CRUSTACEANS

1 Fig. 1.1 shows a woodlouse.

Fig. 1.1

(a) (i) Name the invertebrate group to which this animal belongs.

.... [1]

(ii) Describe **two** features that are characteristic of this invertebrate group.

1 ....

2 .... [2]

Small invertebrates such as woodlice respond to different environmental conditions.

24 woodlice were placed in a choice chamber linked by a connecting passage, as shown in Fig. 1.2.

12 of the woodlice were placed in the damp area on one side of the choice chamber; the other 12 were placed in the dry area on the other side of the choice chamber.
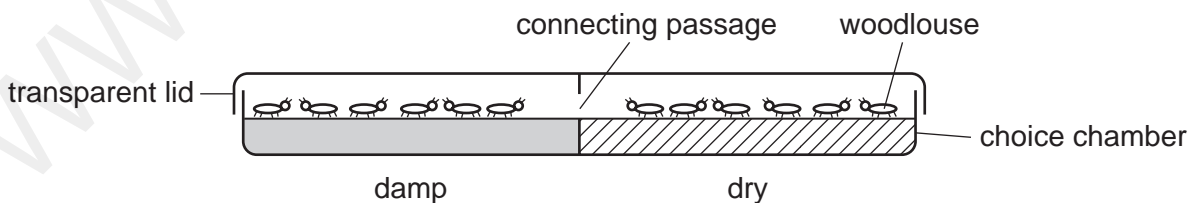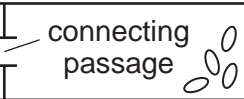

Fig. 1.2
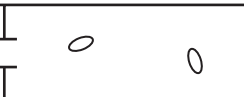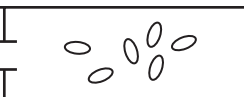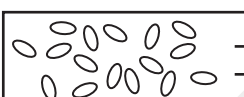
After 5 minutes the number of woodlice in each area of the chamber was recorded.

The woodlice were released into their natural environment.

This procedure was repeated **four** more times using different woodlice.

The results are shown in Table 1.1.

Table 1.1

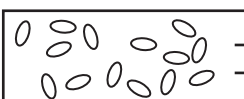| trial	positions of woodlice		number of woodlice in the damp area	number of woodlice in the dry area
	damp area	dry area		
1			....	....
2			....	....
3			....	....
4			....	....
5			....	....
	total		....	....
	mean		....	....

(b) Complete Table 1.1 by:

(i) counting and recording the number of woodlice in each area of the choice chamber for each trial;

[2]

(ii) calculating the total number of woodlice and the mean for each area.

[2]

(c) Draw a pie-chart on the diagram below to show the mean number of woodlice in each area of the chamber. Give a key to identify the areas.

Key

.   [2]

(d) Explain how the behaviour of the woodlice would help them to survive in their natural habitat.

....

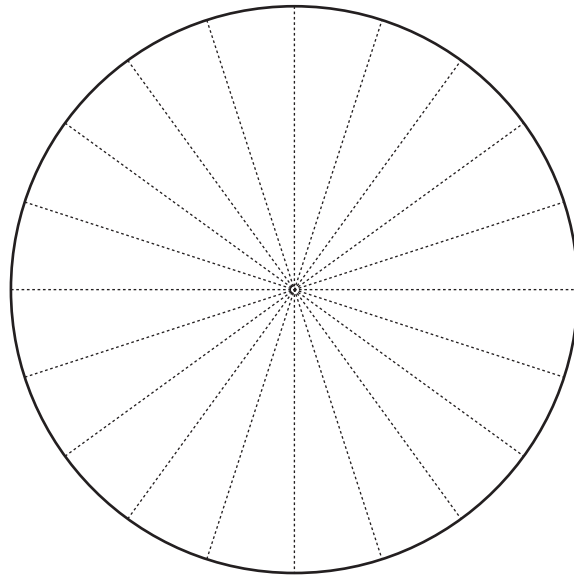..

....

....

....

.... [3]

(e) Suggest how you might improve this investigation.

....

....

....

....

....

.... [3]

[Total: 15]

(a) **(i)** arthropod / crustacean; [1]

(ii) jointed / segmented limbs / legs;
segmented body;
exoskeleton;

for crustacean:
compound eyes;
2 pairs of antennae; [Max: 2]

(b) **(i)**

damp	dry
20	4
22	2
18	6
14	10
16	8

[2]

(ii)

	damp	dry
total	90	30 ;
mean	18	6 ;

[2]

(c) pie chart – 2 sectors 3/4 and 1/4;
key / label; [2]

(d) preference for humid / damp conditions;
(usually) cooler;
stop drying out;
keep respiratory surfaces moist;
find their food / nutrients in damp conditions;
(damp conditions under objects) give protection from predators / shelter;
AVP; [max 3]

(e) same species / type / size / age of woodlice;
all animals healthy / not damaged;
control of (1) variable (e.g. temperature / humidity / apparatus)
AVP; [max 3]

[Total:15]