ARTHROPOD FEATURES

1 Fig. 1.1 shows a goliath beetle, *Goliathus giganteus*.

Fig. 1.1

(a) State two features, **visible in Fig. 1.1**, that show that *Goliathus giganteus* is an arthropod.

1 .....

2 ..... [2]

Various arthropods are pests of date palms and cause much damage to this important crop throughout the Middle East.

Fig. 1.2 shows eight species of arthropod that are pests of date palms.

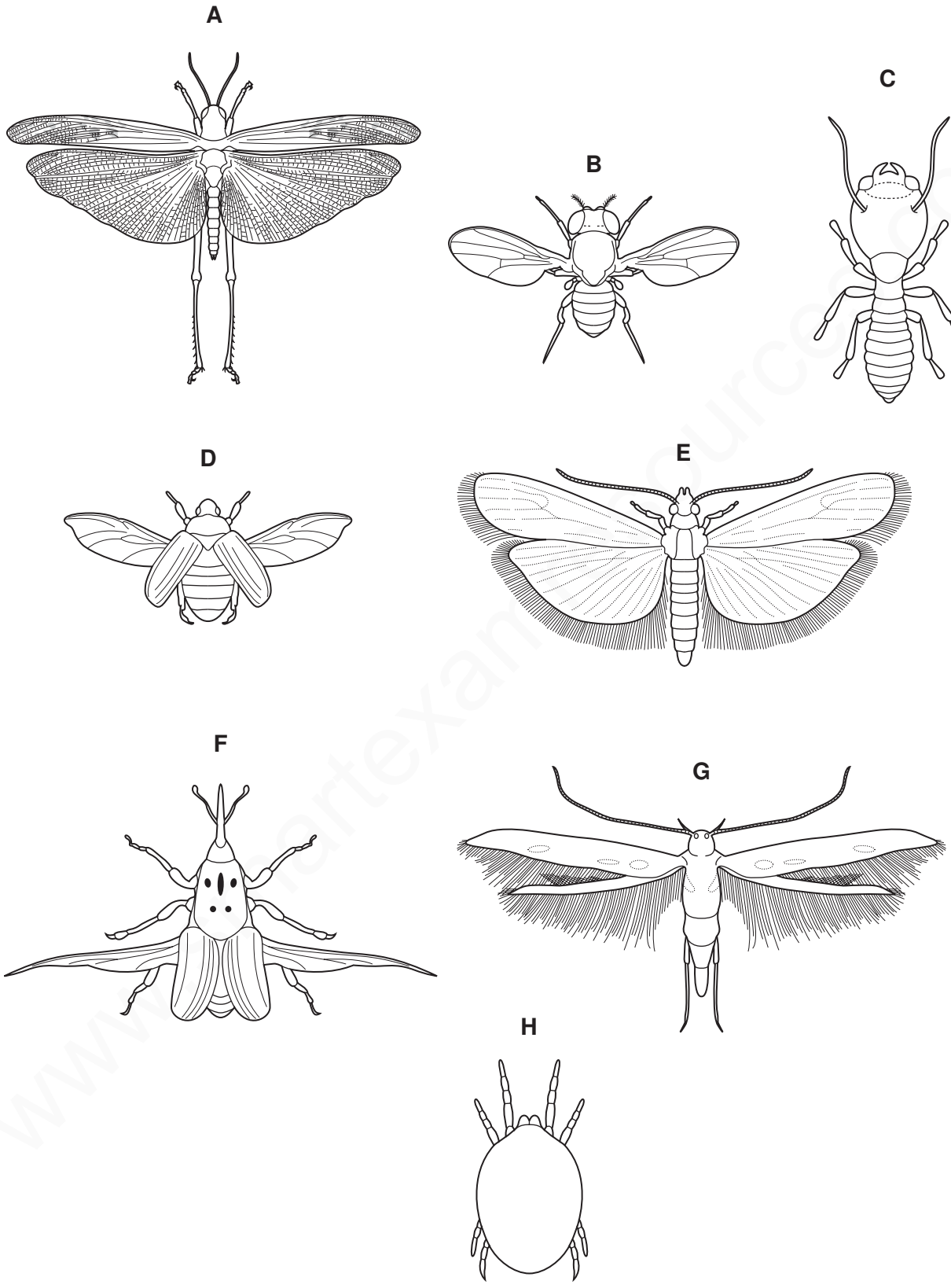

Fig. 1.2

(b) Use the key to identify each species. Write the letter of each species, **B** to **H**, in the correct box in the key. One, **A**, has been done for you.

Key

1 (a)	Wings present	go to 2	
(b)	Wings absent	go to 7	
2 (a)	Back legs adapted for jumping	*Schistocerca gregaria*	**A**
(b)	Back legs not adapted for jumping	go to 3	
3 (a)	Two pairs of wings	go to 4	
(b)	One pair of wings	*Drosophila melanogaster*	.....
4 (a)	Wings with hairs	go to 5	
(b)	Wings with no hairs	go to 6	
5 (a)	Hairs on back wings longer than width of back wing	*Ephestia cautella*	.....
(b)	Hairs on back wings shorter than width of back wing	*Batrachedra amydraula*	.....
6 (a)	Thorax with spots	*Rhynchophorus ferrugineus*	.....
(b)	Thorax with no spots	*Oryctes agamemnon*	.....
7 (a)	Three pairs of legs	*Microcerotermes diversus*	.....
(b)	Four pairs of legs	*Oligonychus afrasiaticus*	.....

[4]

MARKING SCHEME:

<table>
<tr><td>(a)</td><td colspan="2">jointed / articulated, legs ;
exoskeleton / described ;</td><td>[max 2]</td><td>R antennae / wings
R many legs
R segmentation body</td></tr>
<tr><td>(b)</td><td>6/7 RIGHT = 4
5 RIGHT = 3
3/4 RIGHT = 2
1/2 RIGHT =1

0 RIGHT = 0</td><td>
<table>
<tr><td>go to 2</td><td></td></tr>
<tr><td>go to 7</td><td></td></tr>
<tr><td>Schistocerca gregaria</td><td>A</td></tr>
<tr><td>go to 3</td><td></td></tr>
<tr><td>go to 4</td><td></td></tr>
<tr><td>Drosophila melanogaster</td><td>B</td></tr>
<tr><td>go to 5</td><td></td></tr>
<tr><td>go to 6</td><td></td></tr>
<tr><td>Ephestia cautella</td><td>G</td></tr>
<tr><td>Batrachedra amydraula</td><td>E</td></tr>
<tr><td>Rhynchophorus ferrugineus</td><td>F</td></tr>
<tr><td>Oryctes agamemnon</td><td>D</td></tr>
<tr><td>Microcerotermes diversus</td><td>C</td></tr>
<tr><td>Oligonychus afrasiaticus</td><td>H</td></tr>
</table>
</td><td>[4]</td><td></td></tr>
</table>

2 Fig. 6.2 shows the vent crab, *Bythograea thermydron*, which lives at great depths in the sea where there is no light.

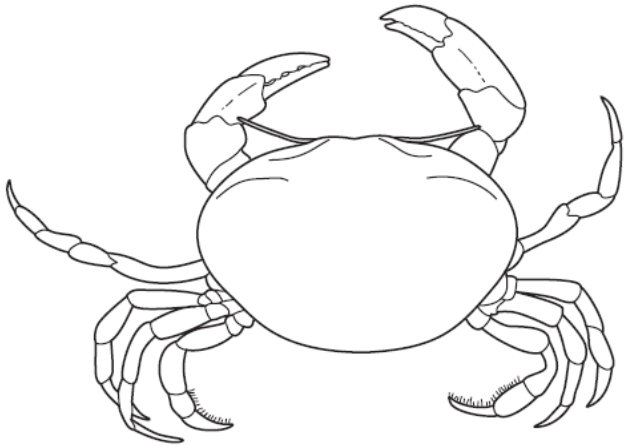

Fig. 6.2

(i) State **one** feature, **visible** in Fig. 6.2, that show that *B. thermydron* is an arthropod.

..... [1]

MARKING SCHEME:

(i)	jointed, legs / limbs / appendages ; exoskeleton ;	[max 1]	

3 Fig. 5.1 shows an adult fly, *Chrysomya megacephala*.

Fig. 5.1

(a) State **three** visible features from Fig. 5.1 that could be used to distinguish adult insects from other arthropods.

1 .....

2 .....

3 .....

[3]

MARKING SCHEME:

	three pairs of legs ; three (named) body segments ; wings ; (pair of) antennae ; compound eyes ;	**3**	