



**EXETER SCHOOL**

**13+ Entrance Examination**

**BIOLOGY**

**30 minutes**

*Name* .....

1. Underline the word or phrase which best completes each of the following sentences.

(a) The production of urine is an example of

**digestion**                      **egestion**                      **excretion**                      **secretion.**

(b) The genes of a plant cell are found in the

**cell wall**                      **cytoplasm**                      **cell surface membrane**                      **nucleus.**

(c) The iodine test is used to detect the presence of

**carbon dioxide**                      **chlorophyll**                      **starch**                      **sugar.**

(d) During exercise the human body produces more

**carbohydrate**                      **carbon dioxide**                      **fat**                      **oxygen.**

(e) In flowering plants water is normally taken from the soil by

**flowers**                      **leaves**                      **roots**                      **stems.**

(f) A good athlete can run at

**1.0 m/s**                      **10 m/s**                      **100 m/s**                      **500 m/s.**

(g) The energy source for photosynthesis is

**chlorophyll**                      **light**                      **starch**                      **water.**

(h) A pond is an example of

**an environment**                      **a food chain**                      **a food web**                      **a habitat.**

(i) Mammals differ from other vertebrates because normally they

**are covered with hair**    **are four-legged**    **are warm-blooded**    **have lungs.**

2. Listed below are some of the components of a balanced diet. Write **one** of them into each of the empty boxes in the table to show its main use. Use each word once, twice or not at all.

carbohydrate      fat      fibre      protein      water

component of the diet	use in the body
	insulation
	preventing constipation
	source of energy
	repair

(4)

3. Listed below are three things which are needed for healthy living. Explain why each is necessary.

(i) Regular washing: .....

.....

.....

(1)

(ii) Regular exercise: .....

.....

.....

(1)

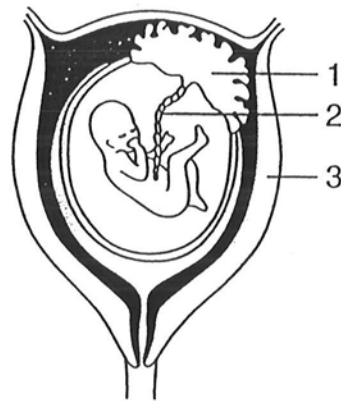
(iii) Not smoking: .....

.....

.....

(1)

(4) The diagram shows a human fetus in its natural position within the mother.



(a) Name the parts numbered 1 to 3 in the diagram.

1 .....

2 .....

3 ..... (3)

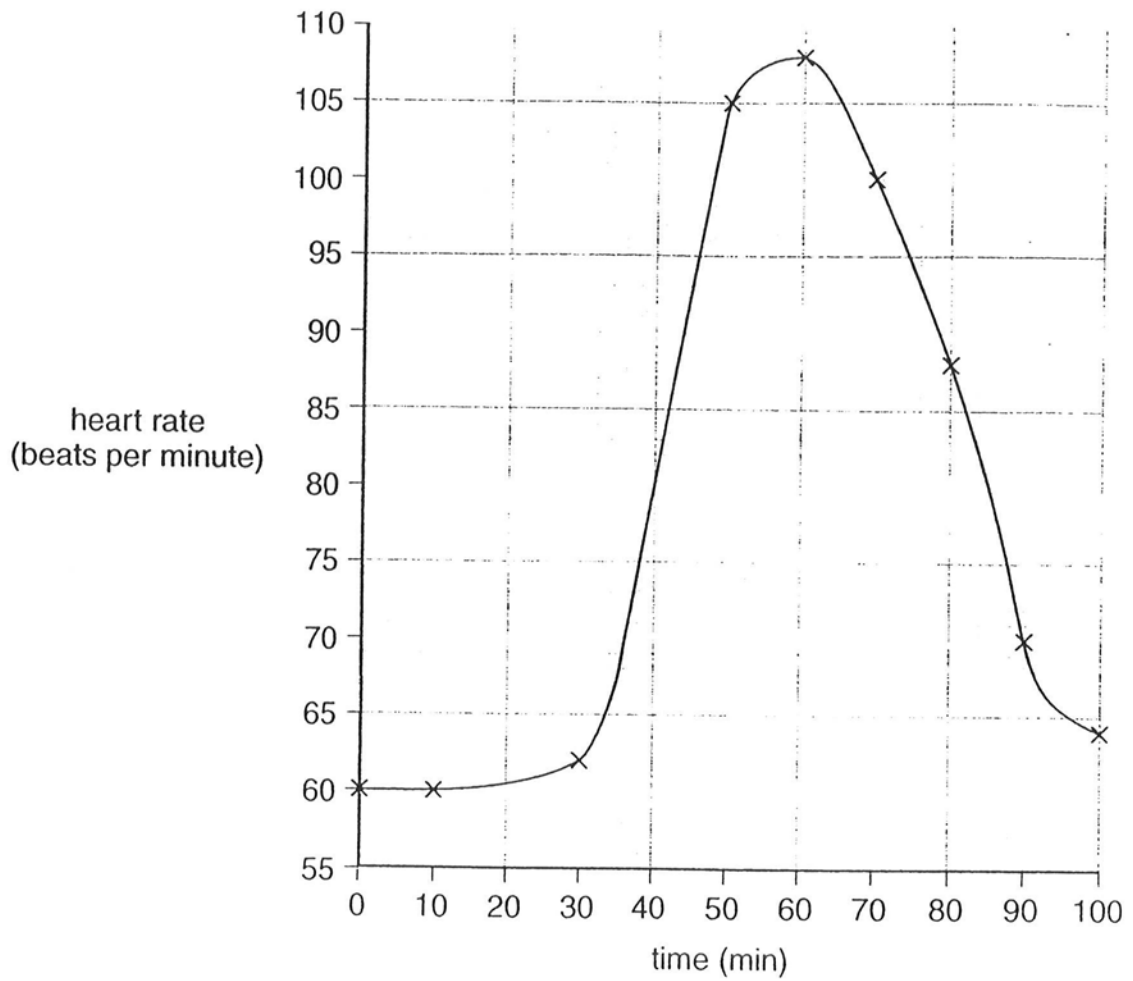
(b) How does the fetus obtain food?

.....

.....

..... (2)

- 5 The graph shows John's heart rate before, during and after a running race. The recording started at time 0 on the graph.



- (a) What was John's heart rate in beats per minute after 40 minutes of recording?

..... (1)

- (b) After how many minutes of recording did John stop running? Explain your answer.

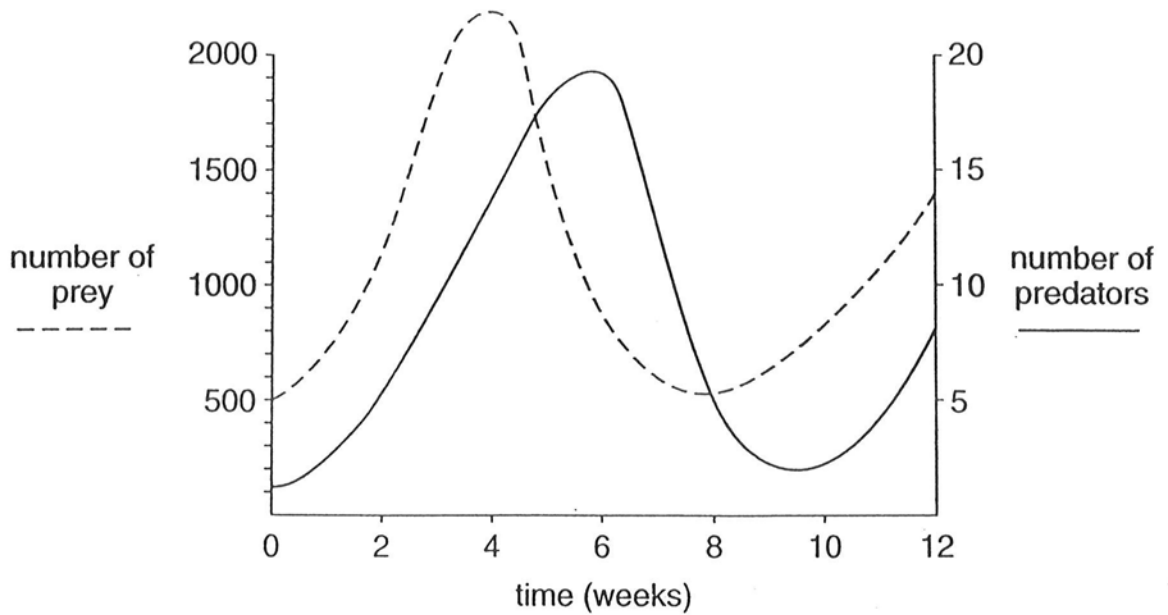
.....  
 ..... (1)

- (c) Why did John's heartbeat increase during the run?

.....  
 ..... (1)

(5)

6 The graph shows the numbers of ladybirds (predators) and aphids (prey) on a rose bush over a period of 12 weeks.



(a) How many weeks did it take for the predator to reach its maximum population size?

..... (1)

(b) What was the lowest recorded number of prey organisms?

..... (1)

(c) How would the introduction of another predator of aphids affect the size of the aphid and ladybird populations? Explain your answers.

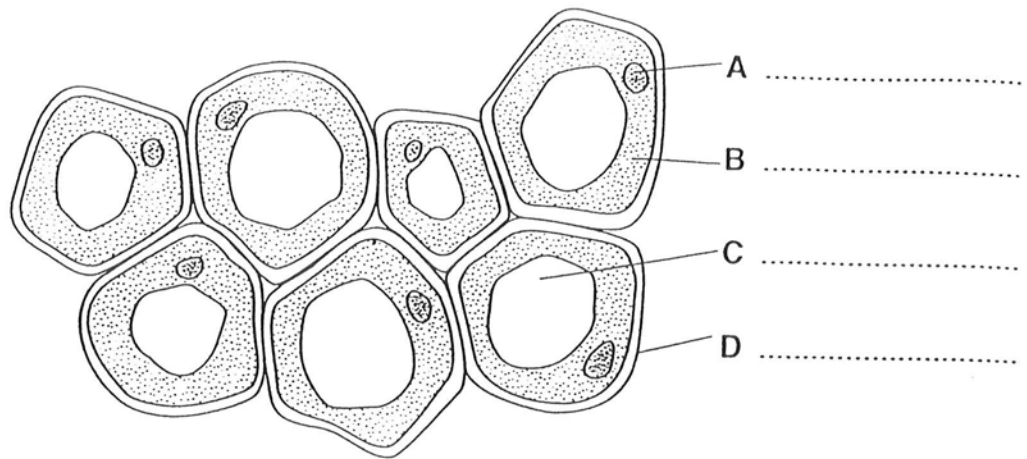
(i) The aphid population.

.....  
 ..... (1)

(ii) The ladybird population.

..... (1)  
 .....

7. The drawing shows a small group of cells from the stem of a plant.



(a) Label the parts (A-D) indicated in the diagram. (4)

(b) Suggest **two** ways in which these cells differ from typical animal cells.

1. .... (1)

2. .... (1)

2. Explain what happens to oxygen after it is drawn in through your nose. Use the following terms in your explanation; they need not be in this order.

*blood breathe or breathing lungs respire or respiration windpipe*

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

(5)