
SCIENCE

1113/01

Paper 1

October 2016

MARK SCHEME

Maximum Mark: 50

This document consists of **10** printed pages.

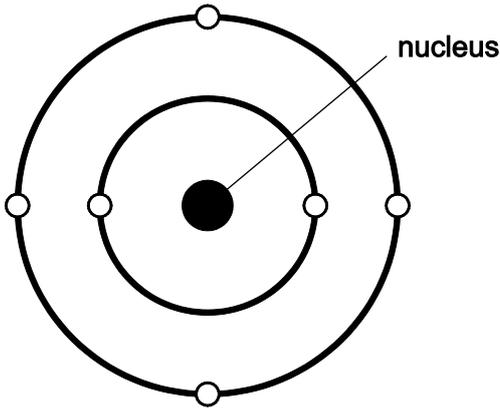


| Question number | 1 | | | | | | | | | | | | | | | | | | |
|-----------------|--------------|--|---------------------|--------------|--|-----------|-----------|--------|--------|------------|----------|-----------|-------------|--------------|--------|-------------|--|-------------|---|
| Part | Mark | Answer | Further Information | | | | | | | | | | | | | | | | |
| | 4 | <table border="0"> <thead> <tr> <th>organ</th> <th>life process</th> </tr> </thead> <tbody> <tr> <td></td> <td>excretion</td> </tr> <tr> <td>intestine</td> <td>growth</td> </tr> <tr> <td>kidney</td> <td>(movement)</td> </tr> <tr> <td>(muscle)</td> <td>nutrition</td> </tr> <tr> <td>spinal cord</td> <td>reproduction</td> </tr> <tr> <td>uterus</td> <td>respiration</td> </tr> <tr> <td></td> <td>sensitivity</td> </tr> </tbody> </table> | organ | life process | | excretion | intestine | growth | kidney | (movement) | (muscle) | nutrition | spinal cord | reproduction | uterus | respiration | | sensitivity | <p>each correct link = 1 mark</p> <p>Ignore any links from muscle</p> <p>if more than one link for an organ = 0 marks for that organ</p> |
| organ | life process | | | | | | | | | | | | | | | | | | |
| | excretion | | | | | | | | | | | | | | | | | | |
| intestine | growth | | | | | | | | | | | | | | | | | | |
| kidney | (movement) | | | | | | | | | | | | | | | | | | |
| (muscle) | nutrition | | | | | | | | | | | | | | | | | | |
| spinal cord | reproduction | | | | | | | | | | | | | | | | | | |
| uterus | respiration | | | | | | | | | | | | | | | | | | |
| | sensitivity | | | | | | | | | | | | | | | | | | |
| Total | 4 | | | | | | | | | | | | | | | | | | |

| Question number | 2 | | |
|-----------------|----------|---|---|
| Part | Mark | Answer | Further Information |
| (a) | 1 | gravel | Accept bottom layer |
| (b) | 1 | 10 (cm ³) | |
| (c) | 1 | clay and higher up (the measuring cylinder) / above silt | <p>must have both clay and explanation for one mark</p> <p>Accept larger particles nearer the bottom</p> <p>Accept clay (floats) on top (of silt)</p> <p>Accept reverse argument</p> |
| (d) | 2 | <p>Sandy soils have more sand particles than clay soils.</p> <p>Between the sand particles there are large air spaces.</p> <p>Sandy soils are less likely to become waterlogged.</p> | <p>all correct = 2 marks</p> <p>two correct = 1 mark</p> <p>one correct = 0 marks</p> <p>Accept other indication of correct answer e.g. ticking but circle takes precedence</p> |
| Total | 5 | | |

| Question number | 3 | | |
|-----------------|----------|--------------------|---|
| Part | Mark | Answer | Further Information |
| (a) | 1 | A B C D E F | Accept other indications of correct answer e.g. underlining or ticking but circle takes precedence more than one letter circled = 0 marks |
| (b) | 1 | A B C D E F | Accept other indications of correct answer e.g. underlining or ticking but circle takes precedence more than one letter circled = 0 marks |
| (c) | 1 | A B C D E F | Accept other indications of correct answer e.g. underlining or ticking but circle takes precedence more than one letter circled = 0 marks |
| (d) | 1 | A B C D E F | Accept other indications of correct answer e.g. underlining or ticking but circle takes precedence more than one letter circled = 0 marks |
| Total | 4 | | |

| Question number | 4 | | | |
|-----------------|----------|---|---|---|
| Part | Mark | Answer | | Further Information |
| (a) | 2 | brown hair colour | ✓ | three correct ticks = 2 marks two correct ticks = 1 mark one correct tick = 0 marks three correct ticks and one incorrect = 1 mark two incorrect ticks = 0 marks Accept other indications of correct answer but ticks take precedence |
| | | green eye colour | ✓ | |
| | | her gender (female) | ✓ | |
| | | playing the piano | | |
| | | speaking French and Italian | | |
| (b) (i) | 1 | nucleus | | Accept chromosomes / genes / DNA / RNA |
| (ii) | 2 | any two from egg / ovum sperm (idea of) fertilisation | | Accept female gamete Do not accept ovule for egg Accept male gamete Accept when gametes / sex cells / reproductive cell = 1 mark fuse / join together / form zygote = 1 mark |
| Total | 5 | | | |

| Question number | 5 | | |
|-----------------|----------|--|---|
| Part | Mark | Answer | Further Information |
| (a) (i) | 1 | F | Accept fluorine |
| (ii) | 1 | Li | Accept lithium |
| (iii) | 1 | Mg | Accept magnesium |
| (b) | 2 |  | <p>two electrons on inner ring = 1 mark</p> <p>four electrons on the outer ring = 1 mark</p> <p>Accept x or circles or e</p> |
| Total | 5 | | |

| Question number | 6 | | |
|-----------------|----------|---|---|
| Part | Mark | Answer | Further Information |
| | 2 |  <p>The air inside the hair dryer is hot. It has thermal energy.</p> <p>The motor turns showing it has kinetic energy.</p> <p>The air leaving the hair dryer makes a noise. It has sound energy.</p> <p>The hair dryer is supplied with electrical energy.</p> | <p>four correct = 2 marks</p> <p>two or three correct = 1 mark</p> <p>one correct = 0 marks</p> |
| Total | 2 | | |

| Question number | 7 | | |
|-----------------|----------|---|--|
| Part | Mark | Answer | Further Information |
| (a) | 1 | (body) mass / (body) temperature / distance / time (taken) / speed / recovery time / breathing rate | <p>Accept (body) weight / BMI</p> <p>Accept how fast she breathes / how long she cycles / volume of air she breathes / amount of oxygen taken in</p> <p>breathing is not sufficient</p> <p>Ignore reference to calories / reference to energy / pulse rate / heart rate / body fat</p> |
| (b) | 3 | <p>table drawn with space for the power and heart rate data and correct headings</p> <p>units shown in the headings only</p> <p>all data entered correctly</p> | <p>Accept power and heart rate (per minute)</p> <p>Do not accept heart beats</p> <p>Accept watts / W</p> <p>Accept beats per min / bpm / heart rate per minute</p> |
| Total | 4 | | |

| Question number | 8 | | |
|-----------------|----------|--|---|
| Part | Mark | Answer | Further Information |
| (a) (i) | 1 | sulfuric (acid) | Accept H ₂ SO ₄ |
| (ii) | 1 | burning condensation fermentation neutralisation oxidation | Accept other ways of indicating correct answer e.g. ticking or underlining but circle takes precedence more than one answer circled = 0 marks |
| (b) | 2 | D F C (E) B A | DFC in correct place = 1 mark BA in correct place = 1 mark |
| (c) | 1 | eye protection / tie (long) hair back / (heat proof) gloves / (idea of) apron or lab coat / standing up / use clamps or equivalent to hold apparatus | Accept common names for eye protection |
| Total | 5 | | |

| Question number | 9 | | |
|-----------------|----------|--|--|
| Part | Mark | Answer | Further Information |
| (a) | 1 | 9.8 | |
| (b) | 1 | 2.8 (4 th box in first row) | |
| (c) | 1 | air resistance increases with area. | Accept ora answer must be a trend or pattern linking air resistance and area e.g. increased area = stronger air resistance |
| Total | 3 | | |

| Question number | 10 | | | | | | | | | | | | |
|---|---|--|--|---------------------|--|---|---|---|---|--|---|---|--|
| Part | Mark | Answer | Further Information | | | | | | | | | | |
| (a) | 3 | <table border="0"> <thead> <tr> <th>fruit</th> <th>method of dispersal</th> </tr> </thead> <tbody> <tr> <td></td> <td><input type="checkbox"/> animal dispersal</td> </tr> <tr> <td></td> <td><input type="checkbox"/> explosive self-dispersal</td> </tr> <tr> <td></td> <td><input type="checkbox"/> water dispersal</td> </tr> <tr> <td></td> <td><input type="checkbox"/> wind dispersal</td> </tr> </tbody> </table> | fruit | method of dispersal |  | <input type="checkbox"/> animal dispersal |  | <input type="checkbox"/> explosive self-dispersal |  | <input type="checkbox"/> water dispersal |  | <input type="checkbox"/> wind dispersal | <p>all four lines correct = 3 marks</p> <p>two or three lines correct = 2 marks</p> <p>one line correct = 1 mark</p> <p>two lines from a fruit = 0 marks for that fruit</p> |
| fruit | method of dispersal | | | | | | | | | | | | |
|  | <input type="checkbox"/> animal dispersal | | | | | | | | | | | | |
|  | <input type="checkbox"/> explosive self-dispersal | | | | | | | | | | | | |
|  | <input type="checkbox"/> water dispersal | | | | | | | | | | | | |
|  | <input type="checkbox"/> wind dispersal | | | | | | | | | | | | |
| (b) | 1 | prevent overcrowding / reduce competition / colonise new territory / allow it to spread | Accept so plants can grow in other places | | | | | | | | | | |
| Total | 4 | | | | | | | | | | | | |

| | | | |
|------------------------|-------------|-------------------------|--|
| Question number | 11 | | |
| Part | Mark | Answer | Further Information |
| | 1 | water and oxygen | both correct for the mark, either order Accept correct formulae H ₂ O and O ₂ Do not accept air |
| Total | 1 | | |

| | | | |
|------------------------|-------------|--|---|
| Question number | 12 | | |
| Part | Mark | Answer | Further Information |
| (a) | 1 | A (and) B | both required, either order Accept Venus and Mercury |
| (b) | 1 | (A) Mercury (D) Mars (F) Saturn | all correct = 1 mark |
| (c) | 1 | The planet that takes the shortest time to orbit the Sun is A . | more than one letter = 0 marks Accept Mercury Accept other ways of indicating the answer e.g. circling or ticking but the answer in the sentence takes precedence |
| Total | 3 | | |

| Question number | 13 | | |
|-----------------|----------|--|---|
| Part | Mark | Answer | Further Information |
| (a) | 2 | yes no no no yes | five correct = 2 marks three or four correct = 1 mark one or two correct = 0 marks |
| (b) | 1 | The Moon can be seen from the Earth because light from the Sun is reflected . | Accept reflecting / reflect Do not accept refracted |
| Total | 3 | | |

| Question number | 14 | | |
|-----------------|----------|--|---|
| Part | Mark | Answer | Further Information |
| (a) | 1 | non-renewable (energy) | Ignore unrenewable |
| (b) | 1 | <p style="text-align: center;"> biomass   geothermal solar wind </p> | both required = 1 mark any incorrect answer = 0 marks |
| Total | 2 | | |