

- 23** A gardener has a strawberry plant that produces large, sweet fruits.
- How does the gardener grow more strawberry plants that **all** produce large, sweet fruits?
- A** Use asexual reproduction to produce offspring with no genetic variation.
 - B** Use asexual reproduction to produce seeds that will grow into new plants.
 - C** Use sexual reproduction and self-pollination as they only have one plant.
 - D** Use sexual reproduction to reduce variation in the offspring.

- 24** Where does fertilisation occur in a plant?
- A** ovule
 - B** pollen grain
 - C** pollen tube
 - D** stigma

- 28** Which methods can transmit HIV?
- 1 hugging a person infected with HIV
 - 2 sharing a needle with a person infected with HIV
 - 3 using a plate that a person infected with HIV has used
- A** 1, 2 and 3 **B** 1 only **C** 2 and 3 only **D** 2 only

- 4** Fig. 4.1 is a photograph of a bee on a flower. One of the bee's legs is covered with pollen.



Fig. 4.1

- (a) (i)** State **three** features of flowers that attract pollinating insects such as bees.
- 1
- 2
- 3 [3]
- (ii)** State **one** way that pollen grains are adapted for pollination by bees.
-
-
- [1]
- (b)** Describe **two** ways the structure of a monocotyledonous plant differs from the structure of a dicotyledonous plant.
- 1
-
- 2
- [2]

(c) Fig. 4.2 is a diagram of a cross-section of an insect-pollinated flower.

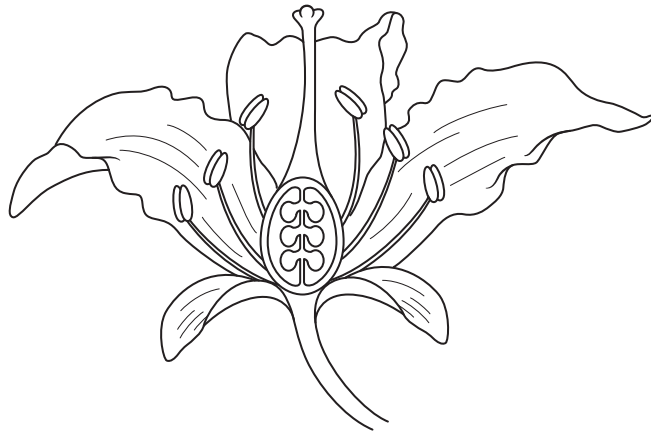


Fig. 4.2

On Fig. 4.2, name and draw label lines to:

- the structure that supports an anther
- a structure that protects the flower bud
- an ovule.

[3]

(d) Describe sexual reproduction in a flower, from the release of pollen to the formation of a zygote.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

(e) Sexual reproduction also occurs in humans.

(i) State the name of the male gamete in a human.

..... [1]

(ii) State where gametes are formed in the human male reproductive system.

..... [1]

(iii) Human male gametes are haploid.

State the name of the process that produces haploid male gametes.

..... [1]

(iv) Describe the function of the prostate gland in the male reproductive system.

.....

.....

..... [1]

[Total: 18]

4 Steppe ecosystems are large areas of grasslands found in central Asia.

(a) Fig. 4.1 is a food web from a steppe ecosystem.

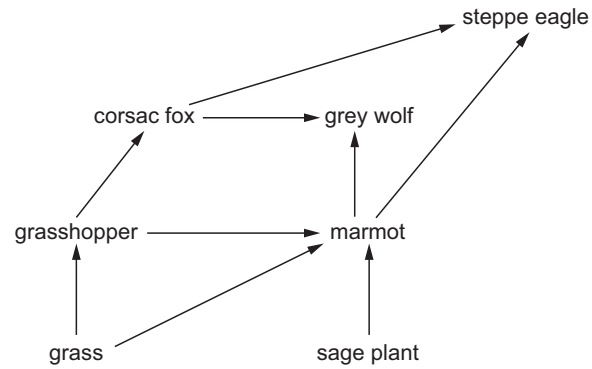


Fig. 4.1

(i) State the name of **one** primary consumer from Fig. 4.1.
..... [1]

(ii) Use the information in Fig. 4.1 to construct **one** food chain with four trophic levels that includes the steppe eagle.

[1]

(iii) There are fewer grey wolves than marmots in this ecosystem.

Explain why the population size of organisms decreases from one trophic level to the next trophic level in this ecosystem.

.....
.....
.....
.....
..... [2]

(b) Fig. 4.2 is a photograph of a wild horse. Przewalski's horse is a type of wild horse that nearly became extinct.



Fig. 4.2

After a captive breeding programme, they have been successfully reintroduced to the steppe ecosystem.

The captive breeding programme started with 12 wild horses.

(i) Explain the risks to a species of a captive breeding programme that uses such a small number of individuals.

.....
.....
.....
.....
.....
..... [3]

(ii) Suggest ways of maintaining a population of Przewalski's horse in the wild after their reintroduction to the steppe ecosystem.

[4]

[4]

(c) *In vitro* fertilisation (IVF) can be used in captive breeding programmes.

Fig. 4.3 shows some of the stages involved in IVF.

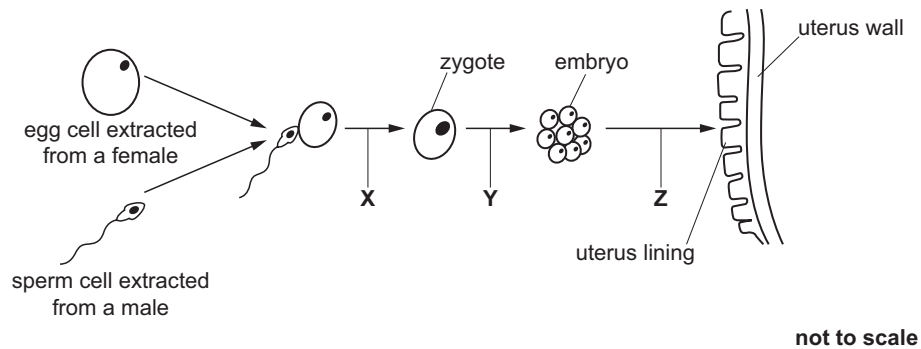


Fig. 4.3

State the names of the processes occurring at **X**, **Y** and **Z** in Fig. 4.3.

X

Y

Z

[3]

[Total: 14]

30 Which row correctly links the named process with its description?

	process	description
A	menstruation	release of an egg
B	menstruation	shedding of the lining of the uterus
C	ovulation	fusion of nuclei
D	ovulation	start of puberty

26 The list shows terms used when describing sexual reproduction.

- 1 male gamete
- 2 female gamete
- 3 ovule
- 4 ovary
- 5 filament
- 6 fertilisation
- 7 haploid

Which terms are used **only** when describing sexual reproduction in plants?

A 1 and 7 **B** 2 and 4 **C** 2 and 6 **D** 3 and 5