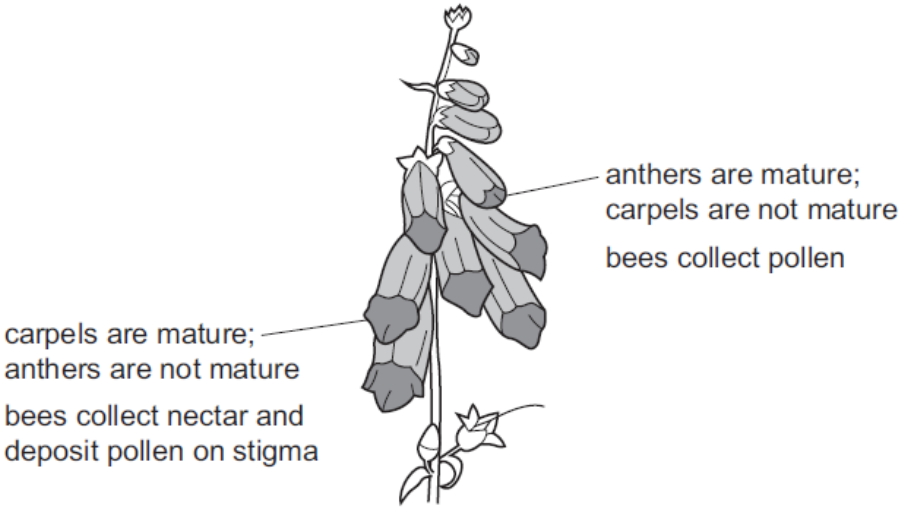
Development of organisms and continuity of life – 2022 November O Level 5090

1. Nov/2022/Paper_11/No.33

The diagram shows how bees visit a species of flowering plant that has tall spikes of flowers.

In the flowers at the base of the spike, the carpels are mature but the anthers are not yet mature.

In the flowers at the top of the spike, the anthers are mature but the carpels are not yet mature.



Which statements are correct?

1 Bees visit two flowers for successful pollination.

2 The difference in maturing times for anthers and carpels ensures pollination between flowers.

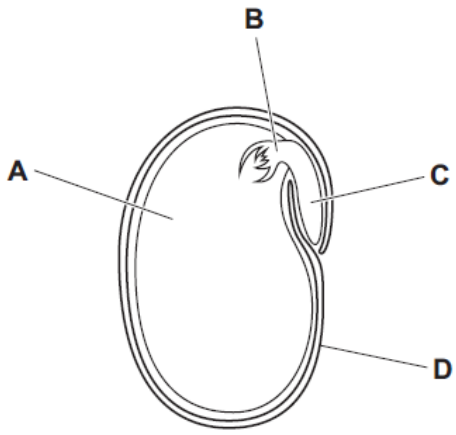
3 Seeds will develop first in the flowers at the top of the plant.

A 1, 2 and 3 **B** 1 and 2 only **C** 1 and 3 only **D** 2 and 3 only

2. Nov/2022/Paper_11/No.34

The diagram shows a section through a dicotyledonous seed.

Which structure provides most of the nutrients needed for the seed to grow after germination?



3. Nov/2022/Paper_11/No.35

Human gametes are different from each other.

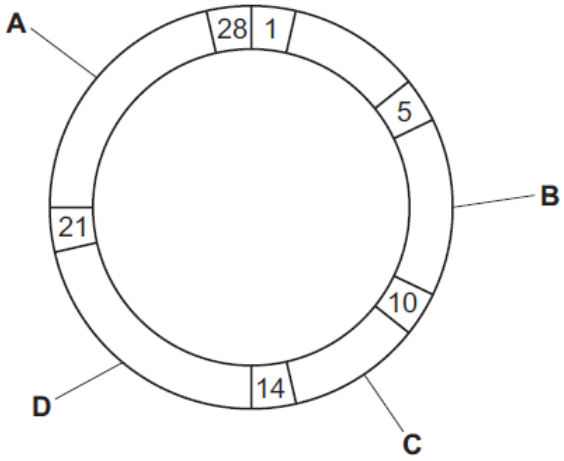
Which information about male gametes is correct?

	size	numbers released at one time	movement
A	large	normally one	cannot move on their own
B	large	millions	cannot move on their own
C	small	normally one	can swim
D	small	millions	can swim

4. Nov/2022/Paper_11/No.36

The diagram shows the menstrual cycle. The numbers refer to the number of days after the beginning of menstruation.

Which label shows a point in the cycle when implantation is most likely to occur?



5. Nov/2022/Paper_12/No.33

A gardener has two groups of strawberry plants, labelled X and Y. They are grown to maturity under identical conditions. He makes some observations and concludes that those in group X were produced asexually and those in group Y were grown from seeds.

Which observations most closely support his conclusions?

1 Group X plants produced flowers all at the same time.

2 Group X plants produced flowers which varied in shape and size, some of which were produced earlier than others.

3 Group Y plants produced flowers all at the same time.

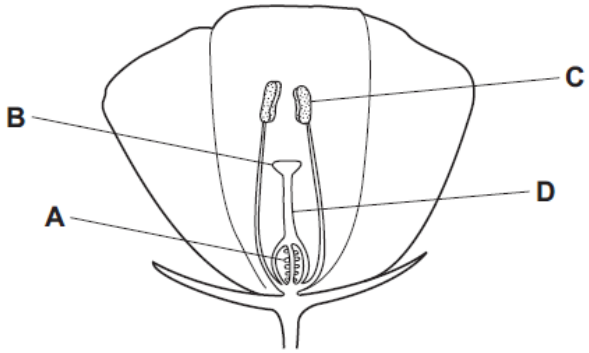
4 Group Y plants produced flowers which varied in shape and size, some of which were produced earlier than others.

A 1, 2, 3 and 4 **B** 1 and 4 only **C** 2 and 3 only **D** 4 only

6. Nov/2022/Paper_12/No.34

The diagram shows a section through a flower.

Where does fertilisation take place?

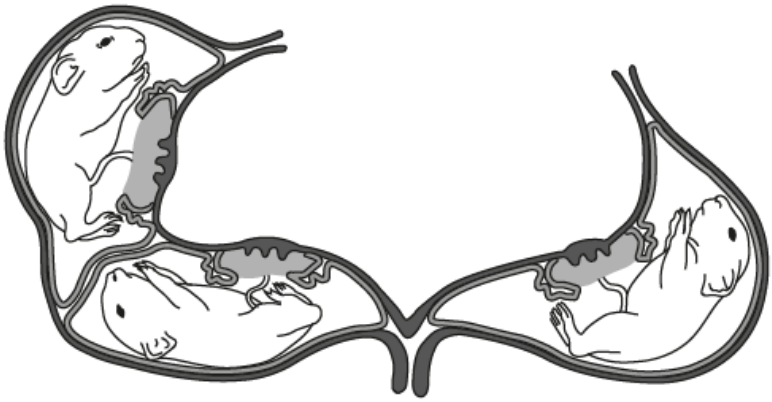


7. Nov/2022/Paper_21/No.3(b)

(b) Baby guinea pigs develop in the mother's uterus for between 59 and 73 days.

The mother usually gives birth to between two and four offspring.

The diagram shows the uterus and developing offspring.



The offspring of both humans and guinea pigs develop in a uterus.

Using the information provided and your knowledge of human development, discuss the similarities **and** differences in the development of offspring of humans and guinea pigs.

.....

.....

.....

.....

.....

..... [4]

8. Nov/2022/Paper_21/No.2b,d(ii)

(b) The sultana grape variety produces fruits without seeds. This is because of a gene mutation.

(i) State the meaning of the term mutation.

.....

..... [2]

(ii) All the sultana grape plants growing in the farmer's fields are genetically identical. Explain why they are all genetically identical.

.....

.....

.....

..... [3]

(ii) Suggest how the yeast is able to grow on the grape skins.

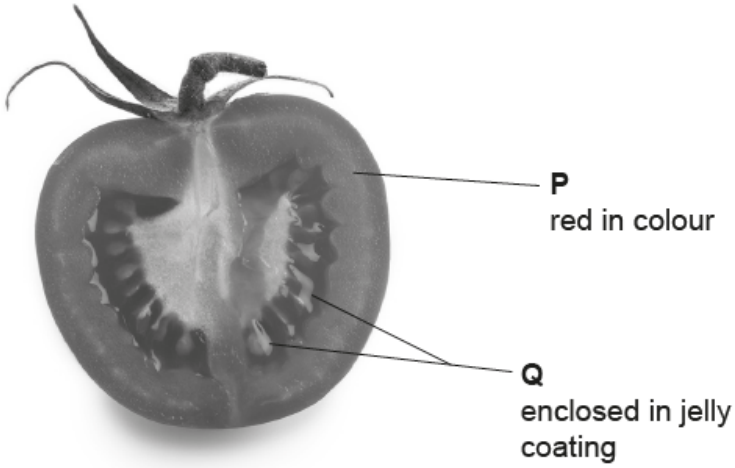
.....

..... [1]

9. Nov/2022/Paper_21/No.7(a)

The photograph shows a fruit of the tomato plant.

The fruit has been cut in half to show the structures labelled **P** and **Q**.



(a) Before fertilisation, structures **P** and **Q** in the fruit were structures in a flower of the tomato plant.

Complete the table to name the structures in a flower that have developed into structures **P** and **Q**.

structure in fruit	structure in flower
P	
Q	

[2]