



General Certificate of Secondary Education

Science: Single Award 3463/1F *Specification B*

Mark Scheme

2006 examination – June series

Mark schemes are prepared by the Principal Examiner and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation meeting attended by all examiners and is the scheme which was used by them in this examination. The standardisation meeting ensures that the mark scheme covers the candidates' responses to questions and that every examiner understands and applies it in the same correct way. As preparation for the standardisation meeting each examiner analyses a number of candidates' scripts: alternative answers not already covered by the mark scheme are discussed at the meeting and legislated for. If, after this meeting, examiners encounter unusual answers which have not been discussed at the meeting they are required to refer these to the Principal Examiner.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of candidates' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

Single Award (Co-ordinated) Foundation Tier 3463/1F

3463/1F Q1

| question | answers | extra information | mark |
|----------|---|--|------|
| (a)(i) | A | | 1 |
| (ii) | C | | 1 |
| (iii) | D | | 1 |
| (b) | (muscle) contracts / shortens | do not accept tightens / smaller / thicker allow tenses | 1 |
| (c) | any two from: • automatic / non-conscious • reaction / response (to a stimulus) • rapid | accept 'no thinking' or not involving brain / involves non-thinking part of brain do not accept instinctively / subconsciously do not accept just 'action' | 2 |
| total | | | 6 |

3463/1F Q2

| question | answers | extra information | mark |
|-----------------|---|--------------------------|--------------------------------|
| | <u>In correct sequence:</u> asexual identical clones gametes sexual different | | 1 1 1 1 1 1 |
| total | | | 6 |

3463/1F Q3

| question | answers | extra information | mark |
|-----------------|---|--------------------------|-------------|
| (a)(i) | gene / DNA / genetic material <u>for coat protein</u> | | 1 |
| (ii) | coat protein / protein coat | | 1 |
| (b)(i) | white blood cells | | 1 |
| (ii) | antibodies | | 1 |
| (iii) | more rapidly | | 1 |
| total | | | 5 |

3463/1F Q4

| question | answers | extra information | mark |
|-----------------|--|---|-------------|
| (a) | pollen falls / lands (on mud / water / lake) | or pollen falls (implied mud) | 1 |
| | becomes buried in more <u>mud</u> (with time) | | 1 |
| (b)(i) | birch | | 1 |
| (ii) | 8 200 | | 1 |
| (c)(i) | dry / drier | accept less / little rain ignore less water ignore references to Sun and temperature ignore rain unqualified | 1 |
| (ii) | wet / damp / moist / humid / more rain / raining / rainy | ignore more water ignore references to Sun and temperature ignore rain unqualified | 1 |
| total | | | 6 |

3463/1F Q5

| question | answers | extra information | mark |
|----------|---|---|------|
| (a)(i) | to cool down / to lose heat / to maintain (body) temperature | | 1 |
| (ii) | more / a lot of <u>water</u> is lost in <u>sweat</u> | do not accept 'most water' | 1 |
| (b) E | volume of <u>water</u> is lower / less <u>water</u> / not enough <u>water</u> (in urine) | | 1 |
| (c) | breathing / defecation / faeces | do not accept respiration / tears / colloquial names for faeces | 1 |
| total | | | 4 |

3463/1F Q6

| question | answers | extra information | mark |
|----------|--|---|------|
| (a) | 34 | ignore working or lack of working $\frac{10\ 200}{300}$ for 1 mark | 2 |
| (b)(i) | mouth / <u>small intestine</u> / duodenum / ileum | | 1 |
| (ii) | <u>amylase</u> | accept phonetic spelling accept <u>carbohydase</u> | 1 |
| (iii) | sugar / maltose / glucose / disaccharide / monosaccharide / dextrin | | 1 |
| (iv) | <u>small intestine</u> / duodenum / ileum | | 1 |
| total | | | 6 |

3463/1F Q7

| question | answers | extra information | mark |
|----------|---|---|------|
| (a)(i) | C | | 1 |
| (ii) | lack of nucleus / others have a nucleus or chromosome / DNA / genetic material free in cytoplasm | accept plurals do not accept just ‘has a strand of DNA’ | 1 |
| (b)(i) | breathe in <u>air</u> / droplets exhaled by other people / breathe same air or higher concentration of bacteria in the <u>air</u> or more likely to be coughed on | mark for mechanism do not penalise reference to virus / TB / germ ignore answers involving proximity unqualified | 1 |
| (ii) | (bacteria / it) enter body / lungs by breathing / via air | | 1 |
| (iii) | via the blood | accept via rbc or other components of blood accept lymph | 1 |
| (c) | any two from: • skin • scabs / clot • mucus / cilia • stomach acid / gut protease | accept tears do not accept ear wax / saliva / sebum apply list principle ignore nasal hair | 2 |
| total | | | 7 |

3463/1F Q8

| question | answers | extra information | mark |
|----------|--|--|-------------------|
| | <p>Quality of written communication:</p> <p>any four from:</p> <ul style="list-style-type: none"> • tar present • (chemicals from smoke / tar) enter the blood • mutation • (lung) cancer / reference to carcinogen • bronchitis / emphysema • less surface area / less oxygen enters blood • circulatory disease / blood clots / blocked arteries / heart attack / stroke • carbon monoxide • less oxygen carried by blood / CO combines with Hb • damage cilia / alveoli • microbes or correct named e.g. remain in lungs | <p>For <u>correct use of</u> scientific terms:</p> <p>at least two from: e.g. cancer, mutation, bronchitis, emphysema, arteries, atheroma, carbon monoxide, carcinogen, trachea, bronchus, bronchiole, cilia, alveoli, haemoglobin, mucus, red blood cell, white blood cell, ulcer, angina, nicotine, addiction, etc.</p> <p>annotate as Q ✓ or Q ✗</p> <p>do not accept just tar enters blood</p> <p>accept x from tar gets in the blood</p> <p>nb award less oxygen mark once only</p> <p>do not accept blocked by tar</p> <p>nb award less oxygen mark once only accept no oxygen</p> | <p>1</p> <p>4</p> |
| total | | | 5 |