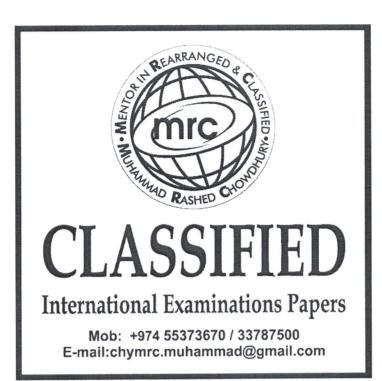
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# BIOLOGY-0610/31, 32, 33 TOPIC-Classification & KEYS

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

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Fig. 1.1 shows six different cells. They are not drawn to the same scale.

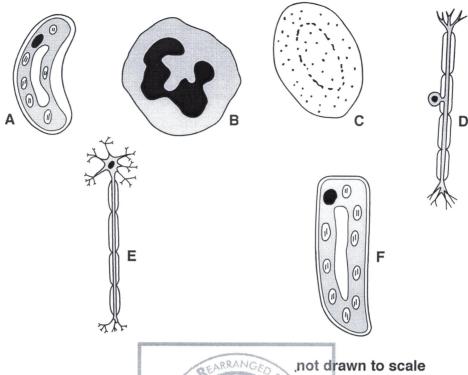


Fig. 1.1

(a) Table 1.1 shows a key which can be used to identify these cells.

Table 1.1

1	cell has a cell wall  Mob: +974 55373670 / 55258711  cell has a membrane but no cell wall @gmail.com	go to 2 go to 3
2	cell wall is of equal thickness all around the cell cell wall is of unequal thickness around the cell	palisade cell guard cell
3	cell has extensions cell has no extensions	go to 4 go to 5
4	nucleus in cell body half way along the length of the cell nucleus in cell body at one end of the cell	sensory neurone motor neurone
5	nucleus is missing from cell nucleus is irregular in shape	red blood cell phagocyte



Use this key to identify cells  ${\bf A},\,{\bf B},\,{\bf C},\,{\bf D}$  and  ${\bf E}.$  Cell  ${\bf F}$  has been done for you.

Write your answers in Table 1.2.

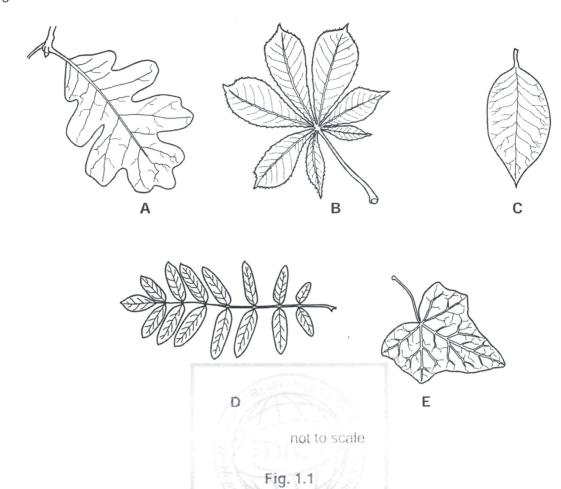
Table 1.2

letter	type of cell
Α	
В	
С	
D	
E	
F	palisade cell

			4]
b)	(i)	State the main function of a palisade cell.	41
			ij
	(ii)	Suggest <b>and</b> explain <b>two</b> ways in which the structure of a palisade cell is adapted to th function.	is
		adaptation 1	
		Mob: +974 55373670 / 55258711  explanation	
		Повидования выполнять повидования выполняться в повидования в по	
			••
		adaptation 2	
		explanation	
			4]

[Total: 9]

1 Fig. 1.1 shows five whole leaves from different trees.



Use the key to identify the leaves in Fig. 1.1 and write the answers in Table 1.1.

Mob: +974 55373670 / 55258711 E-mailtra **Table** d mail.com

		key	name of tree	letter
1	(a)	leaf is a single leaf shape	go to 2	
	(b)	leaf is divided into several parts called leaflets	go to 4	
2	(a)	veins branch from a long middle vein	go to 3	
	(b)	veins branch from a single point at the stalk	Hedera	
3	(a)	leaf is oval and has a smooth edge	Magnolia	
	(b)	leaf is not oval and has a lobed edge	Quercus	
4	(a)	leaf has leaflets joined at one point on the stalk	Aesculus	
	(b)	leaf has leaflets joined at different points along the stalk	Sorbus	

[4]

[Total: 4]

1 (a) Leaves play an important part in plant nutrition.

(i)	Name the process plants use to make carbohydrates such as simple sugars.
(ii)	State the word equation for this process.
(iii)	Suggest <b>one</b> way that leaves are adapted to make carbohydrates.
(***)	[1]

**(b)** Fig. 1.1 shows whole leaves from five different trees.

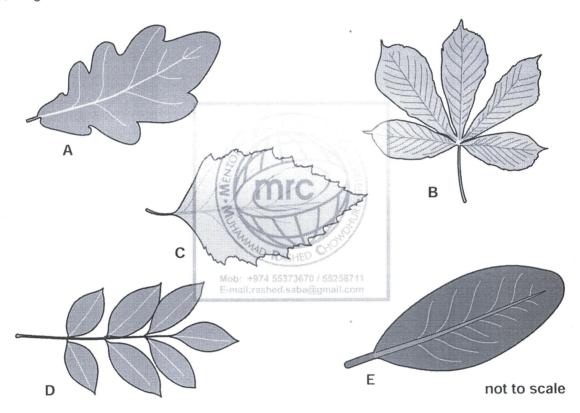


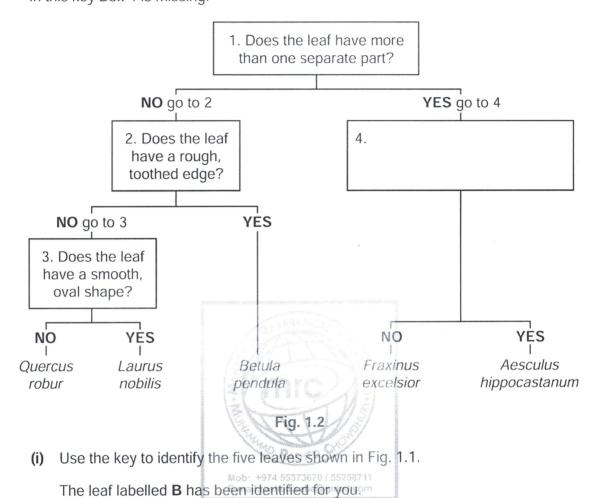
Fig. 1.1



Fig. 1.2 is a key which can be used to identify the five leaves shown in Fig. 1.1.

The key shows the scientific names of the five trees that the leaves came from.

In this key Box 4 is missing.



Complete Table 1.1 by writing the correct letter next to the Latin name of each type of leaf.

Table 1.1

name of tree	letter
Aesculus hippocastanum	В
Betula pendula	
Fraxinus excelsior	
Laurus nobilis	
Quercus robur	

[3]

(ii) Suggest a suitable question which could be used to distinguish between the leaves of Aesculus hippocastanum and Fraxinus excelsior.

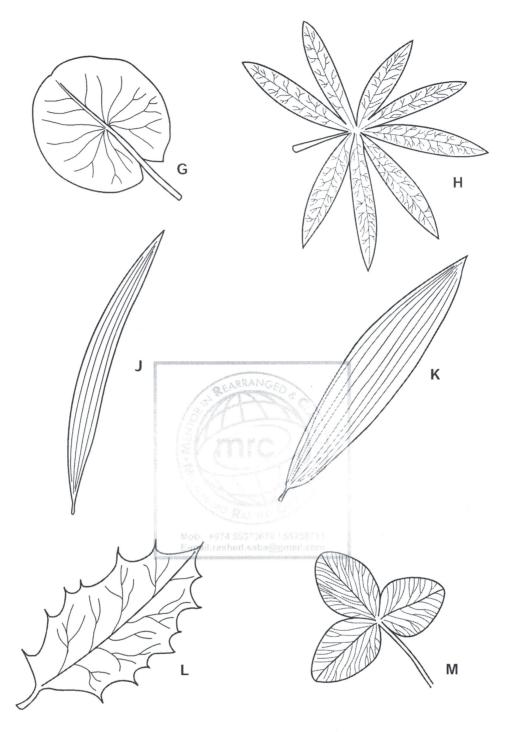
Write your answer in Box 4 on Fig. 1.2.

[1]

[Total: 8]

[Turn over

## 7 Fig. 7.1 shows six leaves.



not drawn to scale

Fig. 7.1



Use the key to identify the plants that these leaves came from.

Write the letter for each leaf in the key.

## Key

	description	name of organism	letter
1 (a)	veins parallel	go to 2	
(b)	veins not parallel	go to 3	
2 (a)	leaf length more than six times leaf width at its widest point	Plantago maritima	
(b)	leaf length less than six times leaf width at its widest point	Plantago lanceolata	
3 (a)	leaf has thorns (spikes)	llex aquifolium	
(b)	leaf has no thorns (spikes)	go to 4	
4 (a)	leaf not divided into sections	Nymphaea alba	
(b)	leaf divided into sections	go to 5	
5 (a)	leaf divided into 3 sections	Trifolium pratense	,
(b)	leaf divided into 8 sections at a shed subsequents	Lupinus arboreus	

[5]

[Total: 5]



1 Fig. 1.1 shows five molluscs. They all live in the sea or on the shore.

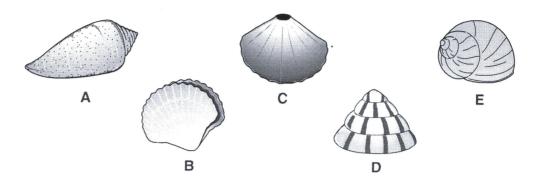


Fig. 1.1

Use this key to identify these molluscs.

- Shell has one part Shell has two parts
- Shell has a hole in the top Shell does not have a hole in the top
- 3 Shell is narrow, with an obvious point Shell is rounded with no obvious point
- 4 Shell is plain, with no pattern Shell is patterned

Write your answers in Table 1.1.

Go to 2 *C. edule* 

F. aperta Go to 3

C. australis Go to 4

L. littorea T. regina

mollusc	name
Α	*
В	
С	
D	
E	

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[4]

[Total: 4]



1 Fig. 1.1 shows five invertebrates that can harm humans.

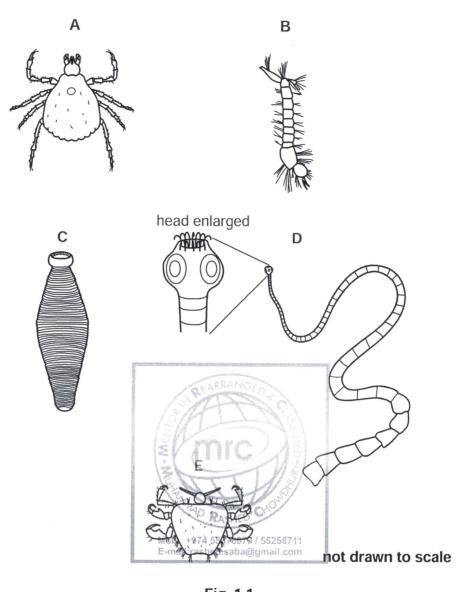


Fig. 1.1

Use the key to identify the invertebrates shown in Fig. 1.1.

Write the letter for each organism in the key.



## Key

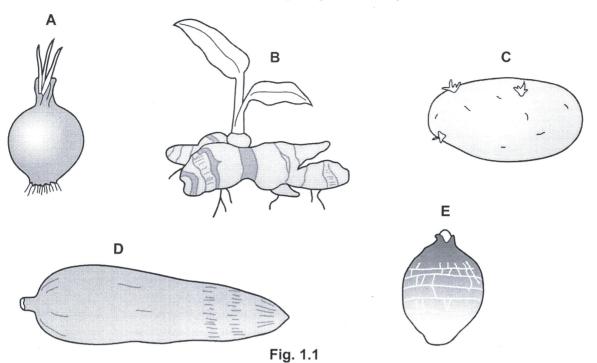
description		name of organism	letter
1 (a) body divided into visible segments		go to 3	
	(b) body not divided into visible segments	go to 2	
2	(a) four pairs of legs present	Amblyomma americanum	
	(b) three pairs of legs present	Pthirus pubis	
3 (a) bristles present on body		Aedes aegypti	
	(b) no bristles present on body	go to 4	
4	(a) hooks on head	Taenia solium	
	(b) no hooks on head	Hirudo medicinalis	

[4]

[Total: 4]



(c) Fig. 1.1 shows the underground storage organs of five plants.



Use the key to identify which storage organ, shown in Fig. 1.1, is produced by which plant.

Write the letter of each storage organ on the correct line in the key.

#### Key

	name of plant	letter of storage organ
1 (a) Approximately round	go to 2	
(b) Longer than it is wide	go to 3	
2 (a) Has a ring of roots at the base	Allium	
(b) No ring of roots	Colocasia	
3 (a) Has shoots or leaves	go to 4	
(b) No shoots or leaves	Cassava	
4 (a) Branched	Zingiber	
(b) Not branched	Solanum	

[4]

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[Total: 10]

1 Fig. 1.1 shows a woodlouse.



Fig. 1.1

The woodlouse is a crustacean, one of the four groups of arthropod.

It is a herbivore that lives on land and eats decaying plant materials.

It breathes with gills that must be kept moist.

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For each group state one feature found **only** in animals of that group.

(a) Name two other groups of arthropod.

	1	group		•••
		feature		
	2	group	€ ARRANGED	
		feature		4]
(b)	So	me stude	nts were sent to find woodlice for an investigation.	
	Su	iggest <b>and</b> ones, deca	d explain <b>two</b> reasons why populations of woodlice are usually found underlying wood and leaves.  Mob: +974 55373670 / 55258711	r
	1	reason	E-mail:rashed.saba@gmail.com	
		explanat	ion	
			·	
	2	reason		
		explanat	ion	
			[4	1]

[Total: 8]

1 Fig. 1.1 shows four insects.

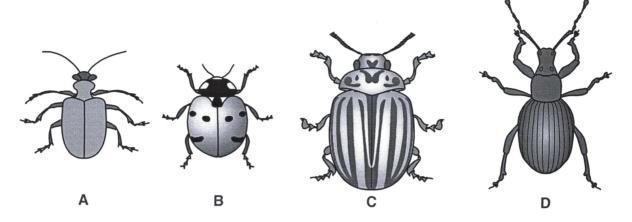


Fig. 1.1

(a) State one feature of the insects shown in Fig. 1.1 that is a characteristic of this group.

(b) Use the key to identify the four insects.

Write the name of each insect in the correct box in Table 1.1.

	(3)				
		key	name of insect		
1	(a) (b)	body has stripes body has no stripes	go to 2 go to 3		
2	(a) (b)	head is long and narrowb: +974 55373670 / 55258711 head is wide and rounded	Otiorhynchus Leptinotarsa		
3	(a) (b)	antennae are longer than width of head antennae are shorter than width of head	Lilioceris Coccinella		

Table 1.1

insect	name of insect
Α	
В	
С	
D	

[3]

[Total: 4]

1 Fig. 1.1 shows a crab that is a member of the arthropod group.

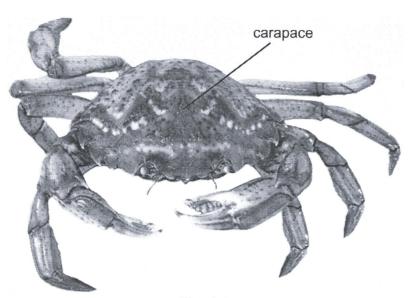


Fig. 1.1

Crabs have a hard shell (carapace) that covers the head and thorax.

The abdomen is often folded under the body below the carapace.

All crabs have five pairs of legs.

(a) To which group of arthropods does the crab belong?

Tick (✓) one box to show your answer.

arachnids	Mob: +974 55373670 / 55258741
	E-mail:rashed.sabe@gmail.com
crustaceans	
insects	
myriapods	

[1]

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#### **(b)** Fig. 1.2 shows five crabs.

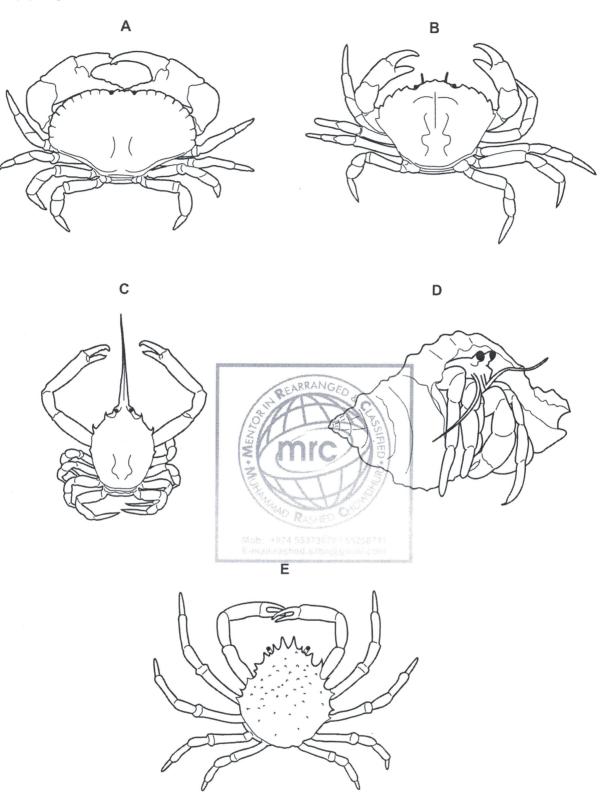


Fig. 1.2

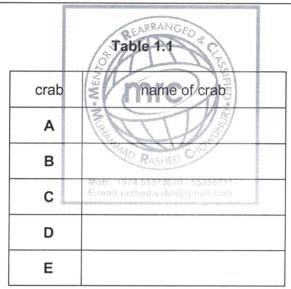
Use the key to identify each of the crabs.

Write the name of each crab in the correct box in Table 1.1.

For Examiner's Use

#### Key

	name of crab
(a) abdomen folded under carapace     (b) abdomen tucked inside mollusc shell	go to 2 Eupagurus
2 (a) all legs are thin (b) front pair of legs is much wider than the rest	go to 4 go to 3
3 (a) front edge of carapace has sharp, jagged points     (b) front edge of carapace is smooth	Carcinus Cancer
4 (a) front edge of carapace comes to a long, sharp point (b) front edge of carapace has lots of short points	Corystes Maia



[4]

[Total: 5]

1 Fig. 1.1 shows five arthropods, each with four pairs of legs.

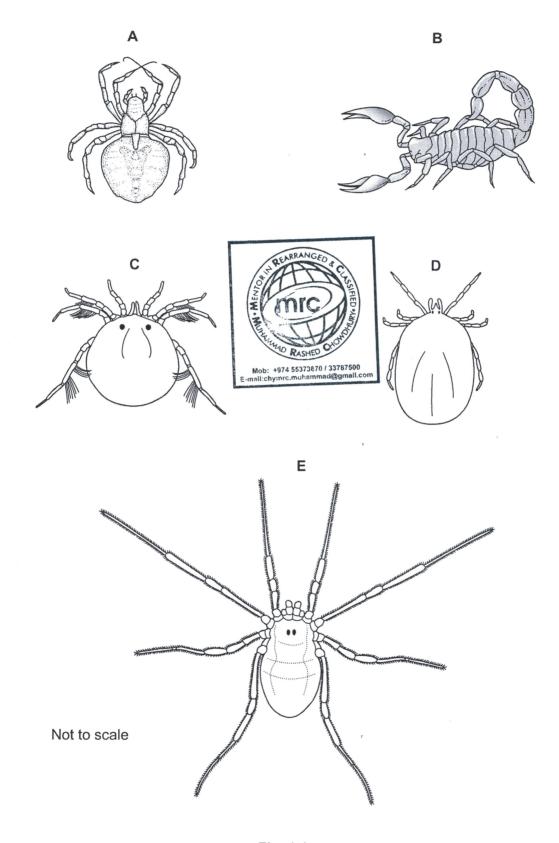


Fig. 1.1

(	(a)	These f	five	arthropods	all	helona	to	the	same	aroun
١	(u)	1110301	IVC	artinopous	all	DEIDLIG	ιO	uie	Same	group.

To which group of arthropods do they all belong?

Tick  $(\checkmark)$  one box to show your answer.

arachnids	
crustaceans	
insects	
myriapods	



[1]

(b) Use the key to identify each of these arthropods.

Write the name of each animal in the correct box in Table 1.1.

#### Key

	name of arthropod
1 (a) legs with hairs (b) legs without hairs	go to 2 go to 3
2 (a) legs with small groups of hairs (b) legs hairy all over	Hydrachna Oligolophus
(a) body clearly has two main regions     (b) body seems to have only one main region	go to 4 Ixodes
4 (a) body clearly segmented, pincers present (b) body with no segments, no pincers	Buthus Araneus

Table 1.1

animal	name of arthropod
Α	
В	,
С	
D	
E	

[4]

[Total: 5]

## 1 Fig. 1.1 shows six different insects.

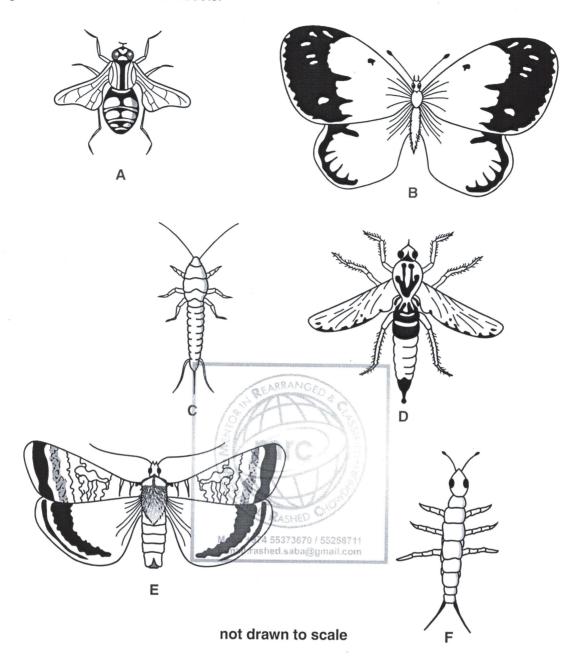


Fig. 1.1

Use the key to identify the insects labelled  ${\bf A},\,{\bf B},\,{\bf E}$  and  ${\bf F}.$ 

Write your answers in Table 1.1.

#### key

		description	
			name of insect
1	(a)	insect has wings	go to 2
	(b)	insect has no wings	go to 3
2	(a)	one pair of wings	go to 4
	(b)	two pairs of wings	go to 5
3	(a)	two tail pieces	springtail
	(b)	three tail pieces	silverfish
4	(a)	abdomen is pointed	robber fly
	(b)	abdomen is rounded	hoverfly
5	(a)	antennae are pointed	large yellow moth
	(b)	antennae have rounded ends EARRA	clouded yellow butterfly

#### Table 1.1

insect	name of insect
Α	BO RASHED
В	Mob: +974 55373670 / 55258711 E-mail:rashed.saba@gmail.com
E	
F	

[4]

[Total: 4]

## 1 Fig. 1.1 shows six arthropods.

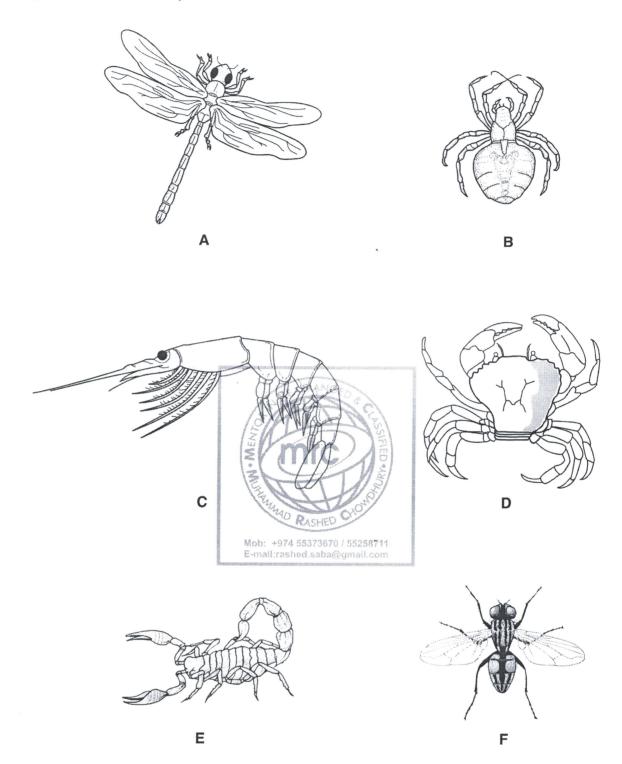


Fig. 1.1

Use the key below to identify each of these arthropods. Write the name of each arthropod in the correct box in Table 1.1.

		name of arthropod
1	arthropods with three pairs of legs arthropods with four or more pairs of legs	go to 2 go to 3
2	arthropods with one pair of wings arthropods with two pairs of wings	Musca Anax
3	arthropods with pincers at the front end of body arthropods without pincers at front end of body	go to 4 go to 5
4	arthropods with tail held above body arthropods with tail tucked under body, not visible	Buthus Cancer
5	arthropods with four pairs of legs arthropods with more than four pairs of legs	Aranea Pandalina

Table 1.1

	SR&ANGA
arthropod picture	name of arthropod
Α	mrc Same
В	The state of the s
С	Mob: +974 55373670 / 55258711 E-mail:rashed.saba@gmail.com
D	
E	
F	

[4]

[Total : 4]

#### Answer all the questions.

1 Fig. 1.1 shows a mayfly nymph (a larva) that lives in water.

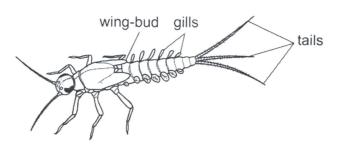


Fig. 1.1

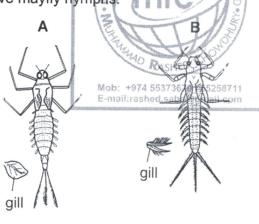
(a) (i) List two features, visible in Fig. 1.1, that show this is an insect.

1.	
0	

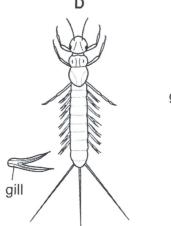
(ii) What special adaptation does the insect shown in Fig. 1.1 have that allows it to live

in water?

(b) Fig 1.2 shows five mayfly nymphs.







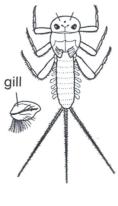


Fig.1.2

Use the key below to identify the species of each mayfly.

		species
1	Rear pair of legs point towards tails ———— go to 2	
	Rear pair of legs point forwards or sideways ——— go to 3	
2	Gills project sideways from body Gills folded over body	Paraleptophlebia Ephemera
3	Each gill a single flat plate go to 4 Each gill divided into two strands	Potomanthus
4	Tails "feather" like in shape Tails "needle" shaped	Centroptilum Ecdyonurus

Write the diagram letter of each of the species in the correct box of Table 1.1.

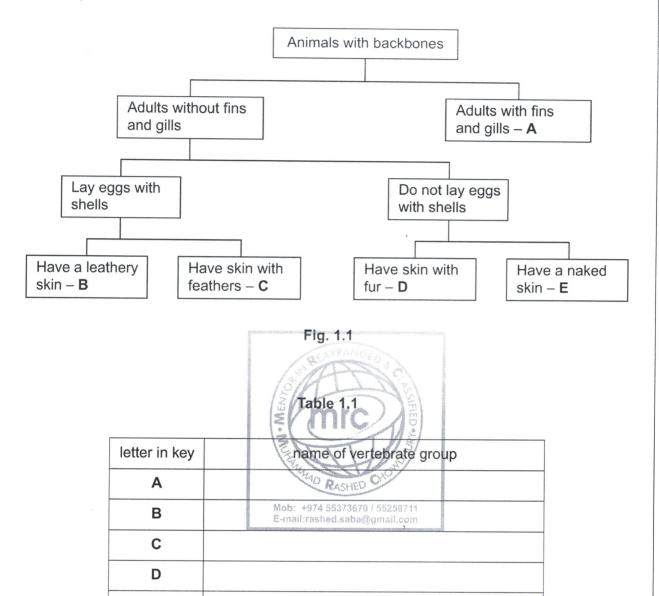
Table 1.1

species	diagram letter
Centroptilum	
Ecdyonurus Mob: +974 5537367	/ 55258711
E-mail:rashed.saba( Ephemera	gmail.com
Paraleptophlebia	·
Potomanthus	

[4]

[Total: 7]

1 Use the dichotomous key, Fig. 1.1, to identify the five vertebrate groups, **A**, **B**, **C**, **D** and **E**. Complete Table 1.1.



[Total: 4]

[4]

E

1 Fig.1.1 shows the shells of five molluscs.

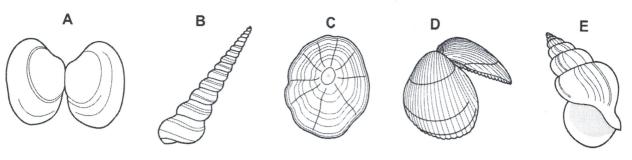


Fig.1.1

Use the key to identify each of the molluscs which normally live inside the shells. Write the name of each mollusc in the correct box of Table 1.1.

As you work through the key, tick ( $\checkmark$ ) the boxes in Table 1.1 to show how you identified each mollusc.

#### Key

	name of mollusc
1 (a) Shell made of two parts (b) Shell made of one part only	go to 2 go to 3
2 (a) Both shell halves have ridges running down the shell (b) Both shell halves are smooth	Cardium Venerupis
3 (a) Shell tightly coiled (b) Shell conical with no coil	go to 4 Patella
4 (a) Bottom coil less than a quarter of the length of the shell (b) Bottom coil more than half of the length of the shell	Turritella Buccinum

#### Table 1.1

	1 (a)	1 (b)	2 (a)	2 (b)	3 (a)	3 (b)	4 (a)	4 (b)	name of mollusc
Α									
В									
С									
D									
E									

[4]

[Total: 4]

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Use

1 Fig.1.1 shows six arthropods, each of which could carry disease organisms.

Use the key to identify each of the arthropods. Write the name of each arthropod in the correct box of Table 1.1. As you work through the key, tick (✓) the boxes in Table 1.1 to show how you identified each arthropod: 974 55373670 / 55258741 E-mail:rashed.saba@gmail.com

Arthropod A has been completed for you as an example.

#### Key

		arthropod
1 (a) (b)	Wings present	go to 2 go to 4
2 (a) (b)	Wings shorter than abdomen	go to 3 Musca
3 (a) (b)	Abdomen long and narrow	Anopheles Periplaneta
4 (a) (b)	Has three pairs of legs Has four pairs of legs	go to 5 Ornithodorus
5 (a) (b)	One pair of legs shorter than the other pairs All pairs of legs of similar length	Pulex Pediculus

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Table 1.1

	1 (a)	1 (b)	2 (a)	2 (b)	3 (a)	3 (b)	4 (a)	4 (b)	5 (a)	5 (b)	name of arthropod
Α		✓					<b>✓</b>			✓	Pediculus
В											
С											
D			v								
E											
F								т			

[5]

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[Total: 5]



1 Fig. 1.1 shows six different fish.

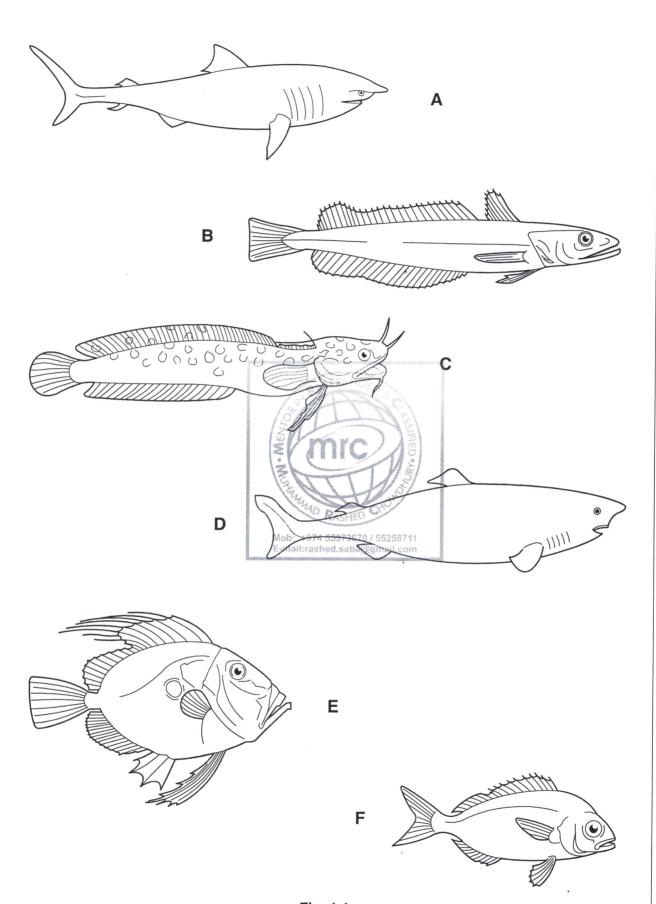


Fig. 1.1

Use the key below to identify each fish. Write the name of each fish in the correct box of Table 1.1. As you work through the key, tick the boxes in Table 1.1. to show how you identified each fish. Fish  $\bf A$  has been identified for you as an example.

#### Key

			name of fish
1	(a) (b)	No gill slits visible Five gill slits visible	2 3
2	(a) (b)	Body about 7 times as long as deep Body about 2 times as long as deep	4 5
3	(a) (b)	Eye above front end of mouth Eye above back edge of mouth	Basking Shark Greenland Shark
4	(a) (b)	One fin along back Two fins along back	Bearded Rockling Hake
5	(a) (b)	Back fin with short spines Back fin with long spines	Sea Bream John Dory

## Table 1.1

fish	1(a)	1(b)	2(a)	2(b)	3(a)	3(b)	4(a)	4(b)	5(a)	5(b)	name of fish
Α		✓				4974.5		55258744			Basking Shark
В					E-ma	iil:rashed	.saba@g	mail.com			
С								ı			
D											
E											
F											

[Total : 5]

1 Fig. 1.1 shows five types of bird that are unable to fly.

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Use the key to identify each of the birds shown in Fig. 1.1.

Write the name of each bird in the correct box in Table 1.1.

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#### Key

	name of bird
(a) Bird with webbed feet (webs of skin between toes)     (b) Bird without webbed feet (no webs of skin between toes)	go to 2 go to 3
2 (a) Bird with tufts of feathers near the eyes     (b) Bird with no tufts of feathers near the eyes	E. crestatus P. adeliae
3 (a) Bird with crest on head (b) Bird without crest on head	C. casuarius go to 4
4 (a) Bird with very long neck (b) Bird with short neck	S. camelus A. australis

	Table 1.1 <sub>GEO</sub>
bird	name of bird
Α	3(115/18)
В	
С	Mob: +974 55373670 / 55258711
D	TO THE OWN THE PROPERTY OF T
E	

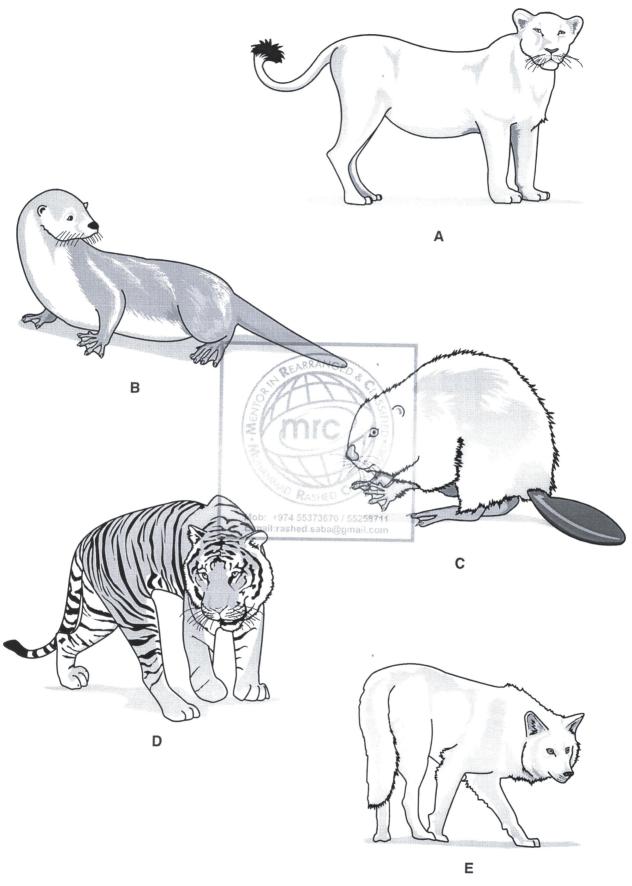
[5]

[Total: 5]

1	(a)	De	fine the term photosynthesis.
		•••••	
		*****	
		*****	
		*****	
		*****	[3]
	(b)	Sor	
	(D)	301	me plants store starch in underground storage organs.
		(i)	Explain how starch in a leaf is transported to an underground storage organ.
			***************************************
			rol
			[2]
		(ii)	Suggest <b>one</b> advantage to the plant of storing starch in an underground storage organ.
			T
			[1]

For Examiner's Use

## 1 Fig. 1.1 shows five different mammals.



not drawn to scale

**Fig. 1.1** 0610/23/O/N/15

Use the key to identify the mammals shown in Fig. 1.1.

Write the letter of each species ( $\bf A$  to  $\bf E$ ) in the correct box beside the key.

#### key

				letter
1	(a)	has webbed feet	go to 2	
	(b)	does not have webbed feet	go to 3	
2	(a)	tail wide and flattened	Castor canadensis	
	(b)	tail rounded, ending in a point	Lutra lutra	
3	(a)	body fur striped	Panthera tigris	
	(b)	body fur not striped	go to 4	
4	(a)	tail has tuft of dark fur at the end	Panthera leo	
	(b)	no tuft of fur at end of tail	Canis lupus	

			[4]
2 (a)	Define the term transpiration	7. EARRANGED & SEE SEE SEE SEE SEE SEE SEE SEE SEE S	[Total: 4]
		Mob: +974 55373670 / 55258711	
		E-mair: rashed saba(iymair.com	
			[0]

(b) Fig. 2.1 shows four leaves from the same tree.

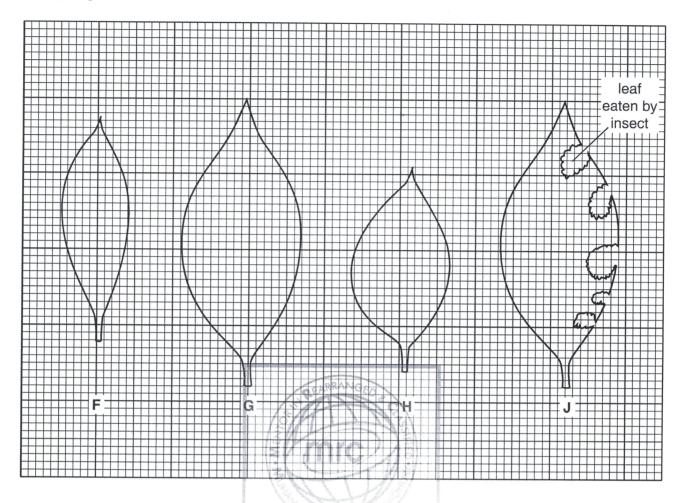


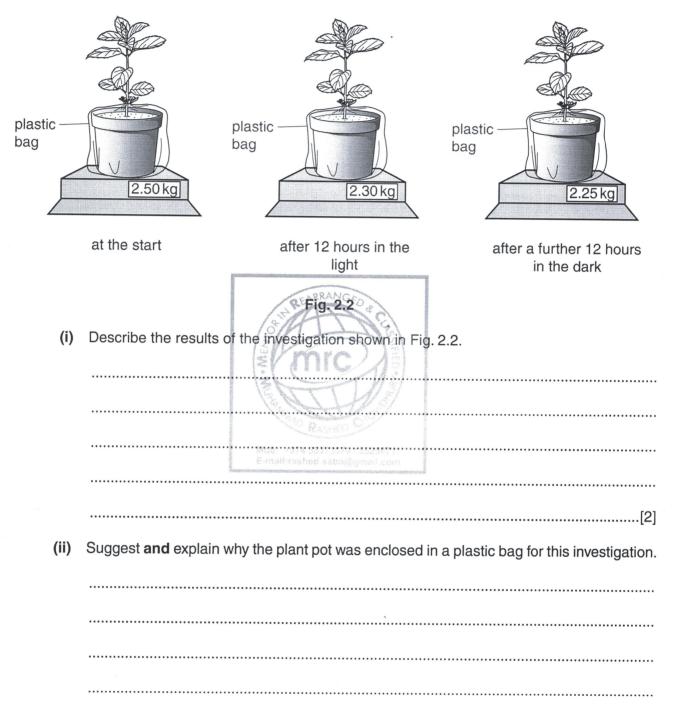
Fig. 2.1

Suggest which leaf will transpire most rapidly and give a reason for your answer.	
leaf	
reason	
· · · · · · · · · · · · · · · · · · ·	
	[3

(c) Fig. 2.2 shows a healthy plant during an investigation into transpiration.

It was kept in the same environment, apart from the light changing, during 24 hours.

The mass of the plant and pot was measured at the start, after 12 hours in the light and after a further 12 hours in the dark.



(iii)	State <b>two</b> environmental factors, other than light, that would change the rate of transpiration in the plant shown in Fig. 2.2.
	1
	2
	+
	[2]

[Total: 12]



1 Fig. 1.1 shows five different mammals.

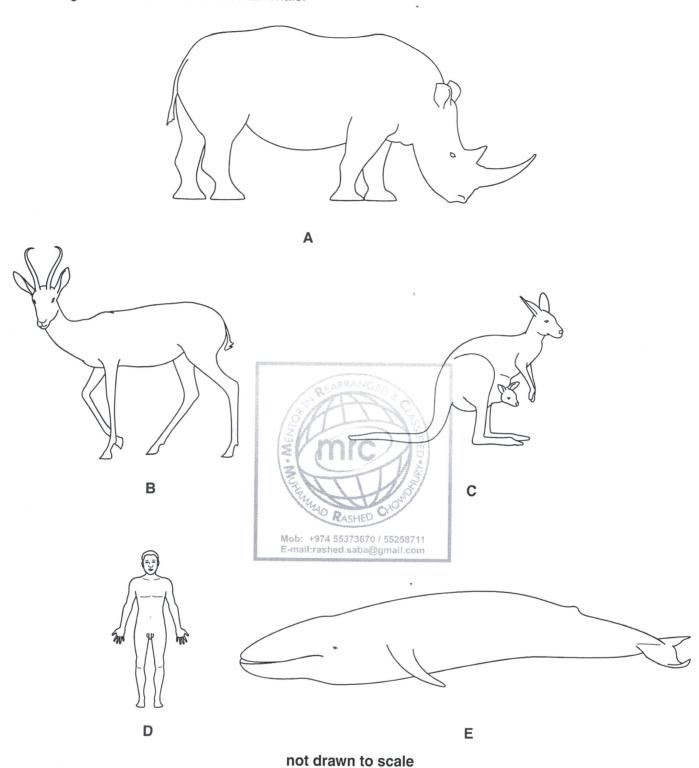


Fig. 1.1

Use the key to identify the mammals shown in Fig. 1.1.

Write the letter of each species (A to E) in the correct box beside the key.

#### key

				letter
1	(a)	has visible external ears	go to 2	
	(b)	does not have visible external ears	Eschrichtius robustus	
2	(a)	stands on four legs	go to 3	
	(b)	stands on two legs	go to 4	
3	(a)	has two horns between its ears	Antidorcas marsupialis	
	(b)	has two horns in front of its ears	Diceros bicornis	
4	(a)	has ears placed on top of head	Macropus rufus	
	(b)	has ears placed at the side of head	Homo sapiens	

[4]

[Total: 4]



1 Fig. 1.1 shows five different mammals. They are not drawn to the same scale.

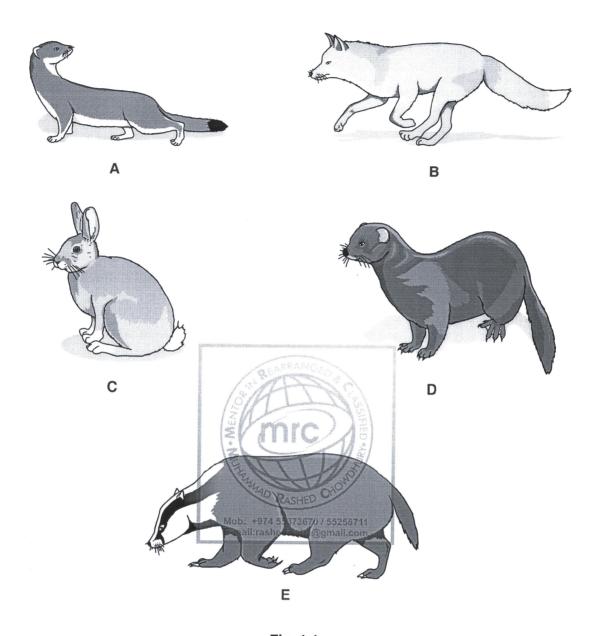


Fig. 1.1

Use the key to identify the mammals shown in Fig. 1.1.

Complete Table 1.1 by writing the names of the five mammals.

## Key

			name of mammal
1	(a) (b)	has ears more than half the length of the head has ears less than half the length of the head	O. cuniculus go to 2
2	(a) (b)	has fur on tail all one colour has fur on tip of tail a different colour to rest of tail fur	go to 3 go to 4
3	(a) (b)	has webbed feet (skin between the toes) does not have webbed feet (no skin between the toes)	M. vison M. leucurus
4	(a) (b)	has white fur on the end of the tail has black fur on the end of the tail	V. vulpes M. erminea

Table 1.1

mammal	name of mammal
A	GEARRANGED :
В	C. A. C.
С	
D	RASHEC C.C.
E	Mob: +974 55373670 / 55258711 E-mail:rashed.saba@gmail.com

[4]

[Total: 4]

## **1** Fig. 1.1 shows five different mammals.

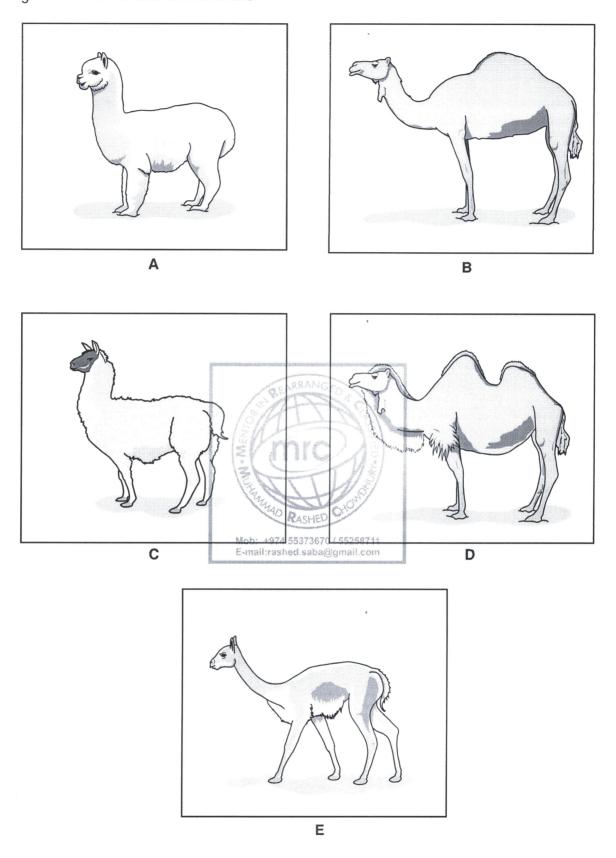


Fig. 1.1

Use the key to identify the mammals shown in Fig. 1.1.

Write the letter of each species ( ${\bf A}$  to  ${\bf E}$ ) in the correct box beside the key.

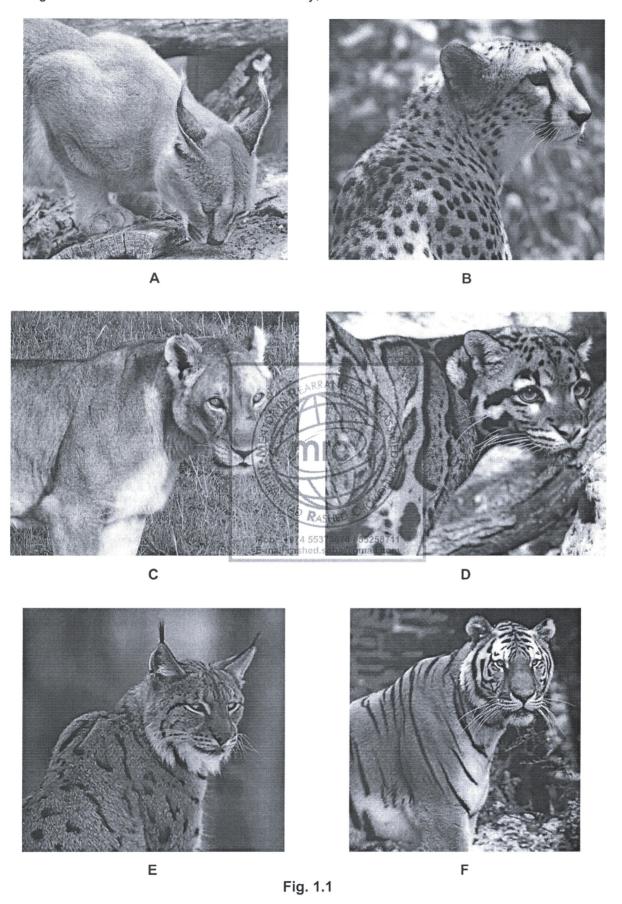
#### Key

		name of mammal	letter
1	(a) has a humped back	go to 2	
	(b) back is level with no hump	go to 3	
2	(a) has one hump on its back	Camelus dromedarius	
	(b) has two humps on its back	Camelus ferus	
3	(a) has black fur on its face	Lama glama	
	(b) fur on face is not black	go to 4	
4	(a) neck and legs long and thin	Vicugna vicugna	
	(b) neck and legs short and thick	Vicugna pacos	



[Total: 4]

1 Fig. 1.1 shows six members of the cat family, Felidae.



For Examiner's Use

Use the key to identify the cats, A to F, shown in Fig. 1.1.

Tick (✓) the boxes in Table 1.1 to show how you identify each cat.

Write the name of each cat in the correct box in Table 1.1.

Cat A has been completed for you as an example.

#### Key

	name of cat
1 (a) Ears pointed (b) Ears rounded	go to 5 go to 2
2 (a) Fur with no stripes or spots (b) Fur with stripes or spots	P. leo go to 3
3 (a) Fur with stripes, but no spots (b) Fur with spots	P. tigris go to 4
4 (a) Fur with spots, but no stripes (b) Fur with spots and stripes	A. jubatus N. nebulosa
5 (a) Fur with spots (b) Fur with no spots	L. rufus L. caracal

Table 1.1

							744	4-10-10-10-10-10-10-10-10-10-10-10-10-10-		/	
cat	1 (a)	1 (b)	2 (a)	2 (b)	3 (a)	3 (b) <sub>м</sub>	4 √ ₃(a) <sub>97</sub> .	4sH6 (b) <sub>36</sub>	્ર5 √(a)₅₂ઃ	5 ₅(b)	name of cat
Α	~					E	mail:ras	hed.sab	ı@gmail	com	L. caracal
В											
С											
D											
E								7			
F											

[5]

[Total: 5]