

IGCSE DA Biology 4437 1F

Mark Scheme (Results)

Summer 2007

IGCSE

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DA SCIENCE (BIOLOGY) 4437, MAY 2007, MARK SCHEME

Key

- ; indicates separate mark points
/ indicates alternatives
eq allow for correct equivalent
— word underlined means no alternatives allowed

Paper 1F

1. (a) B; (1)
(b) B; (1)
(c) D; (1)
(d) C; (1)
(e) B; (1)
(f) A; (1)
(g) C; (1)

Total 7 marks

2.

Function	Donated body part
breaks down toxic chemicals	(liver)
produces urine	kidney;
pumps blood around the body	heart;
fills with air during breathing	lung;
bends light as it enters the eye	cornea / lens;
secretes insulin	pancreas;

Total 5 marks

3. (a) A; (1)
(b) D; (1)
(c) B; (1)
(d) C; (1)

Total 4 marks

4. (a) (i) human; (1)
(ii) 105; (1)
- (b) amino acids;
protease;
hydrochloric acid; (3)
- (c) Energy /used as fuel;
insulation / less heat loss / eq; max
cold (environment); (2)

- (d) vitamins / minerals / named vitamin / named mineral;;
I antibodies

(2)

Total 9 marks

5. (a) take up water;
take up nutrient / eq;
support / anchorage;

max
(2)

- (b) no microorganisms / eq;

(1)

- (c) nitrate / phosphate / eq;

(1)

- (d) stop entry of micro-organisms;
stop disease / eq;
maintain humidity;

max
(2)

- (e) light;
temperature / warmth;
carbon dioxide;
water;

max
(2)

Total 8 marks

6. (a) 15;
60;

(2)

- (b) prevents growth / eq;
due to acid /eq;

(2)

Total 4 marks

7. (a) B;
D;
C;

(3)

- (b) muscles;
contract;
peristalsis;

max
(2)

- (c) (i) cellulose;
(ii) skin / gums / prevent scurvy / help connective tissue /
protect against infection / help immune system;
Ignore keep healthy

(1)

(1)

- (d) (i) the faster the exercise the more energy needed /eq;
(ii) 5 250;

(1)

(1)

Total 9 marks

8. (a) (i) gas used = oxygen (1)
 gas produced = carbon dioxide;
- (ii) yeast in middle; (2)
 arrows correct;
- (b) (i) 38; (1)
 (ii) 50;;
 38 - 57 / 19 / 57 - 38 for 1 mark (2)
- (c) optimum / best / ideal / better temperature / warmer / high;
 enzymes / respiration / metabolism / reactions / eq; max
 yeast reproduced; (2)
 more food;
- (d) (i) XX and XY;
 female and male;
 gametes X and Y and all X / X and X;
 offspring XX and XY; Allow ecf from wrong parents
 50:50 ratio given / eq; max
 due to chance / random fertilisation / (5)
- (ii) fewer Y sperm / more X sperm / wrongly sexed /
 miscounted / eq; (1)
 ignore gene
 ignore temperature

Total 14 marks

9. (a) reduce yield / eat crop / eat leaf;
 less leaf / less surface area / trap light / absorb carbon dioxide;
 less photosynthesis; (3)
- (b) kill/destroy pests / insects;
 increase yield / reduce crop loss / prevent eating crop / eq; (2)
- (c) (i) 28; (1)
 (ii) 48 / 48 thousand / 48 000; (1)
- (d) kills other insects / not specific;
 affect consumer / disrupts food chains / persistent / accumulation
 / not broken down / eq; max
 reapplication needed / short lasting; (2)
 resistant; ignore immune
 effect on humans / eq;
 ignore expensive
 ignore eutrophication

Total 9 marks

10. (a) (i) urea / water / salt / urine / mineral ion / named mineral ion; (1)
(ii) (less) oxygen transport; (1)
- (b) (i) white blood cells / lymphocytes / white / B / B cells / wbc; (1)
(ii) diaphragm / intercostal muscles;
no contraction;
no volume/pressure changes (in lung/chest);
no air/gas/oxygen in / no air/gas/carbon dioxide out;
less oxygen to cells/blood/body;
less respiration / energy; (3)
Ignore suffocation / death max

Total 6 marks

PAPER TOTAL 75 MARKS