Cambridge Assessment International Education

Cambridge IGCSE®

BIOLOGY **0610/03**

Paper 3 Theory (Core) **For examination from 2020**

MARK SCHEME

Maximum Mark: 80

Specimen

This document consists of **7** printed pages and **1** blank page.

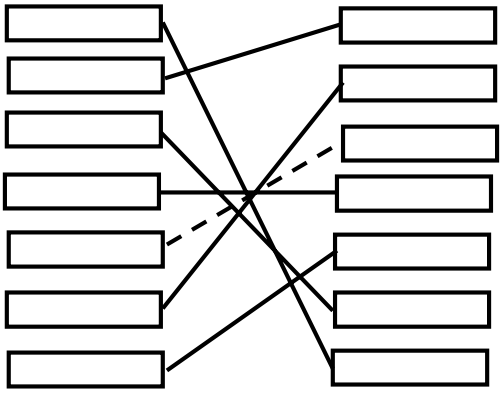
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mark scheme abbreviations

;	separates marking points
/	alternative responses for the same marking point
not	do not allow
allow	accept the response
ecf	error carried forward
avp	any valid point
ora	or reverse argument
owtte	or words to that effect
underline	actual word given must be used by candidate (grammatical variants excepted)
( )	the word / phrase in brackets is not required but sets the context
max	indicates the maximum number of marks
Any [number] from:	accept the [number] of valid responses
note:	additional marking guidance

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1 one mark for each correct link



[6]

2 **(a)** **(i)** mammal; [1]

(ii) hair;
external ears; [2]

(b) **(i)** Any two from:
habitat loss / deforestation;
competition from humans / owtte;
hunting;
avp (e.g. pollution / diseases); [max 2]

(ii) Any two from:
increasing numbers; allow: idea that breeding in captivity produces *more* offspring / less infant mortality
for later reintroduction to wild;
avp; [max 2]

(iii) Any two from:
monitoring / protecting habitats;
monitoring / protecting species (from hunting etc.);
education;
seed banks;
avp; [max 2]

3 **(a)** **X** – placed clearly on oviduct;
allow: **X** with label line clearly indicating oviduct [1]

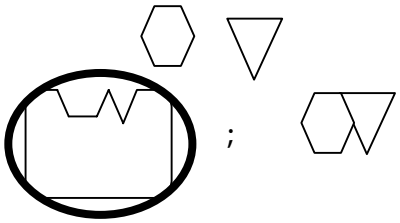
(b) **A** – transfer of nutrients from mother to fetus / transfer of oxygen from mother to fetus / removal of CO_2 from fetus to mother / removal of waste from fetus to mother;
note: direction of transport must be clear

B – carries fetal blood to and from the placenta; [2]

(c) **C** – contracts to push baby (out);

D – dilates to allow exit of baby / owtte; [2]

4 **(a)**



allow: labels on enzyme or on label line to enzyme [1]

(b) **(i)** speeds up / increases the rate of a chemical reaction;
is not changed by the reaction / owtte; [2]

(ii) without enzymes reactions would be too slow to sustain life / owtte; [1]

5 **(a)** (Arctic) plant(s) → lemming(s) → (snowy) owl(s);
note: arrows must be in the correct direction
ignore refs. to energy / Sun / light as long as they are before plants [1]

(b) **(i)** increasing numbers of lemmings reproducing / owtte; [1]

(ii) Any two from:
snowy owl population increasing;
thus more predation / more lemmings eaten;
lemming population too large for food supply / owtte; [max 2]

(iii) Any three from:
as lemming population falls / rises so does the snowy owl population;
but with a time delay;
because of less / more food for the snowy owls;
avp; (e.g. explanation of time delay) [max 3]

(iv) Any three from:
lemming population would increase / reach a peak;
because of less predation;
(after peak) levels off / falls;
equilibrium with plants / food / other factors coming into play / owtte;
too many lemmings for food supply to support / owtte; [max 3]

(c) **(i)** the Sun; [1]

(ii) photosynthesis; [1]

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6 **(a)** pathogen; [1]

(b) Any two from:

sneeze / cough; allow: through blood / body fluids

droplets;

airborne;

inhaled;

contact / on skin / surfaces; [max 2]

(c) Any three from:

mechanical barriers / chemical barriers;

stomach acid kills pathogens;

skin keeps out pathogens / owtte;

hairs in nose trap pathogens / owtte;

sticks to / trapped in, mucus (in mouth / nose / lungs);

cilia;

phagocytosis (by white blood cells);

antibodies produced (by white blood cells); [max 3]

(d) (influenza is) a virus / viral / (not bacterial) / owtte;

antibiotics don't destroy (viruses) / only destroy bacteria / owtte; [2]

7 **(a)** **(i)**

petal	**J**;
anther	**F**;
stigma	**H**;
a male part of the flower	**F**;
part of the carpel	**G / H**;
sepal	**E**; [6]

(ii) Any two from:

large petals;

anthers or stigmas inside the petals;

allow: refs. to lack of adaptations for wind pollination, e.g. no feathery stigma / no drooping anthers; [max 2]

(b) **K**, **L**, **N**, **P**;

4 correct = 2 marks

3 correct = 1 mark

all correct but with 1 additional letter = 1 mark

all correct but with 2 or more additional letters = 0 marks [2]

8 **(a)** **(i)** yeast / *Saccharomyces cerevisiae* / *Saccharomyces* / *S. cerevisiae* / other microorganisms that can respire sugars to give ethanol; [1]

(ii) anaerobic;

respiration;

allow: fermentation for 1 mark [2]

(b) Any two from:

fossil fuel non-renewable;

(sugar cane) renewable / sustainable;

combustion of fossil fuel releases carbon dioxide;

burning plants releases no net carbon dioxide / is carbon neutral / owtte; [max 2]

9 **(a)** **(i)** nutrition / ingestion / feeding; [1]

(ii) decomposers / bacteria / fungi; [1]

(iii) Any two from:

T;

V;

W; [max 2]

(iv) **S**; [1]

(b) glucose + oxygen;

carbon dioxide + water; [2]

(c) Any three from:

more combustion / use of fossil fuels (for heat / power);
allow: refs. to homes, factories, electricity production

more use of (fossil fuels for) vehicles;
allow: for vehicles / any named type, e.g. cars

larger human population respiring;
allow: refs. to increased human population

deforestation / owtte;

leading to less photosynthesis;

burning / decay of cut down materials; [max 3]

10 **(a)** **(i)** liver; [1]

(ii) straight line extending from **X** – **Y**;

9–10; [2]

(b) **(i)** Any one from:

slower reaction time / slower reactions;

depressant;

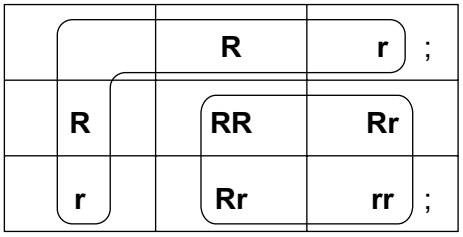
reduced self-control; [max 1]

(ii) Any two from:
liver damage;
addiction;
slower reaction time / reactions;
depressant;
reduced self-control;
note: only accept answers not credited in **(b)(i)**
ignore refs. to social problems, e.g. family breakdown / work difficulties / crime [max 2]

11 **(a)** version of a gene / owtte; [1]

(b) (allele for) red (flowers);
allow: **R** [1]

(c) **(i)**



all alleles correct; – allow: **r** before **R**
all offspring genotypes correct and must derive from alleles; [2]

(ii) 3 red : 1 white;
note: colour must be specified [1]

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