

Unit 2 Key Area 5 Metabolism & adverse conditions

Marking Scheme

1. C

|      |   |   |
|------|---|---|
| 2. a | 112   | 1 |
| b    | <ul style="list-style-type: none"> <li>• 08:00 - 12:00 (1)</li> <li>• Time of lowest metabolic rate (1)</li> </ul>  | 2 |
| c    | <ul style="list-style-type: none"> <li>• Energy saved / conserved</li> <li>OR</li> <li>• Uses less energy</li> <li>OR</li> <li>• Energy not wasted</li> </ul>   | 1 |
| d    | <ul style="list-style-type: none"> <li>• Dormancy</li> <li>OR</li> <li>• Hibernation</li> <li>OR</li> <li>• Aestivation</li> <li>OR</li> <li>• A correct description of one of these terms</li> </ul> | 1 |

|      |  |   |   |
|------|--|---|---|
| 3. a | 990  | 1 |   |
| b    | <p>As temperature increases population decreases</p> <p>OR</p> <p>The higher the temperature the lower the population</p> <p>NB: If values included (21 to 72)/ (123 to 0.1) they must be correct, units not necessary</p> <p>NB: Any description extended beyond the first 4 days negates</p> | 1 | NOT - As the population decreases the temperature increases (Dependent variable controlling the independent is wrong) |

|        |  |   |  |
|--------|--|---|--|
| 4. (a) | <p>Advantage - to avoid adverse conditions/metabolic adversity/lack of food.</p> <p>OR</p> <p>More food available. (1)</p> <p>Disadvantage -/uses energy/metabolic cost. (1)</p> | 2 | NOT - "Harsh/cold weather/temperature" alone without a link to metabolism. |
| (b)    | <p>Each generation dies after laying eggs.</p> <p>OR</p> <p>Only one/4<sup>th</sup> generation migrates.</p>   | 1 |  |
| (c)    | (Daily) torpor.  | 1 |  |

- 5.
1. Animals survive adverse conditions/metabolic adversity by dormancy.  
OR  
All 3 types named (hibernation, aestivation and daily torpor). (1)
  2. Dormancy is where metabolic rate/heart rate/breathing rate/body temperature is reduced. (1)
  3. Dormancy/hibernation/aestivation/daily torpor conserves/saves energy. (1)
  4. Predictive dormancy/hibernation occurs before the onset of adverse conditions (or correct description of adverse conditions). (1)
  5. Consequential dormancy/hibernation/aestivation occurs after the onset of adverse conditions (or correct description of adverse conditions). (1)
  6. Dormancy can be predictive or consequential (only award if neither 4 nor 5 not awarded). (1)
  7. Hibernation occurs in times of low temperatures/winter/cold conditions  
AND  
aestivation occurs in times of drought/high temperature. (1)
  8. Daily torpor occurs in animals with high metabolic rates. (1)
- Max 5 marks from points 1-8
9. Adverse conditions/metabolic adversity avoided by migration. (1)
  10. Migration expends/needs energy/has a high metabolic cost. (1)
  11. Migration is innate and/or learned (both terms required). (1)
- Max 2 marks from points 9-11

7 NOT- avoid adverse conditions.

NOT- 'survive adverse conditions/metabolic adversity by migration'.