## Mark Scheme (Results) <br> November 2009

IGCSE

IGCSE Biology (4325) Paper 1F

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| Question <br> Number | Answer |  | Mark |
| :--- | :--- | :--- | :--- |
| $\mathbf{1}$ | (a) | A; | 1 |
|  | (b) | A; | 1 |
|  | (c) | B; | 1 |
|  | (d) | C; | 1 |
|  | (e) | C; | 1 |
|  | (f) | A; | 1 |
|  | (g) | C; | 1 |
|  | (h) | B; | 1 |
|  | (i) | A; | 1 |
|  | (j) | A; | 1 |

(Total 10 marks)

| Question <br> Number | Answer | Mark |
| :--- | :--- | :--- |
| 2(a)(i) | G; | (1) |


| Question <br> Number | Answer | Mark |
| :--- | :--- | :--- |
| 2(a)(ii) | B; | (1) |


| Question <br> Number | Answer | Mark |
| :--- | :--- | :--- |
| 2(a)(iii) | A; | (1) |


| Question <br> Number | Answer | Mark |
| :--- | :--- | :---: |
| 2(a)(iv) | D; | (1) |


| Question <br> Number | Answer | Mark |
| :--- | :--- | :--- |
| 2(b) | prevent backflow / eq; | (1) |

(Total 5 marks)

| Question Number | Answer |  | Mark |
| :---: | :---: | :---: | :---: |
| 3(a) |  |  |  |
|  | sentence | number |  |
|  | The number of organisms is | (8) |  |
|  | The number of plants is | $2 ;$ |  |
|  | The number of animals is | $6 ;$ |  |
|  | The number of primary consumers is | $2 ;$ |  |
|  | The number of food chains is | $5 ;$ |  |


| Question <br> Number | Answer | Mark |
| :--- | :--- | :--- |
| 3(b) | decrease / eq; <br> no food / less grasshoppers / need to compete / eq; | (2) |


| Question <br> Number | Answer | Mark |
| :--- | :--- | :--- |
| 3(c) | (make) food / energy / photosynthesis / eq; | (1) |

(Total 7 marks)

| Question <br> Number | Answer | Mark |
| :--- | :--- | :--- |
| 4(a)(i) | $2600\left(\mathrm{~cm}^{3}\right) ;$ | (1) |


| Question <br> Number | Answer | Mark |
| :--- | :--- | :--- |
| 4(a)(ii) | urine / eq; | (1) |


| Question <br> Number | Answer | Mark |
| :--- | :--- | :--- |
| 4(a)(iii) | $200\left(\mathrm{~cm}^{3}\right) ;$ | (1) |


| Question <br> Number | Answer | Mark |
| :--- | :--- | :--- |
| 4(a)(iv) | cool / lose heat / maintain/ control/ regulate body temp. / eq; | (1) |


| Question <br> Number | Answer | Mark |
| :--- | :--- | :--- |
| 4(a)(v) | kidney; | (1) |


| Question <br> Number | Answer | Mark |
| :--- | :--- | :--- |
| 4(b) | $146000\left(\mathrm{~cm}^{3}\right) ; ;$ <br> Allow one mark for 400 in working | (2) |


| Question <br> Number | Answer | Mark |
| :--- | :--- | :--- |
| 4(c) | carbon dioxide / energy / ATP; | (1) |


| Question <br> Number | Answer | Mark |
| :--- | :--- | :--- |
| 4(d) | body temperature; <br> glucose; <br> carbon dioxide; <br> salt / eq; <br> $\mathrm{pH} ;$ | Max 2 (2) |


| Question Number | Answer |  | Mark |
| :---: | :---: | :---: | :---: |
| 5(a) |  |  | (4) |
|  | event | part |  |
|  | digestion of protein by stomach enzyme | (B) |  |
|  | swallowing | A; |  |
|  | absorption by villi in small intestine | C; |  |
|  | release of hydrochloric acid | B; |  |
|  | egestion | D; |  |


| Question <br> Number | Answer | Mark |
| :--- | :--- | :--- |
| $\mathbf{5 ( b )}$ | amino acids; |  |

(Total 5 marks)

| Question <br> Number | Answer | Mark |
| :--- | :--- | :--- |
| $\mathbf{6 ( a ) ( \mathbf { i } )}$ | yeast; |  |


| Question <br> Number | Answer | Mark |
| :--- | :--- | :--- |
| 6(a)(ii) | carbon dioxide; |  |


| Question <br> Number | Answer | Mark |
| :--- | :--- | :--- |
| 6(a)(iii) | allow gas out / eq; <br> keep microorganisms out / keep oxygen out / eq; |  |


| Question <br> Number | Answer | Mark |
| :--- | :--- | :--- |
| 6(b) | rise / eq; <br> fall / eq; |  |

(Total 6 marks)

| Question Number | Answer |  | Mark |
| :---: | :---: | :---: | :---: |
| 7(a) |  |  |  |
|  | event | stage letter |  |
|  | udder cells are removed and cultured | (A) |  |
|  | an embryo is put into a surrogate mother | E; |  |
|  | a nucleus is removed from an unfertilised egg | C; |  |
|  | an udder cell nucleus is put into an empty egg cell | D; |  |
|  | an electric spark is used | B; |  |


| Question <br> Number | Answer | Mark |
| :--- | :--- | :--- |
| 7(b) | three; | (1) |


| Question <br> Number | Answer | Mark |
| :--- | :--- | :--- |
| 7(c) | genetically / gene / allele / DNA / eq <br> identical / same / exact copy / eq; | (2) |


| Question <br> Number | Answer | Mark |
| :--- | :--- | :--- |
| 8(a) | nutrition / feeding / eq; <br> reproduction / eq; |  |


| Question <br> Number | Answer | Mark |
| :--- | :--- | :--- |
| $\mathbf{8 ( b )}$ | remove; <br> waste / toxins / poisons / harmful substances / eq; |  |

(Total 4 marks)

| Question <br> Number | Answer | Mark |
| :--- | :--- | :--- |
| $\mathbf{9 ( a ) ( i )}$ | haemoglobin; |  |


| Question <br> Number | Answer | Mark |
| :--- | :--- | :--- |
| 9(a)(ii) | biconcave / biconcave described; <br> more surface / large SA:VOL / eq; <br> diffusion; <br> I thin/ permeable/ small/ lack nucleus | (2) |


| Question <br> Number | Answer | Mark |
| :--- | :--- | :--- |
| $\mathbf{9 ( b ) ( i )}$ | shape of cell; Accept wavy outline <br> cell membrane; <br> cytoplasm; <br> nucleus; Accept any nucleus not ball shaped |  |


| Question <br> Number | Answer | Mark |
| :--- | :--- | :--- |
| 9(b)(ii) | ingest / ingestion described / engulf / eq; <br> digest / enzymes / breakdown / eq; |  |

(Total 8 marks)

| Question <br> Number | Answer | Mark |
| :--- | :--- | :--- |
| $\mathbf{1 0 ( a )}$ | A $\quad$rib(s) / ribcage; <br> diaphragm; |  |
|  | C $\quad$ spine / disc / vertebra; |  |


| Question <br> Number | Answer | Mark |
| :--- | :--- | :--- |
| $\mathbf{1 0 ( b )}$ | contracts; <br> moves down / flattens / eq; |  |


| Question <br> Number | Answer | Mark |
| :--- | :--- | :--- |
| $\mathbf{1 0 ( c )}$ | surface area (of alveoli) reduced / smaller alveoli; <br> less oxygen (into blood/ body); I gas exchange <br> respiration; <br> less aerobic (respiration) / anaerobic respiration / lactic acid; <br> less energy released; | (3) |


| Question <br> Number | Answer | Mark |
| :--- | :--- | :--- |
| $\mathbf{1 1 ( a )}$ | arrow labelled P to nucleus; |  |


| Question <br> Number | Answer | Mark |
| :--- | :--- | :--- |
| $\mathbf{1 1 ( b )}$ | arrow labelled Q to cell membrane; |  |


| Question <br> Number | Answer | Mark |
| :--- | :--- | :--- |
| $\mathbf{1 1 ( c ) ( i )}$ | osmosis; |  |


| Question <br> Number | Answer | Mark |
| :--- | :--- | :--- |
| $\mathbf{1 1 ( c ) ( i i )}$ | against concentration gradient / more ions inside than outside <br> / eq; <br> energy / ATP; |  |


| Question <br> Number | Answer | Mark |
| :--- | :--- | :--- |
| $\mathbf{1 1 ( c ) ( i i i ) ~}$ | chlorophyll; <br> amino acids / enzymes / protein / DNA / nucleic acid / eq; | (2) |

(Total 7 marks)

| Question <br> Number | Answer | Mark |
| :--- | :--- | :--- |
| $\mathbf{1 2 ( a )}$ | ovary; <br> fallopian tube / oviduct; |  |


| Question <br> Number | Answer | Mark |
| :--- | :--- | :--- |
| $\mathbf{1 2 ( b ) ( i ) ~}$ | A; |  |


| Question <br> Number | Answer | Mark |
| :--- | :--- | :--- |
| 12(b)(ii) | maintain uterus (lining) / stop menstruation / avoid miscarriage / <br> eq; |  |


| Question <br> Number | Answer | Mark |
| :--- | :--- | :--- |
| $\mathbf{1 2 ( c ) ( i )}$ | C; |  |


| Question <br> Number | Answer | Mark |
| :--- | :--- | :--- |
| $\mathbf{1 2 ( c ) ( i i )}$ | oxygen; <br> glucose / nutrients / food / eq; <br> carbon dioxide / waste ONCE; <br> urea / waste; <br> Allow avoid mixing blood; | max |


| Question <br> Number | Answer | Mark |
| :--- | :--- | :--- |
| $\mathbf{1 2 ( c ) ( i i i )}$ | $46 / 23$ pairs; |  |


| Question <br> Number | Answer | Mark |
| :--- | :--- | :--- |
| $\mathbf{1 3 ( a ) ( i )}$ | starch / cellulose / glucose / sucrose / protein / amino acids / fat / <br> carbohydrate / eq; <br> I cell wall |  |


| Question <br> Number | Answer | Mark |
| :--- | :--- | :--- |
| 13(a)(ii) | respiration; <br> decomposition / decay / rotting / eq; <br> combustion / burning; | Max (2) |


| Question <br> Number | Answer | Mark |
| :--- | :--- | :--- |
| 13(a)(iii) | ice caps melt / flooding; <br> habitat destruction; <br> food chain disruption / eq; <br> extinction; <br> soil erosion; <br> climate change / hurricanes / desertification / drought / eq; | Max (3) |


| Question <br> Number | Answer | Mark |
| :--- | :--- | :--- |
| $\mathbf{1 3 ( b )}$ | dissolves; <br> water / cloud; <br> acid (rain); <br> harms/ kills organisms; I harm to humans | Max (3) |

(Total 10 marks)

| Question <br> Number | Answer | Mark |
| :--- | :--- | :--- |
| $\mathbf{1 4}$ | named crop; <br> control light / light bulbs / eq; <br> control carbon dioxide / burning / eq; <br> control temperature heating / eq; <br> control water supply / eq; <br> control humidity / mineral ions / pest; <br> photosynthesis; <br> growth for longer time / growth in cold season; |  |

(Total 5 marks)
PAPER TOTAL: 100 MARKS

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