

1. Characteristics and classification of living organisms

1.3 Features of organisms

Paper 3 and 4

Marking Scheme

Q1.

(b)(i)	<i>Lithobius</i> ;	1	
(b)(ii)	<i>myriapod</i> : any one from: many pairs of legs / more than 16 legs / more than 8 pairs of legs ; one or two pairs of legs on each segment ; <i>arthropod</i> : any one from: segmented body ; exoskeleton ; jointed legs ;	2	
(b)(iii)	any two from: insects ; arachnids ; crustaceans ;	2	
(b)(iv)	any two from: chloroplasts / chlorophyll ; cell wall / cellulose ; (permanent) vacuole ; AVP ; e.g. starch, grain / granule	2	
(c)(i)	(hard) shell / exoskeleton / carapace ;	1	
(c)(ii)	animal ;	1	

Q2.

Question	Answer	Marks	Guidance
(a)(i)	fertile ; binomial ; birds ; animal ; backbone / AW ;	5	
(a)(ii)	nutrition circled ;	1	R each additional circle

Q3.

Question	Answer	Marks	Guidance
(a)(i)	any two from: 8 legs / 4 pairs of legs ; two-part body ; AVP ; e.g., pedipalps	2	
(a)(ii)	animal ;	1	

Q4.

(b)	<i>any two from:</i> myriapods ; insects ; arachnids ;	2	
(c)	(vertebrates) have a backbone / don't have an exoskeleton ;	1	

Q5.

Question	Answer	Marks	Guidance
(a)	<i>any two from:</i> jointed legs ; segmented body ; exoskeleton ; antennae ;	2	
(b)	<i>Homarus ;</i>	1	
(c)	<i>any two from:</i> arachnid ; insect ; myriapod ;	2	

Q6.

(b)	<i>(group) mammals ;</i> <i>(feature) hair / fur / external ears / pinna ;</i>	2	
(c)	fish ; amphibians ; reptiles ; birds ;	2	

Q7.

Question	Answer	Marks	Guidance																			
(a)	<table border="1"> <thead> <tr> <th rowspan="2">characteristic</th> <th colspan="3">arthropod group</th> </tr> <tr> <th>arachnids</th> <th>crustaceans</th> <th>myriapods</th> </tr> </thead> <tbody> <tr> <td>four pairs legs</td> <td>✓</td> <td></td> <td></td> </tr> <tr> <td>one pair antennae</td> <td></td> <td></td> <td>✓</td> </tr> <tr> <td>two main body parts</td> <td>✓</td> <td></td> <td></td> </tr> </tbody> </table>	characteristic	arthropod group			arachnids	crustaceans	myriapods	four pairs legs	✓			one pair antennae			✓	two main body parts	✓			3	one mark for each correct row
characteristic	arthropod group																					
	arachnids	crustaceans	myriapods																			
four pairs legs	✓																					
one pair antennae			✓																			
two main body parts	✓																					

Q8.

Question	Answer	Marks	Guidance
(a)(i)	fur / hair ;	1	
(a)(ii)	<i>Panthera</i> ;	1	
(b)	<i>scales:</i> fish / reptiles ; <i>feathers:</i> birds ; <i>gills:</i> fish ; <i>smooth moist skin:</i> amphibians ;	4	A birds
(c)	genetic material / DNA ; cytoplasm ; cell membrane ; AVP ;	2	

Q9.

(a)	<i>any one from:</i> fur / hair ; external ears / pinna(e) ;	1	
-----	--	---	--

Q10.

(a)	Plants ;	1	
-----	----------	---	--

Q11.

(a)(i)	Fungus / Fungi ;	1	
--------	------------------	---	--

Q12.

(a)	N – protein coat ; O – genetic, material / DNA / RNA ;	2	
-----	---	---	--

Q13.

(a)(i)	prokaryote / plant ;	1	
--------	----------------------	---	--

Q14.

(e)	arthropods ;	1
-----	--------------	---

Q15.

(a)(i)	reptiles <i>and</i> amphibians ;	1																				
(a)(ii)	<p><i>one mark per row:</i></p> <table border="1"> <thead> <tr> <th>feature</th> <th>fish</th> <th>mammals</th> <th>birds</th> </tr> </thead> <tbody> <tr> <td>organ involved in gas exchange</td> <td>gills</td> <td>lungs</td> <td>lungs ;</td> </tr> <tr> <td>circulatory system</td> <td>single</td> <td>double</td> <td>double ;</td> </tr> <tr> <td>body covering</td> <td>scales</td> <td>fur</td> <td>feathers ;</td> </tr> <tr> <td>presence of external ears (pinnae)</td> <td>no</td> <td>yes</td> <td>no ;</td> </tr> </tbody> </table>	feature	fish	mammals	birds	organ involved in gas exchange	gills	lungs	lungs ;	circulatory system	single	double	double ;	body covering	scales	fur	feathers ;	presence of external ears (pinnae)	no	yes	no ;	3
feature	fish	mammals	birds																			
organ involved in gas exchange	gills	lungs	lungs ;																			
circulatory system	single	double	double ;																			
body covering	scales	fur	feathers ;																			
presence of external ears (pinnae)	no	yes	no ;																			

Q16.

(a)	<p><i>any two from:</i> <i>assume features are of protoctists unless told otherwise</i> nucleus / nuclear membrane / nuclear envelope ; (named) organelle(s) / internal membranes ; cell walls (if present) have different composition ; linear chromosomes ; AVP ;</p>	2
-----	---	---

Q17.

(a)(i)	<p><i>any one from:</i> nucleus ; membrane-bound (named) organelle / has internal membranes ; vesicles ; no cell wall ;</p>	1
--------	---	---

Q18.

(b)	<p>pinna(e) / external ears ; mammary glands / milk glands / production of milk / lactating / suckling / breast feeding / nipples / AW ; diaphragm ; (three) <u>bones</u> in the middle ear ; (four) different types of teeth / two sets of teeth ; sweat glands ; enucleated red blood cells ; uterus / placenta / navel / AW ; AVP ;</p>	2
-----	--	---

Q19.

(a)	many (body) segments ; head and, body (segments) / AW ; many legs / many pairs of legs; elongated bodies ;	2	
(b)	crustaceans ; arachnids ; insects ;	2	

Q20.

(a)(i)	exoskeleton / AW ; jointed / segmented, limbs / legs / appendages / AW ; pairs of, limbs / legs / appendages / AW ; segmented (body) / AW ; bilateral body symmetry ;	2	
(b)(i)	4 pairs of legs / 8 legs ; fused head and thorax / cephalothorax / two sections or parts of the body ; (pedi)palps / described ; AVP ;	1	

Q21.

(a)	three pairs of legs ; three (named) body segments ; wings ; (pair of) antennae ; <u>compound</u> eyes ;	3	
-----	---	---	--