

Coordination and Response

Mark Scheme 7

Level	IGCSE
Subject	Biology
Exam Board	CIE
Topic	Coordination and Response
Paper Type	(Extended) Theory Paper
Booklet	Mark Scheme 7

Time Allowed: 29 minutes

Score: /24

Percentage: /100

- 1 (a) (i) fur / hair / whiskers / vibrissae ; **A** teat / nipple / breast / AW
external ears / pinna(e) ; **A** ear flaps [max. 1]
- (ii) internal development / young develops in uterus / 'gives birth to live young' / AW ;
sweat glands ;
feeding of young with milk / breast feeding ;
mammary glands / breasts / nipples ; **R** if given in (i)
four types of teeth / named teeth (incisors, canines and molars) ; **A** two sets of teeth
three, bones in (middle) ear / ossicles ;
diaphragm ;
red blood cells without nuclei ;
neocortex ;
seven neck vertebrae ;
external testes ;
dentary / single bone forming lower jaw / secondary palate ; [max. 1]
- (b) (i) (light conditions) bright / AW ;
(explanation) narrow / small, pupils ; **A** enlarged iris [2]
- (ii) *answer must be linked with answer given in (i)*
less light enters eyes / prevents too much light entering eyes ;
receptors / retina / rods / cones / light sensitive cells, protected from damage / AW ;
R 'damage to eyes'
allow ecf if (b)(i) incorrect
more light enters eyes ;
enough light to stimulate, retina / rods / cones ; [2]
- (c) ref. to, no cones present / only rods ; **R** 'many rods' **R** no, yellow spot / fovea [1]
- (d) ref to image (of zebras) on, fovea / retina ; **R** 'picture'
ciliary body / ciliary muscles, relax ; **R** 'cilia muscle'
suspensory ligament(s) becomes taut / AW e.g. 'pulled' ; **R** 'contract', 'stretched'
lens is, made thin(ner) / less convex / flat(ter) / AW ; *ignore* long
less refraction of light ; **A** bending, correct ref to focal length
R if answer implies that the iris is responsible for shape of lens
R change in iris for depth of field (would not change in this bright light) [max. 3]
- (e) maintains natural habitat / AW ; e.g. prevent, human interference / development
prevention of extinction ;
less, hunting / poaching / killing / AW ;
tourism / economic reason ;
maintain (bio)diversity ;
maintain, gene, pool / diversity ; **A** ref to source of genes / alleles
maintain, food chains / balanced ecosystems ;
available for scientific study / AW ;
retain for future generations / AW ; e.g. aesthetic value
R any aspect(s) of management of reserves [max. 3]

[Total: 13]

- 2 (a) (i) ref. to recent meal / intake of carbohydrate food AW ; [1]
- (ii) pancreas ; [1]
- (iii) ref. to glucose absorbed from blood ;
ref. to conversion to glycogen ;
ref. to increased rate of respiration ; [max. 2]
- (iv) homeostasis ; [1]
- (b) intake by mouth would result in digestion in the stomach AW ;
due to presence of + protease / pepsin ; [2]
- (ii) insulin gene removed from human + DNA / chromosome ;
ref. to restriction + endonuclease / enzyme ;
ref. to plasmid cut open AW ;
ref. to use of ligase + in placing insulin gene into plasmid ;
ref. to formation of recombinant DNA ;
ref. to insertion of plasmid into host bacterial cell AW ;
ref. to culture of bacteria ;
ref. to use of + fermenter / bioreactor ; [max. 4]
- [max. 11]