| Question | Marking Guidance | Mark | Comments |
|---|---|---|---|
| 03.1 | Increase in aerobic respiration<br>OR<br>Increase in/more mitochondria<br>OR<br>Increase in/more slow muscle fibres; | 1 max | Ignore: reference to Krebs cycle as this in the stem of the question. |
| 03.2 | 1. (More aerobic respiration) produces more ATP;<br>2. Anaerobic respiration delayed;<br>3. Less or no lactate; | 3 | 1. Accept: produces ATP faster.<br>2. Accept: aerobic respiration can continue.<br>2. Accept : no anaerobic respiration.<br>3. Accept: lactic acid. |
| 03.3 | 1. Correct answer in range 84 to 84.2 = 2 marks;;<br>2. For one mark accept incorrect answer but shows<br>r (radius) = 0.63 (mm)<br>OR<br>d (diameter) = 1.26 (mm); | 2 | 2. Ignore: numbers after 0.63 and 1.26. |
| 03.4 | 1. A numerical comparison of range = **2 marks** i.e.<br>Young (fibres) range 14/15 – 47/48 (μm) **and** adult (fibres) 17/18 - 86/87/88 (μm)<br>OR<br>Young (fibres) range 32/33/34 **and** adult (fibres) range 68/69/70/71;<br>2. Comparison of range without numbers = one mark i.e.<br>Adult (fibres) greater range/spread/variation (of diameters)<br>OR<br>Young (fibres) smaller range/spread (of diameters); | 2 max | 1. Accept: **one** mark for comparison of minimum values i.e.<br>14/15 compared to 17/18<br>Allow **one** mark for comparison of maximum values i.e.<br>47/48 compared to 86/87/88.<br>1. Note: comparison of both maximum and minimum values = **2 marks.** |

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| | 3. Comparison of mode = one mark i.e.<br>Adult (fibres) peak/most common/frequent/mode at 50 (µm) **and** young (fibres) peak/most common/frequent/mode at 30 (µm); | | 3. Accept: adult (fibres) peaks at higher diameter or young (fibres) peak/most frequent at lower diameter.<br>3. Reject: reference to mean/average. |

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| 04.1 | 1. Osmosis does not occur;<br>2. Chloroplast/organelle does not burst/lyse/shrivel/shrink; | 2 | 1. Accept: osmosis would occur if water potentials were not the same.<br>1 and 2, Accept: correct reference to osmotic lysis for **2 marks**.<br>2. Accept: chloroplast would burst/lyse/shrivel/shrink if water potentials were not the same.<br>2. Reject: 'cell bursts/shrivels'<br>2. Ignore: damage to chloroplasts on its own is not enough for a mark.<br>2. Reject: becomes turgid/flaccid. |
| 04.2 | 1. To show light does not affect DCPIP;<br>2. To show chloroplasts are required; | 2 | Ignore: comparison with other tubes. |
| 04.3 | 1. Reduction of DCPIP by electrons;<br>2. (From) chlorophyll/light dependent reaction; | 2 | 1. Accept: hydrogen/H for electrons but not protons/hydrogen ions/$H^+$ on their own.<br>2. Accept: from chloroplasts/photosystems/water. |