

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

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

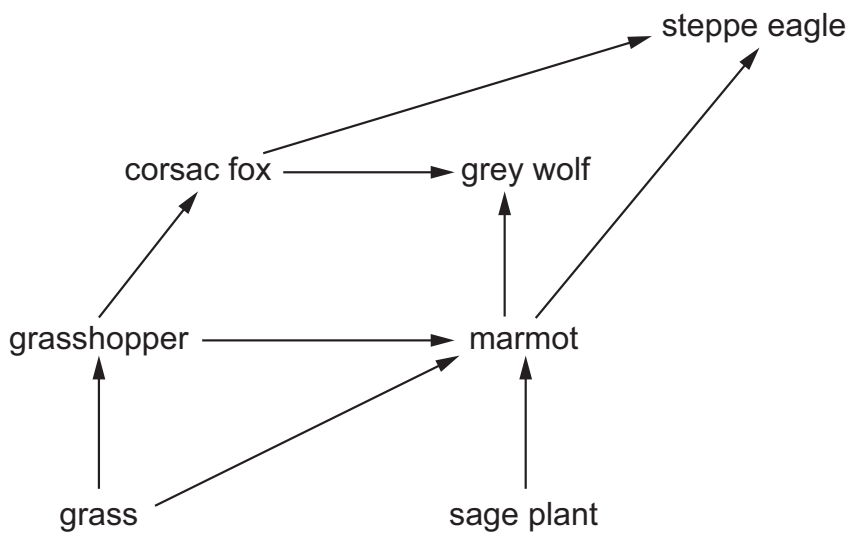


Fig. 4.1

(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]

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

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

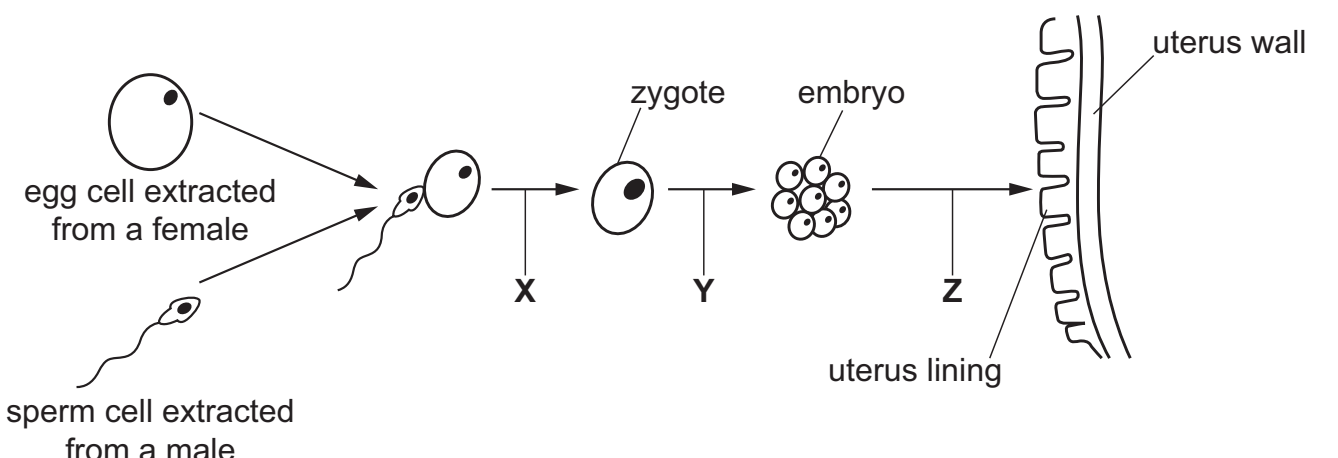


Fig. 4.3

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

X
 Y
 Z

[3]