**AQA A Level Biology - Specimen Paper 3 (First exams 2017)**

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| **(a) Give an introduction as to what living organisms are**  | Living organisms have a level of complexity and organisation not found in lifeless objects. They are composed of one or more cells. these cells can then be organised into tissues. Tissues in turn can then turn into organs. A number of orgams can work together to form an organ system. A complex series of organs systems can then form a organism. Movement is a characteristic in all living organisms, it is more than just exercise, it enables the movement of substances in digestion, nerve responses, synaptic transmission, cell division through mitosis and evolution.  |
| **(b) Give one reason why movement in organisms is important**1: One reason why living organisms are important is because…2: This means that3: Therefore4: As a result..5: This could lead to…*If you want to stretch yourself further, include a `HOWEVER` at the end of the paragraph**If this is too challenging, just do steps, 1-3* | One reason why living organisms are important is because cell division is essential for growth and replacement of existing cells of existing cells, enabling organisms to become multicellular. During mitosis the **parent cell** replicates its DNA and this results in two **daughter cells**. The daughter cells are **genetically identical** to the parent cell. **This means that** chromosomes within the parent cell need to move in order to replicate their DNA, line up on the equator during metaphase and move to the opposite end of the poles during anaphase. **As a resul**t, this leads to cell division and the formation of two new daughter cells. Mitosis is important in the growth of all living organisms, however in some cases uncontrolled cell division **can lead to the** formation of tumors which can be cancerous.  |
| **(C) Another reason why movement in organisms is important** 1: One reason they are important is because…2: This means that3: Therefore4: As a result..5: This could lead to…*If you want to stretch yourself further, include a `HOWEVER` at the end of the paragraph**If this is too challenging, just do steps, 1-3* | Another reason why movement in organisms is important for the sodium-potassium pump. Animals have a higher concentration of potassium ions than their external environment. **This is because** cell maintains certains conditions by pumping potassium ions into the cell and pumping sodium ions out of the cell. A specific protein binds to the three intracellular sodium ions. **As a result** the binding causes phosphorylation of ATP. **This leads to** one phosphate lost **resulting in** a compound forming called ADP. Phosphorylation **therefore** causes the protein to change shape, **thus** expelling sodium ions to thee exterior. Two extracellular potassium ions bind to the different regions and this causes the release of the phosphate group. **This means that the loss o**f the phosphate group restores the protein shape, **thus causing** the release of the potassium ions into the intracellular space. The sodium-potassium pump shows how important the active transport of substances is, it also **however** shows the movement of the ATP molecule and its crucial role in active transport.  |
| **(d) Do a conclusion – Say how important living organisms are**1: To conclude, I think….2: My most important reason is because…3: However, they depends on.. because…4: In the short term, this will mean that ..5: In the long term, this will mean that ….6: Other …. to be affected by this are…*If you find this too challenging, just do steps:**1,2.4,5* | **To conclude**, I think that movement in organisms is integral for the survival of all living organisms. **My most important reasons** are that organisms are able to transport substances, take up nutrients, excrete toxic compounds, create movement of muscles and the skeletal system. This would also include transmission of neurotransmitters in neurons in animals and the mass flow of substances within plants, in particular the phloem. **In the short term** this will mean survival. **However, in the long term**, this will mean that all organisms have the ability to adapt and evolve. Which could lead to more complex living organisms and systems, opening up the possibility of more mechanisms of movement that may not exist today. Similarly, organisms such as bacteria and archaea diverged from their common precursor very early on this time period. The two prokaryotes inhabit different environments and give rise to different species, one reason for their success is centered upon the movement of substances. |