

Biology Department

Worksheet no.1

Mark Scheme

Name: -----

section: -----

Question 1:

The red slender loris, *Loris tardigradus*, is a nocturnal mammal that feeds at night on flowers, fruit and a variety of small animals. It is found in forest ecosystems in South Asia.

Fig. 3.1 shows a red slender loris.



- (b) State three ways in which mammals, such as the red slender loris, differ from other groups of vertebrates.

1

2

3 [3]

- (e) State how scientists could show that two populations of slender loris belong to the same species or to two different species.

.....

.....

..... [1]

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(b)	<i>mammals have</i> 1 fur ; 2 sweat glands ; 3 pinnae / external ears ; 4 three middle ear bones ; 5 mammary glands / secrete milk ; 6 different types of teeth ;	[max 3]
(e)	<i>ideas of the following required</i> breed and have fertile offspring ; examine DNA to show that they are similar / have similar genes ;	[max 1]

Question 2:

Phytoplankton consist of many species of single-celled and many-celled algae.

(a) Algae are classified in the Protocist kingdom. All algae contain one or more chloroplasts.

State the name of another kingdom that contains organisms which have chloroplasts.

..... [1]

0610/42

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October/November 2022

Question	Answer	Marks	Guidance
1(a)	Plants ;	1	

Question 3:

The green turtle, *Chelonia mydas*, is a species of marine animal that is harmed by plastic waste.

Fig. 2.2 shows a green turtle swimming past a plastic bag in the Pacific Ocean.



Fig. 2.2

(i) Turtles are classified as reptiles.

State **one** feature shown by all reptiles that is **not** found in amphibians.

..... [1]

0610/41

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2(b)(i)	<i>any one from:</i> leathery / hard / scaly, skin ; hard(er) / rubbery / leathery / AW, eggs ; lay eggs on land (not in water) ; internal fertilisation ;	1
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Question 4:

(a) Fig. 4.1 is a diagram of *Vibrio cholerae*, the bacterium that causes cholera.

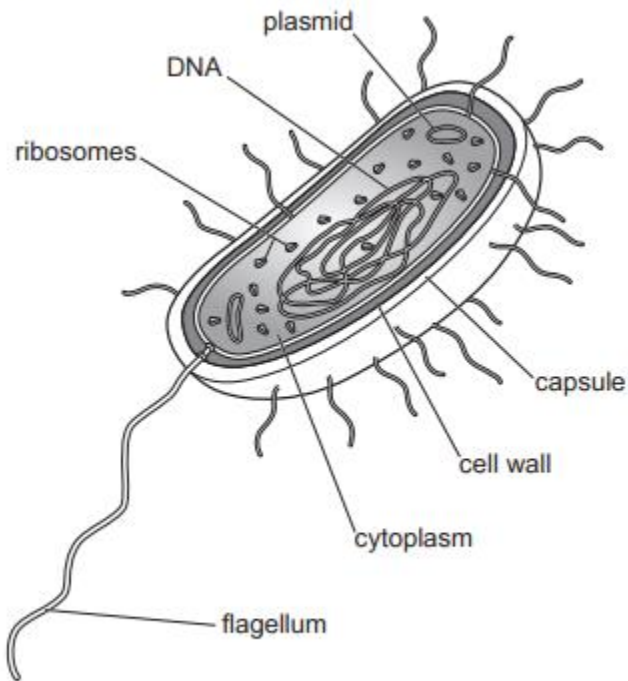


Fig. 4.1

(i) Describe **two** similarities and **two** differences between a palisade mesophyll cell and the bacterial cell shown in Fig. 4.1.

similarity 1

.....

similarity 2

.....

difference 1

.....

difference 2

.....

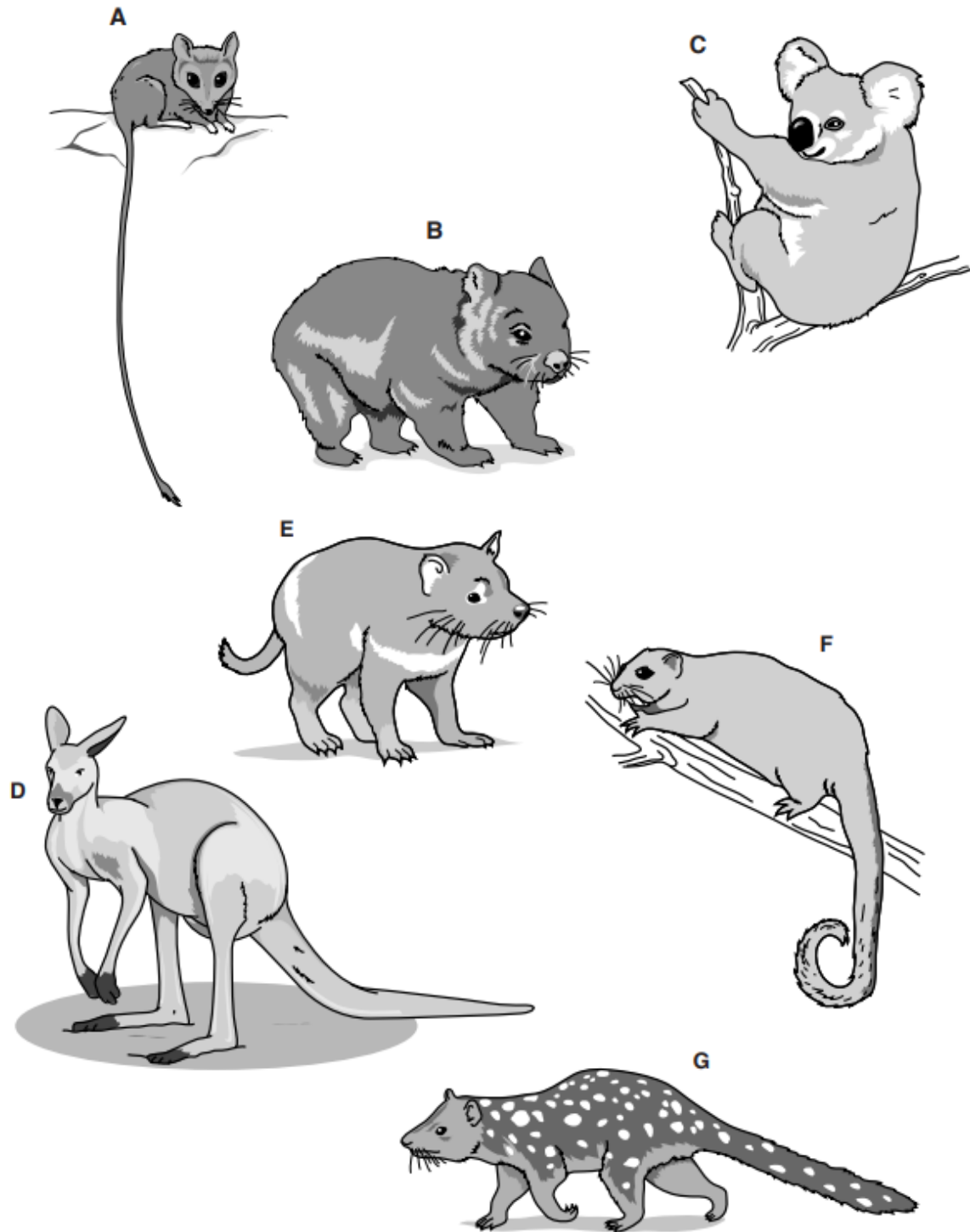
[4]

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Question	Answer	Marks	Guidance
4(a)(i)	<p><i>similarities max two from:</i> (presence of) cell wall ; (presence of) cell membrane ; (presence of) DNA / genetic material ; (presence of) ribosomes ; (presence of) cytoplasm ;</p> <p><i>differences max two from:</i> no plasmids ; no flagella ; no capsule ; no loop of DNA ; presence of chloroplasts ; presence of mitochondria ; presence of nucleus ; presence of large vacuole ;</p> <p>AVP ;</p>	4	

Question 5:

Fig. 1.1 shows seven marsupial mammals.



not drawn to scale

Fig. 1.1

- (ii) Use the key to identify each species. Write the letter of each species (A to G) in the correct box beside the key. One has been done for you.

key

1 (a)	tail visible	go to 2	
(b)	no tail visible	go to 3	
2 (a)	back feet at least twice as long as front feet	go to 4	
(b)	back feet and front feet of similar length	go to 5	
3 (a)	large ears relative to the size of the head	<i>Phascolarctos cinereus</i>	
(b)	small ears relative to the size of the head	<i>Vombatus ursinus</i>	
4 (a)	tail at least twice as long as body	<i>Sminthopsis longicaudata</i>	
(b)	tail less than twice as long as body	<i>Macropus rufus</i>	
5 (a)	uniform body colouring	<i>Paljara tirarensis</i>	
(b)	markings on body	go to 6	
6 (a)	white band across back and chest	<i>Sarcophilus harrisii</i>	
(b)	no white band across back and chest	<i>Dasyurus maculatus</i>	G

[3]

- (a) (i) State **one** visible feature that could be used to identify the marsupials in Fig. 1.1 as mammals.

.....[1]

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1 (a) (i)	hair/fur/whiskers ; external ears/pinna(e) ; nose/snout ;	max [1]																									
(ii)	<table border="1"> <tbody> <tr><td>go to 2</td><td></td></tr> <tr><td>go to 3</td><td></td></tr> <tr><td>go to 4</td><td></td></tr> <tr><td>go to 5</td><td></td></tr> <tr><td><i>Phascolarctos cinereus</i></td><td>C</td></tr> <tr><td><i>Vombatus ursinus</i></td><td>B</td></tr> <tr><td><i>Sminthopsis longicaudata</i></td><td>A</td></tr> <tr><td><i>Macropus rufus</i></td><td>D</td></tr> <tr><td><i>Paljara tirarensis</i></td><td>F</td></tr> <tr><td>go to 6</td><td></td></tr> <tr><td><i>Sarcophilus harrisii</i></td><td>E</td></tr> <tr><td><i>Dasyurus maculatus</i></td><td>G</td></tr> </tbody> </table>	go to 2		go to 3		go to 4		go to 5		<i>Phascolarctos cinereus</i>	C	<i>Vombatus ursinus</i>	B	<i>Sminthopsis longicaudata</i>	A	<i>Macropus rufus</i>	D	<i>Paljara tirarensis</i>	F	go to 6		<i>Sarcophilus harrisii</i>	E	<i>Dasyurus maculatus</i>	G	[3]	5 or 6 correct = 3 3 or 4 correct = 2 1 or 2 correct = 1
go to 2																											
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1 (a) (i)	hair/fur/whiskers ; external ears/pinna(e) ; nose/snout ;	max [1]	
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Question 6:

Toads are amphibians. Only two species are native to Britain, the Common toad (*Bufo bufo*) and the Natterjack toad (*Bufo calamita*).

Natterjack toads like warm sandy soil in open and sunny habitats, with shallow pools for breeding. Examples of these habitats are heathland and sand dunes.

Common toads like cooler, more shady habitats, such as woodland.

Many areas of sand dunes are being developed for camp sites. Heathland can easily change to woodland as trees grow on it. In the summer, woodland is colder than heathland due to the shade the trees create.

These conditions suit the Common toad, but not the Natterjack. As a result of the changing habitats the Natterjack toad is becoming an endangered species.

(a) (i) Name **one** external feature that identifies an animal as an amphibian.

..... [1]

(ii) Amphibians are a class of vertebrate.

Name two other vertebrate classes.

1.

2. [2]

(b) State **one** piece of information from the passage to show that the Common toad and Natterjack toad are closely related species.

.....
..... [1]

(a) (i) ref. to moist skin ; [1]

(ii) mammal ;
bird ;
fish ;
reptile ; [max. 2]

(b) ref. to both belonging to the same genus (or ref. to Bufo) ; [1]
(ignore refs. to both animals being toads)

Question 7:

Bacteria and animals are found in many habitats on land and in the sea.

(a) State **two** ways in which the structure of a bacterial cell differs from the structure of an animal cell.

1

2 [2]

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(a)	1	cell wall ;	R size
	2	plasmid ;	
	3	flagella ;	A fimbriae / pili
	4	capsule ;	ignore 'thread of DNA' unqualified
	5	loop of DNA / circular chromosome / no chromosome(s) ;	some of these structures are not in all bacteria, but are often shown in diagrams of bacteria
	6	no nucleus ;	
	7	no, organelles / named organelle ;	
	8	AVP ; e.g. smaller ribosomes	[max 2]

Question 8:

(a) Fig. 1.1 shows seven plant species that are important crops.



not drawn to scale

Fig. 1.1

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

Key

1 (a)	branched veins on leaves	go to 2	
(b)	parallel veins (not branched) on leaves	go to 3	
2 (a)	leaves divided into leaflets (look like small individual leaves)	go to 4	
(b)	leaves not divided into leaflets	go to 5	
3 (a)	flowers grouped tightly together at the top of the stalk	<i>Triticum aestivum</i>	
(b)	flowers grouped loosely together at the top of the stalk	go to 6	
4 (a)	large flowers located at top of stem	<i>Solanum tuberosum</i>	
(b)	small flowers located along the stem	<i>Glycine max</i>	
5 (a)	leaves have five lobes	<i>Manihot esculenta</i>	F
(b)	leaves have three lobes	<i>Ipomoea batatas</i>	
6 (a)	flowers above youngest leaf	<i>Zea mays</i>	
(b)	flowers bend down below youngest leaf	<i>Oryza sativa</i>	

[3]

- (b) The pattern of the veins on the leaves was used in the key to separate the monocotyledonous crop plants and eudicotyledonous (dicotyledonous) crop plants shown in Fig. 1.1.

State **one** other feature that could be used to identify monocotyledonous plants from eudicotyledonous plants.

..... [1]

Page 3	Mark Scheme	Syllabus	Paper
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Question	Expected Answers		Marks	Additional Guidance														
1 (a)	<table border="1"> <tr> <td><i>Triticum aestivum</i></td> <td>D</td> </tr> <tr> <td><i>Solanum tuberosum</i></td> <td>G</td> </tr> <tr> <td><i>Glycine max</i></td> <td>C</td> </tr> <tr> <td><i>Manihot esculenta</i></td> <td>F</td> </tr> <tr> <td><i>Ipomoea batatas</i></td> <td>B</td> </tr> <tr> <td><i>Zea mays</i></td> <td>A</td> </tr> <tr> <td><i>Oryza sativa</i></td> <td>E</td> </tr> </table>	<i>Triticum aestivum</i>	D	<i>Solanum tuberosum</i>	G	<i>Glycine max</i>	C	<i>Manihot esculenta</i>	F	<i>Ipomoea batatas</i>	B	<i>Zea mays</i>	A	<i>Oryza sativa</i>	E		max [3]	5/6 right = 3 3/4 right = 2 1/2 right = 1 0 right = 0
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<i>Ipomoea batatas</i>	B																	
<i>Zea mays</i>	A																	
<i>Oryza sativa</i>	E																	
(b)	<p><i>general features:</i></p> <ol style="list-style-type: none"> leaf, width / shape ; leaf connection to stem / AW ; number of (named) flower parts ; number of, cotyledons / seed leaves ; type of root ; pattern of vascular bundles ; presence/absence of cambium / AW ; 	<p><i>monocotyledon features:</i></p> <p>narrow leaves ; sheath / no petiole ; flower parts in multiples of 3 ; one cotyledon / seed leaf ; fibrous roots ; scattered vascular bundles ; no, cambium / woody tissue ;</p>	max [1]	Mark answers in context of either general features (first column) or referring to monocotyledonous plants (second column)														