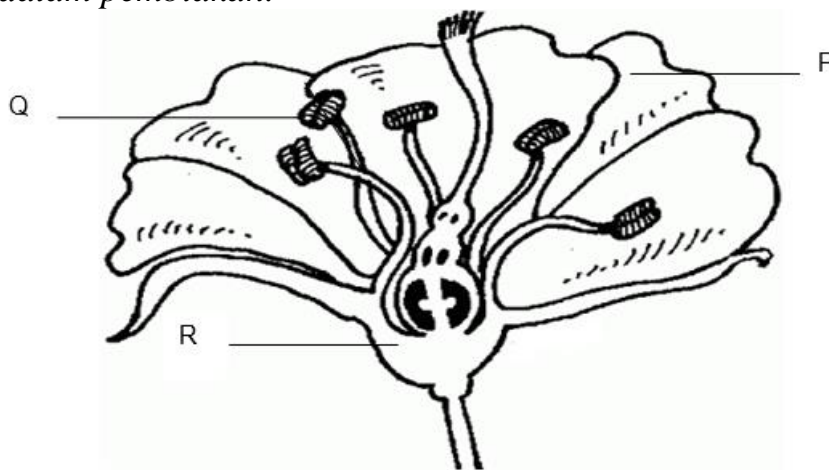


Diagram 8.1/Rajah 8.1

(a) Identify the parts P, Q, and R of a flower and explain how they help to ensure the survival of the plants in the ecosystem.

Kenal pasti bahagian P, Q, dan R suatu bunga dan terangkan bagaimana mereka membantu memastikan kemandirian tumbuhan dalam suatu ekosistem.

[6 marks/6 markah]

(b) Diagram 8.2 shows a process that occurs in the stigma of a flower.
Rajah 8.2 menunjukkan suatu proses yang berlaku dalam stigma bunga.

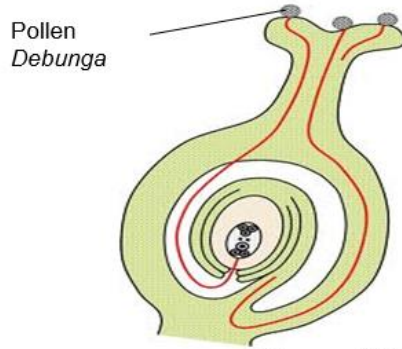


Diagram 8.2/Rajah 8.2

Discuss the process that occurs to the pollen.
Bincangkan proses yang berlaku kepada debunga.

[4 marks/4 markah]

(c) Diagram 8.3 shows the growth curve of an insect.
Rajah 8.3 menunjukkan lengkung pertumbuhan suatu serangga.

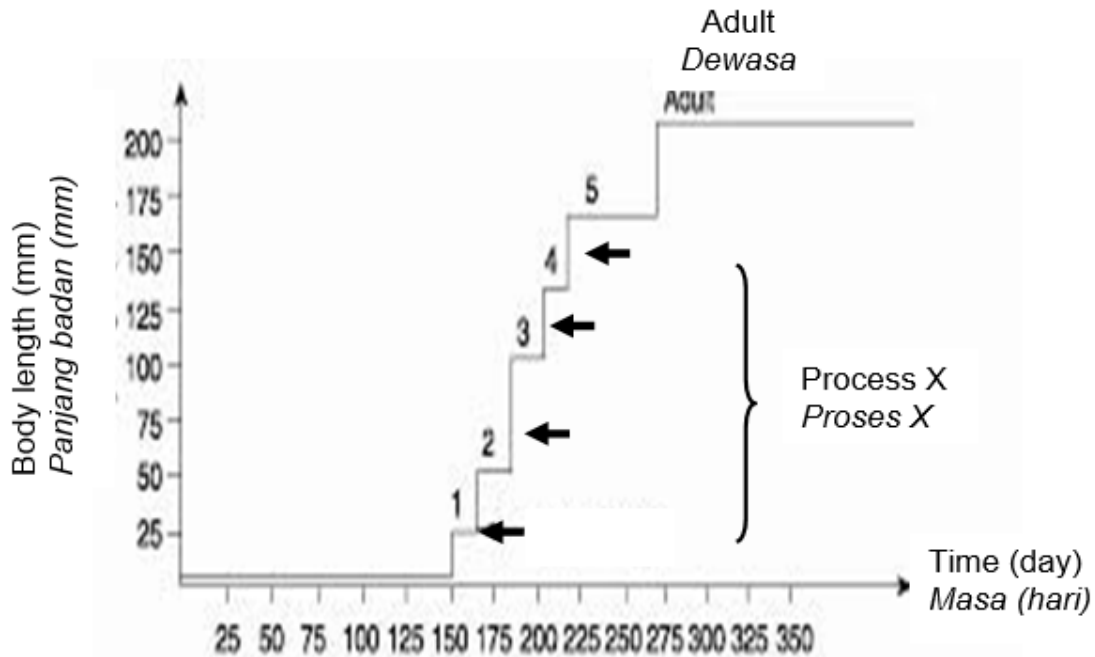


Diagram 8.3/Rajah 8.3

(i) Explain process X in the growth curve.

Terangkan proses X dalam lengkung pertumbuhan tersebut.

[5 marks/5 markah]

(ii) Diagram 8.4 (a) and 8.4 (b) show two types of plants.

Rajah 8.4 (a) dan 8.4 (b) menunjukkan dua jenis tumbuhan.



Diagram 8.4 (a)/Rajah 8.4 (a)



Diagram 8.4 (b)/Rajah 8.4 (b)

Based on the growth curve, discuss the similarities and differences between the two plants.

Berdasarkan lengkung pertumbuhan, bincangkan persamaan dan perbezaan di antara kedua-dua tumbuhan tersebut.

[5 marks/5 markah]

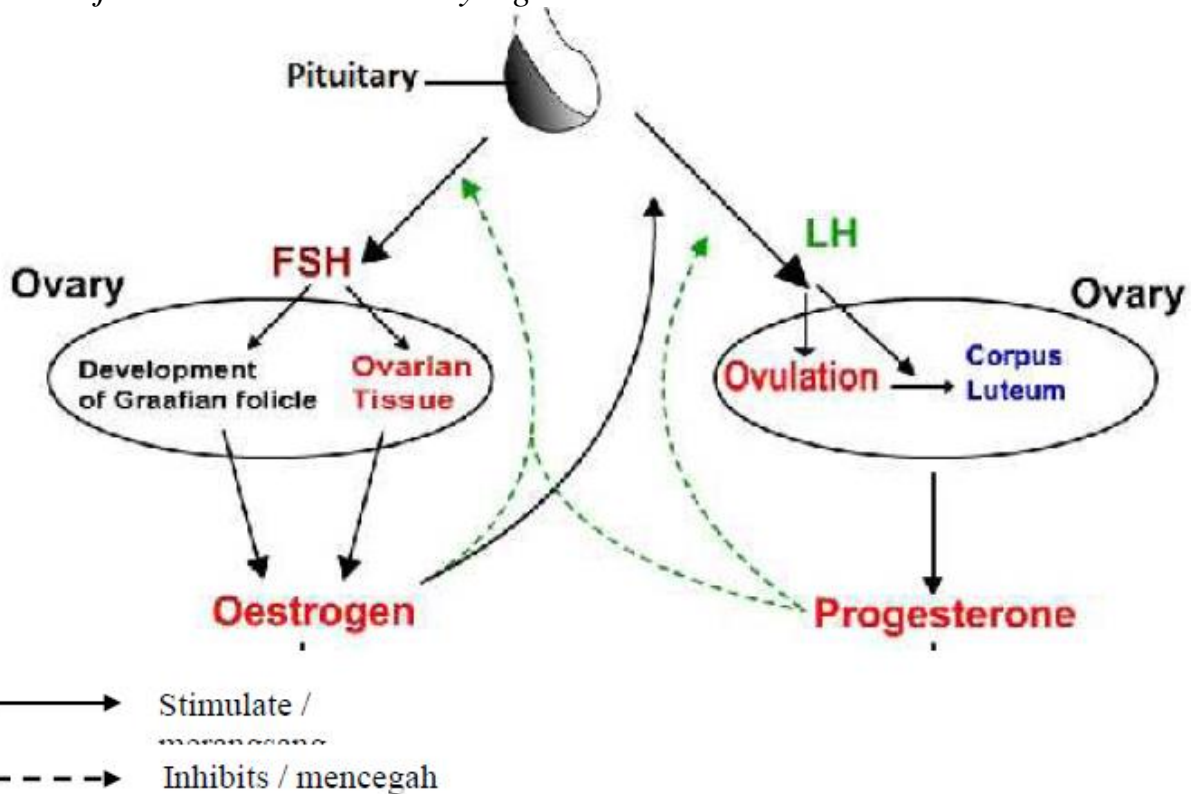
Suggested Answers

<p>(a)</p>	<p>Sample answer :</p> <table border="1" data-bbox="300 247 1398 598"> <thead> <tr> <th>Parts</th> <th>Function</th> </tr> </thead> <tbody> <tr> <td>P is anther</td> <td>- To produce pollen grains for fertilization - As male reproductive organ</td> </tr> <tr> <td>Q is ovary</td> <td>- Contain ovule/embryo sac for fertilization - Become fruits after fertilization - As female reproductive organ</td> </tr> <tr> <td>R is petal</td> <td>- Colourful to attract pollination agent/insects for pollination</td> </tr> </tbody> </table>	Parts	Function	P is anther	- To produce pollen grains for fertilization - As male reproductive organ	Q is ovary	- Contain ovule/embryo sac for fertilization - Become fruits after fertilization - As female reproductive organ	R is petal	- Colourful to attract pollination agent/insects for pollination										
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<p>(b)</p>	<p>P1: when pollen/pollen grains landed on stigma, sucrose solution is secreted P2 : to stimulate germination of pollen P3 : Pollen tube grows from the pollen P4 : In the pollen tube, generative nucleus divides by mitosis to form two male gametes P5 : The pollen tube nucleus leads the male gametes towards the ovary P6 : when the pollen tube reach the ovary, the tube nucleus disintegrates and burst open the pollen tube P7 : to allow the male gemmates to enter the ovary through the micropyle</p>																		
<p>(b)</p>	<p>P1 : Process X is ecdysis P2 : For growth, the insect sucks in air to break the old exoskeleton P3 : to expand its body to increase the size P4 : before the old exoskeleton hardens P5 : occurs periodically/several times until adult P6 : produce a step-like growth curve</p>																		
<p>(a)</p>	<p>Similarities :</p> <p>P1 : Both show sigmoid growth curve P2 : Both have xylem and phloem to transport water and food for growth</p> <p>Differences</p> <table border="1" data-bbox="251 1497 1382 1934"> <thead> <tr> <th>Diagram 8.4 (a)</th> <th>Diagram 8.4 (b)</th> </tr> </thead> <tbody> <tr> <td>Annual plant</td> <td>Perennial plant</td> </tr> <tr> <td>Undergo primary growth</td> <td>Undergo primary and secondary growth</td> </tr> <tr> <td>Do not have woody tissue</td> <td>Have woody tissue</td> </tr> <tr> <td>Do not have lateral meristem</td> <td>Have lateral meristem</td> </tr> <tr> <td>Do not have annual rings</td> <td>Have annual rings</td> </tr> <tr> <td>Do not have thick bark</td> <td>Have thick bark</td> </tr> <tr> <td>Usually short</td> <td>Usually tall</td> </tr> <tr> <td>Have short life span</td> <td>Have long life span</td> </tr> </tbody> </table>	Diagram 8.4 (a)	Diagram 8.4 (b)	Annual plant	Perennial plant	Undergo primary growth	Undergo primary and secondary growth	Do not have woody tissue	Have woody tissue	Do not have lateral meristem	Have lateral meristem	Do not have annual rings	Have annual rings	Do not have thick bark	Have thick bark	Usually short	Usually tall	Have short life span	Have long life span
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QUESTION 8 - 2014 KEDAH MODUL 2

Diagram 5 shows the hormones involve in a menstrual cycle

Rajah 5 menunjukkan hormon-hormon yang terlibat dalam satu kitaran haid.



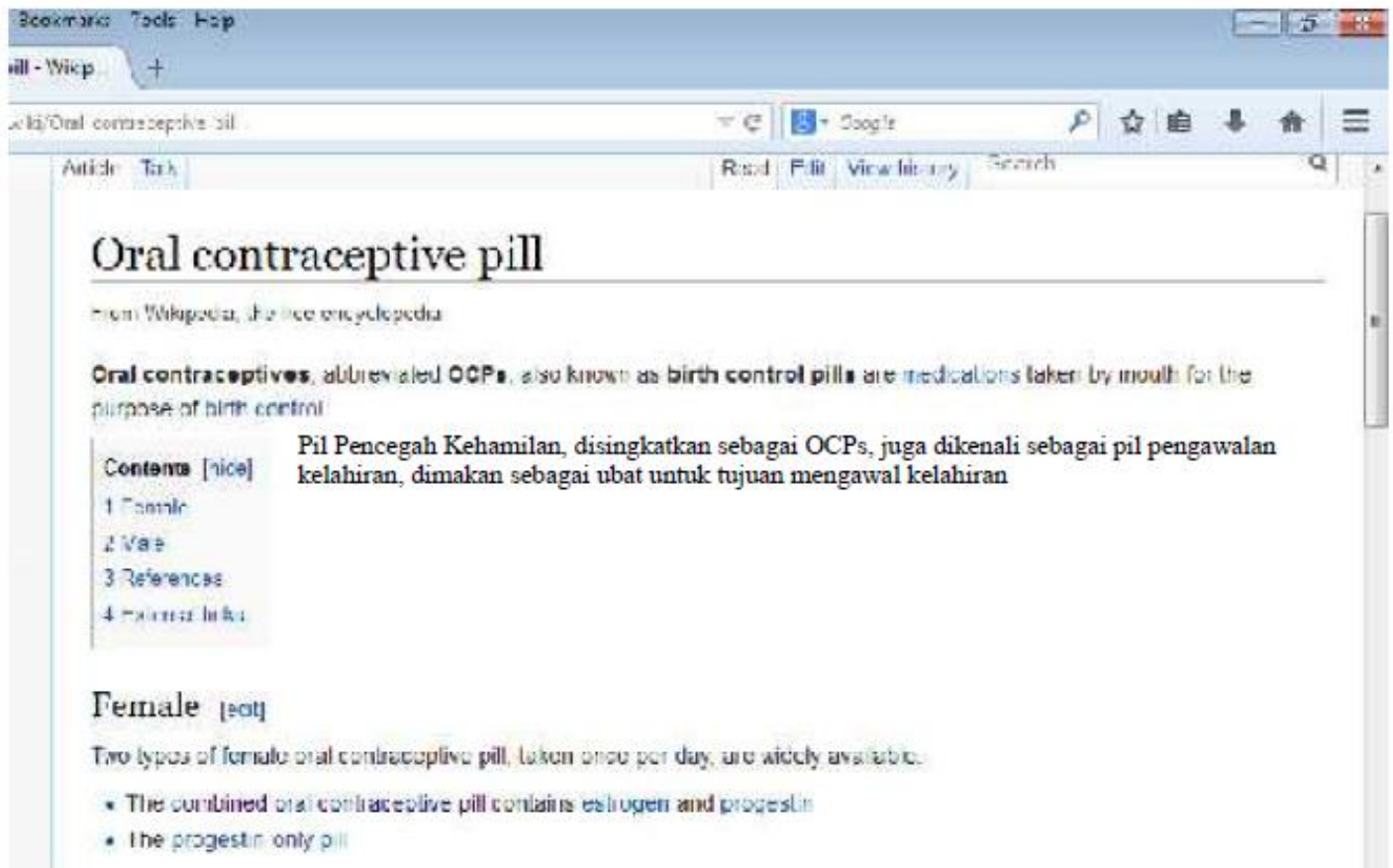
(a) What is the function of oestrogen and progesterone in menstrual cycle?

Oestrogen : _____

Progesterone : _____

[2 marks]

- (b) Diagram 5.2 shows the information about the oral contraceptive pills.
Rajah 5.2 menunjukkan informasi mengenai pil pencegah kehamilan.



Pil Pencegah Kehamilan, disingkat sebagai OCPs, juga dikenali sebagai pil pengawalan kelahiran, dimakan sebagai ubat untuk tujuan mengawal kelahiran

Female [edit]

Two types of female oral contraceptive pill, taken once per day, are widely available.

- The combined oral contraceptive pill contains estrogen and progestin
- The progestin only pill

Terdapat dua jenis pil pencegah kehamilan yang boleh diperolehi dengan meluas, dimakan satu biji pada setiap hari, iaitu

- *Pil yang mengandungi hormone estrogen dan progesterone*
- *Pil yang mengandungi hormone progesterone sahaja*

Diagram 5.2

Explain how the pill works in controlling birth.

Terangkan bagaimana pil ini berfungsi dalam pengawalan kelahiran,

[3 marks/3 markah]

(c) Diagram 5.3 shows how the seed is formed in plant.

Rajah 5.3 menunjukkan bagaimana biji benih dihasilkan dalam tumbuhan.

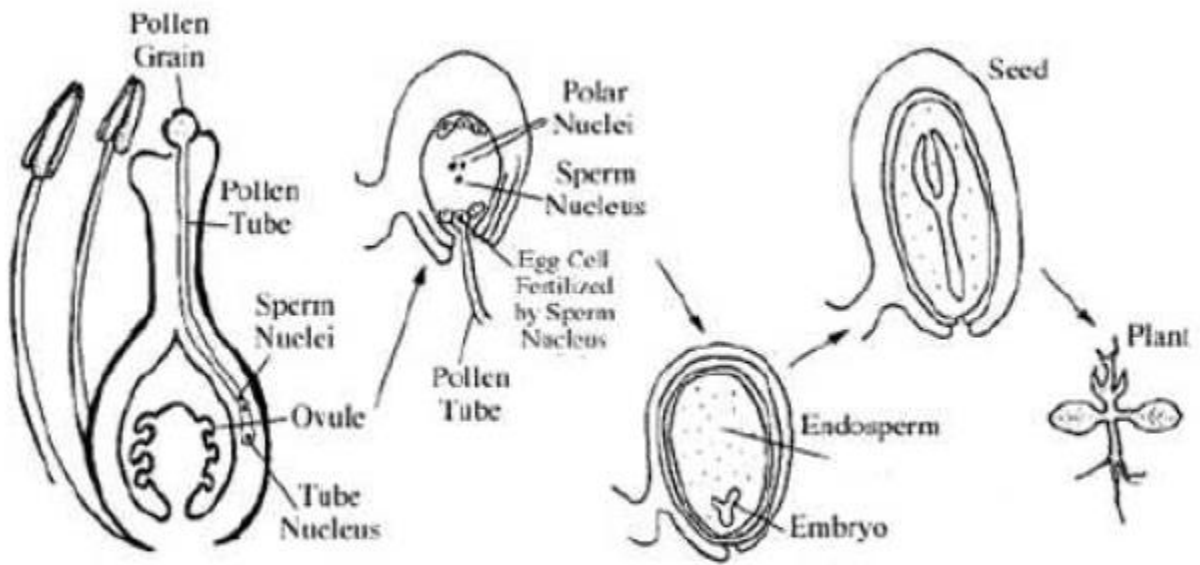


Diagram 5.3

(i) State the process occur in the ovule.

Nyatakan proses yang berlaku dalam ovul

[1 markah]

(ii) Describe how the endosperm and embryo are formed.

Embryo : _____

Endosperm : _____

[4 marks]

(iii) Diagram 5.4 shows the plant in Diagram 5.3 also can be reproduced through tissue culture.

Rajah 5.4 menunjukkan tumbuhan dalam Rajah 5.3 juga boleh dihasilkan melalui kaedah kultur tis.

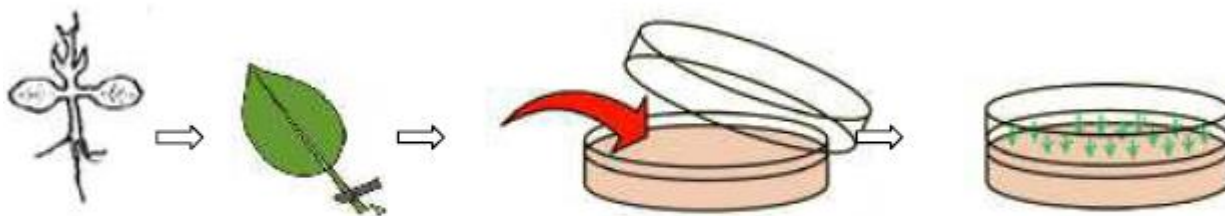


Diagram 5.4

Explain one advantage producing plants by using the method in Diagram 5.4.
Terangkan satu kebaikan menghasilkan tumbuhan dengan menggunakan kaedah dalam Rajah 5.4

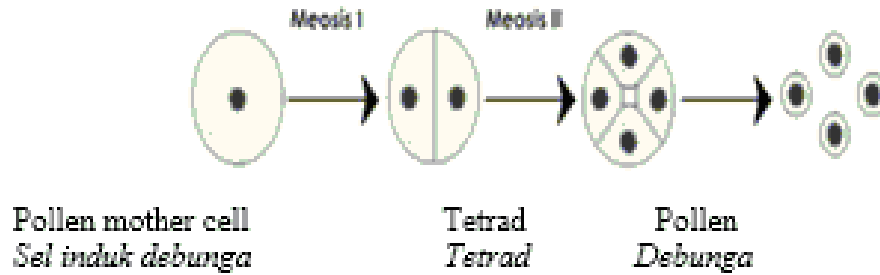
[2 markah]

Suggested Answer

(a)	<p>Oestrogen : to heal and repair the uterine wall / endometrium // to stop the pituitary gland to produce FSH Progesterone : To stimulate the growth and development of blood vessels in the endometrium / thicken the endometrium</p>
(b)	<p>P1 : oestrogen and progesterone to stop the pituitary gland to produce FSH // progesterone will stop pituitary gland to produce LH P2 : Without FSH, primary follicle will not be able to develop become Graafian follicle. P3 : Without Graafian follicle, no ovulation will occur // without LH, no ovulation will occur P4 : No secondary oocyte will be released // No fertilization occur.</p>
(c) (i)	<p>Double fertilization</p>
(ii)	<p>Embryo P1 : one of the male gamete / sperm nucleus fuse with the egg cell P2 : to form zygote P3 : zygote will (divide by mitosis to) form embryo Endosperm P4 : one of the male gamete / sperm nucleus fuse with the two polar nuclei P5 : to form a triploid nucleus P6 : triploid nucleus (divide by mitosis to) form endosperm</p>
(iii)	<p>P1 : tissue culture P2 : Can be produced in big number P3 : Can be produced at any time P4 : All the offspring have the same genetic material P5 : All the offspring inherits the good traits from the parent</p>

QUESTION 9 - 2014 TERENGGANU

- (a) Diagram 7.1 shows the development of pollen.
Rajah 7.1 menunjukkan perkembangan debunga.



Describe the development of pollen based on the diagram above.
Huraikan perkembangan debunga berdasarkan rajah di atas.

[4 marks]

- (b) Diagram 7.2 shows the mature carpel where the process of double fertilisation occurs in the plant. Explain the process.
Rajah 7.2 menunjukkan karpel matang dimana proses persenyawaan gandadua dalam tumbuhan berlaku. Terangkan proses tersebut.

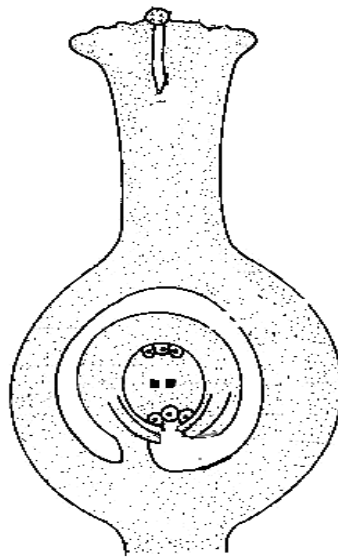


Diagram 7.2 // Rajah 7.2

[6 marks]

- (c) Diagram 7.3 shows the process of secondary growth in plant.
Rajah 7.3 menunjukkan proses pertumbuhan sekunder dalam tumbuhan.

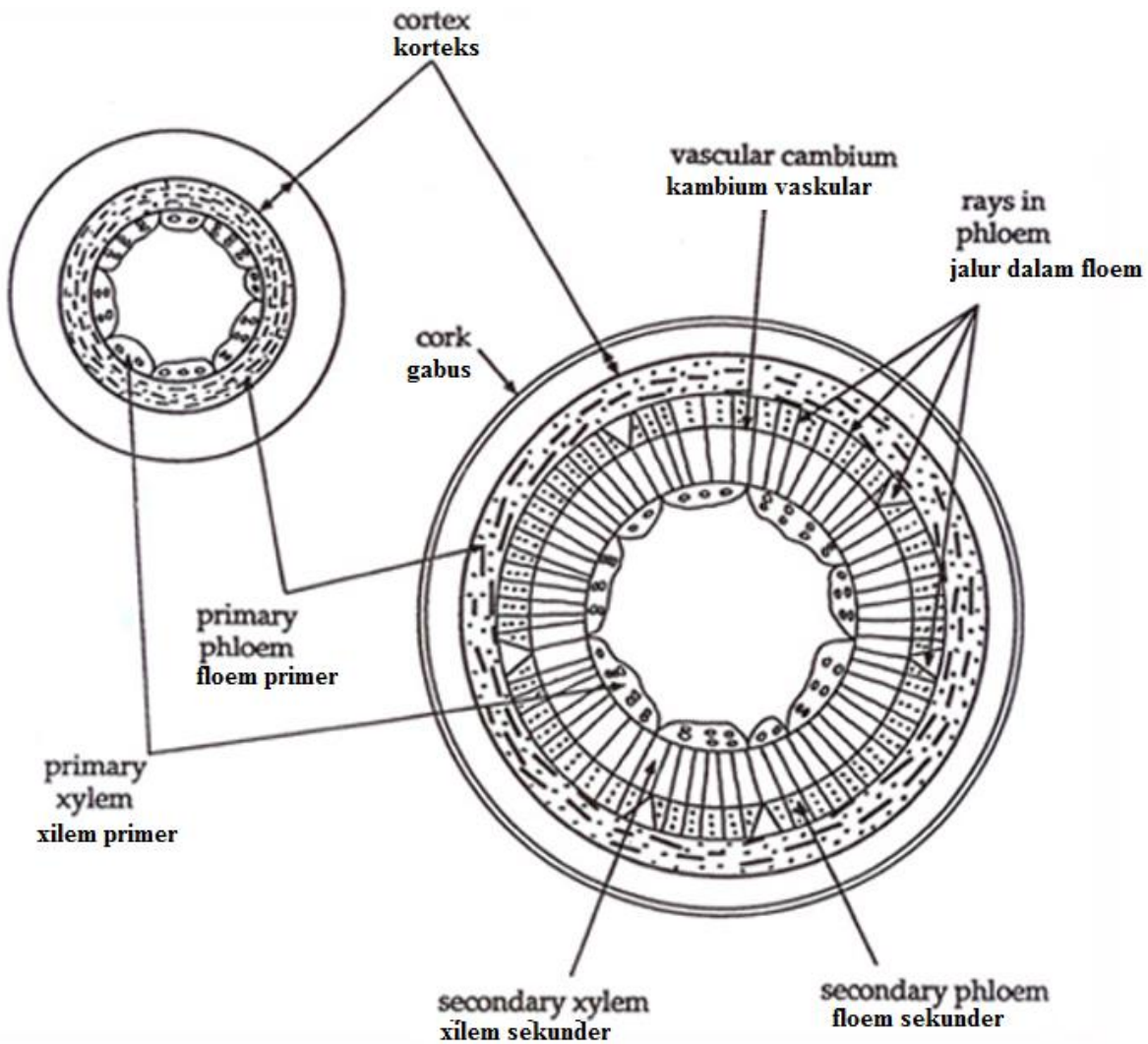


Diagram 7.3 // *Rajah 7.3*

Based on the above diagram, explain the process of secondary growth in plant
Berdasarkan rajah di atas, terangkan proses pertumbuhan sekunder dalam tumbuhan.
 [6 marks]

- (d) Explain the important of secondary growth in plant.
Terangkan kepentingan pertumbuhan sekunder dalam tumbuhan.

[4 marks]

Suggested Answers

(a)	<p>E1: pollen mother cell (diploid) undergo meiosis I E2: 2 cell stage of pollen cell (haploid) is form E3: 2 cell stage undergo meiosis II E4: tetrad stage is form E5: after the secretion of cell wall, the pollen is form</p>
(b)	<p>E1- The pollen tube grows down the style towards the ovule E2- The sugar solution (sucrose) secreted by the stigma stimulates the pollen grain to germinate and form a pollen tube E3- The generative nucleus divides by mitosis to form two male gamete nuclei E4- The male gamete nuclei move down the pollen tube led by the tube nucleus E5- When the pollen tube reaches the ovary, it penetrates the ovule through the micropyle E6- The tube nucleus degenerates, leaving a clear passage for the male nuclei to enter the embryo sac E7- Double fertilization occurs in the ovule. One male nucleus fuses with the egg nucleus to form a diploid zygote(2n) E8- The other male nucleus fuses with the two polar nuclei to form a triploid nucleus</p>
(c)	<p>F1: Vascular cambium divides actively radially E1: forming cambium ring/ intervascular cambium F2: Cambium cells divides tangently, E2: cell in the outside differentiate to form secondary phloem E3: while the inner cell differentiate to form secondary xylem E4: primary xylem pushed towards the pith E5: and primary phloem pushed towards the epidermis E6: the walls of secondary xylem will be thickened with lignin E7: this give tissues mechanical strength to support the plant E8: the tissues outside become increasingly compressed E9: the circumference/ diameter increased caused the epidermis to be stretched E10:the ruptured epidermis will be replaced by cork as a result of the activity of cork cambium F3: cork cambium divides tangently E11:form secondary cortex/inner cell and cork/ outer cell</p>
(d)	<p>P1: Increase the diameters of the plant stems and roots for additional mechanical support P2: Produces secondary xylem called wood to support and strengthen the growing plant P3: Produces more secondary phloem and secondary xylem to accommodate the increase in demand for water, mineral and organic nutrient P4: produced new phloem and xylem tissues to replace old and damaged ones P5: Produces a thick and tough bark which reduces evaporation of water from the surface of stem, also protects the plant against of insect and parasite fungi</p>

	<p>P6: Increase the opportunities to produce seeds and propagate as plant that undergo secondary growth live longer</p> <p>P7: produce large quantities of fruit for local consumption and export</p>
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