1. Characteristics and classification of living organisms

1.2 Concept and uses of classification systems

Paper 3 and 4

Marking Scheme

Q1.

Question	Answer	Marks	Guidance
(a)	a group of organisms that can reproduce ; to produce fertile offspring ;	2	
(b)(i)	*Lithobius* ;	1	

Q2.

Question	Answer	Marks	Guidance
(a)(i)	dichotomous (key) ;	1	
(a)(ii)	<table><tr><th>name of the bird in Fig.1.1</th><th>letter of bird in the key</th></tr><tr><td>*Ammodramus bairdii*</td><td>E</td></tr><tr><td>*Buceros rhinoceros*</td><td>B</td></tr><tr><td>*Pandion haliaetus*</td><td>F</td></tr><tr><td>*Haliaeetus leucocephalus*</td><td>D</td></tr><tr><td>*Rynchops niger*</td><td>A</td></tr><tr><td>*Recurvirostra avosetta*</td><td>C</td></tr></table> ;;;;;	5	6 correct = 5 marks 4 or 5 correct = 4 marks 3 correct = 3 marks 2 correct = 2 marks 1 correct = 1 mark
(a)(iii)	feathers ; (lay) eggs with hard shells ; AVP ;	2	
(b)(i)	*Recurvirostra* ;	1	
(b)(ii)	7900(%) ;;	2	MP1 correct subtraction to give 1975 birds MP2 correct percentage calculated
(b)(iii)	*any four from :* climate change / global warming / enhanced greenhouse effect ; habitat destruction ; deforestation ; (increase in) predation / AW ; hunting / poaching / raiding or disturbing nest sites ; introduction of new (competitive) species ; disease ; lack of food / disturbing food chains ; less reproduction / infertility ; (named) pollution ; AVP ; e.g. tourism	4	

Q3.

Question	Answer	Marks	Guidance
(a)	**E, A, D,** **F, C, B** ;;;;;	**5**	6 correct = 5 marks 4 or 5 correct = 4 marks 3 correct = 3 marks 2 correct = 2 marks 1 correct = 1 mark **R** any additional letters

Q4.

(d)	excretion ticked ; growth ticked ;	**2**	**R** each additional tick

Q5.

Question	Answer	Marks	Guidance
	Ilex *Quercus* *Syringa* *Sorbus* *Aesculus* *Plumeria* ;;;;;	**5**	must be in this order 6 correct = 5 marks 4 or 5 correct = 4 marks 3 correct = 3 marks 2 correct = 2 marks 1 correct = 1 mark

Q6.

Question	Answer	Marks	Guidance
(a)	*any two from:* *(fish has)* fins / no legs / no limbs ; scales / scaly skin ; operculum ; deeper body / larger ratio of depth to length ;	**2**	**A** amphibian has (2 pairs of) legs **A** amphibian has smooth skin
(b)	reptiles / birds ;	**1**	

Q7.

(a)	species (name) ;	**1**	

Q8.

(a)(i)	a group of organisms that can reproduce ; to produce fertile offspring ;	2	

Q9.

(b)(i)	<table><tr><td>*Orcinus orca*</td><td>E</td></tr><tr><td>*Myrmecophaga tridactyla*</td><td>F</td></tr><tr><td>*Cervus elephus*</td><td>G</td></tr><tr><td>Go to 5</td><td></td></tr><tr><td>*Macropus rufus*</td><td>B</td></tr><tr><td>*Equus ferus*</td><td>A</td></tr><tr><td>*Lemur catta*</td><td>C</td></tr><tr><td>*Pteropus niger*</td><td>D</td></tr></table> ;;;;	4	7 correct = 4 marks 5 or 6 correct = 3 marks 3 or 4 correct = 2 marks 1 or 2 correct = 1 mark

(b)(ii)	*any two from:* double circulation ; four-chambered heart ; lungs / any named part of lungs ; diaphragm ; red blood cells without nuclei ; AVP ;	2	
(b)(iii)	vertebrates ;	1	

Q10.

(c)	**G** **F** **B** **D** **C** **A** **E** ;;;;;	5	all 7 correct = 5 marks 5 or 6 correct = 4 marks 3 or 4 correct = 3 marks 2 correct = 2 marks 1 correct = 1 mark

Q11.

(a)	*Widdringtonia* ;	1	

Q12.

(a)(i)	*Sorghum* ;	1

Q13.

(b)	*box 2:* (organism) has two rings of cilia / (organism) stalk absent / AVP ; *box 4:* (organism) has a covering of cilia / (organism) fused cilia absent / AVP ;	**2**

Q14.

(a)(i)	*Geospiza* ;	**1**

Q15.

(a)	(group of) organisms that can reproduce ; to produce fertile offspring ;	**2**	

Q16.

(c)	<table><tr><th>class</th><th>letter(s) of species from Fig. 1.3 in each class</th></tr><tr><td>1</td><td>J</td></tr><tr><td>2</td><td>L</td></tr><tr><td>3</td><td>M,</td></tr><tr><td>4</td><td>K,N,O</td></tr></table> ;;;	**3**	4 rows correct = 3 2 or 3 rows correct = 2 1 row correct = 1
(d)(i)	(genus) *Apheloria* ; (kingdom) animal ;	**2**	

Q17.

(c)	*identification can be done using:* base, sequences / order / pattern, in DNA / genes ; each species, has unique / AW, DNA / genes ; *idea that* compare with, reference DNA / base sequences / genes, of known species ; *idea that* if a match with DNA from known species then DNA is from that species OR closely related species have fewer differences in their, base sequences / DNA / genes ; AVP ; e.g. any technique involved in DNA analysis	**2**	