Conservation

Mark Scheme 2

Level	International A Level
Subject	Biology
Exam Board	CIE
Topic	Biodiversity, classification and conservation
Sub Topic	Conservation
Booklet	Theory
Paper Type	Mark Scheme 2

Time Allowed : **60 minutes**

Score : **/ 50**

Percentage : **/100**

Grade Boundaries:

A*	A	B	C	D	E	U
>85%	'77.5%	70%	62.5%	57.5%	45%	<45%

1 **(a** 1. killed / hunted, qualified ; e.g. for meat / for fur / blood sport / takes human food / thought to be dangerous **A** poaching (unqualified)
2. war
3. sale of live young
4. habitat destruction / AW
5. loss of / competition for food
6. AVP ; e.g. disea [3 max]

(b) **(i)** 1. fewer animals need to be caught (for zoos) ;
2. ref. becoming pregnant ; e.g. IVF / finding a ma
3. reintroduction into the wild
4. research easier with captive animals / AW
5. ref. increase in numbers
6. ante or postnatal care [3 max]

(ii) 1. inbreeding / AW ;
2. gene pool too small
3. no fear of humans / difficulty in socialising with other gorillas
4. difficulty in, finding food / reproducing
5. ref. transfer of pathogens
6. ref. effects of captivity ; e.g. stre [2 max]

[Total: 8]

2

process	products
glycolysis	ATP ; pyruvate ; reduced NAD ;
Krebs cycle	ATP ; reduced NAD / reduced FAD ; CO_2 ;
oxidative phosphorylation	ATP ; water ; NAD / FAD ;

[8 max]

R NADP throughout

[Total: 8]

2 **(a)** 1 maintains biodiversity **;**

2 maintain, genetic diversity / genetic variation / gene pool **;**

3 (loss of a species) may affect food, chains / webs **;**

4 use by humans **;** e.g. medical use / building materials / food

5 (eco)tourism **;**

6 ethical / moral / aesthetic, reasons **;** [max 3]

(b) **(i)** *assume answer refers to the botanic garden population unless otherwise stated*

statement about position relative to **A**, **B** or **C** **;** e.g. closest to **B** / lower than **A** and **B** / higher than **C**

use of comparative figures **;** e.g. 30.74 plus one other [2]

(ii) 1 small number / (only) 10, sampled **;**

2 some, variants / alleles, were not included in the sample **;**

3 **C** may be smaller than the other populations **;**

4 **C** may have developed from only a small number of original plants **;**

5 (so) only a small number of, alleles / variants, (present in the original population) **;** **A** small gene pool / less genetic diversity [max 2]

(iii) 1 *idea of* better chance of survival in changing conditions **;**

2 example of change **;** e.g. climatic / increased competition / new disease / new pest

3 less chance of, two harmful recessive alleles coming together / inbreeding depression **;** [max 2]

(iv) 1 (environmental) conditions similar to those in the, wild / natural habitat **;**

2 within pollination distance / AW **;**

3 *ref. to* possible reintroduction of plants to the wild **;** [max 2]

(c) **(i)** *assume answer refers to the seeds unless otherwise stated*

1 *idea that* seeds are small **and** easier to store **;**

2 seeds can be stored for a long time **;**

3 little maintenance required **;**

4 less prone to, disease / being eaten **;**

5 seeds can be stored anywhere in the world **;** [max 2]

(ii) 1 to check that seeds are still, viable / able to germinate **;**

2 to produce new plants from which fresh seeds can be collected **;**

3 to, find / verify, conditions for breaking seed dormancy (should plants be needed) **;** [max 2]

[Total: 15]

3 **(a** any number between 873 – 882 inclusive **;;**

allow one mark for correct working or for number not rounded up [max 2]

(b) *named species (no mark)*

*four **relevant** reasons for a named species* **; ; ; ;**
e.g. animal speci
direct human effect e.g. hunting / fishing / collection / skins
habitat destruction
climate change qualified
increase in pollution
spread / increase, in disease or new disease
lack of food
increased predation

e.g. plant speci
direct human effect e.g. specimen collection / logging
habitat destruction
climate change qualified
increase in pollution
spread / increase, in disease or new disease
loss of pollinators
increased competition from introduced plants [4]

[Total: 6]

4 **(a)** 96 **;;** [2]
allow one mark for correct working with either incorrect answer or answer not rounded down

(b)
1. stop killing **;**
2. education **;**
3. stop trade in tiger parts **;**
4. zoos / national parks **;**
5. captive breeding / AW **;**
6. release back into wild **;**
7. replant forests / AW **;**
8. protect remaining forest / stop deforestation **;**
9. AVP **;** e.g. incentives to indigenous people / ban use in circuses or as pets [4 max]

(c) *assume animalia unless otherwise stated*
1. heterotrophic / AW **;**
2. locomotion **;** **ora**
3. male gametes motile **;** **ora**
4. detail cell structure **;** e.g. no cell wall / no tonoplast **ora** *ignore ref. to cellulose* [2 max]

[Total: 8]

Question			E Answers	Marks
5	**(a)**	1	species threatened with extinction ;	
		2	numbers reduced to critical level / population too small ;	
		3	such low numbers that reproduction is affected ;	[2 max]
	(b)	1	(maintain colony) in zoo ;	
		2	captive breeding (programme) ;	
		3	assisted reproduction ; e.g. IVF	
		4	educate public ;	
		5	national parks / conservation areas ;	
		6	habitat protection ;	
		7	ban, hunting / poaching ;	[4 max]
				[Total:6]

Question	Expected Answers	Marks

6 **(a)**

eukaryotic		prokaryotic
1. linear / stran	**or**	circular ;
2. in nucle	**or**	(free) in cytoplasm ;
3. associated with, proteins histones	**or**	naked ;
4. in chromosom	**or**	not in chromosomes ;

assume eukaryotic if not stated [2 max]

(b) 1 habitat destruction / deforestation ;

2 disease ;

3 fall in prey numbers / difficulty in finding food ;

4 increased competition (with other carnivores) ;

5/6 ref. named human activities ; ; e.g. killing / agriculture / logging
R pollution [3 max]

(c) 1 national parks ;

2 zoos ;

3 captive breeding programmes ;

4 AVP ; e.g. banning hunting / gamete banks / education qualified [2 max]

[Total:7]