**Possible Synoptic Essay Ideas**

These are the sort of questions and ideas which might come up/ have come up in the past.

Remember that you do not need to know everything about all of them. We have dealt with some major topics which can be used in many of these essays.

Use your specification to select some other general areas which would satisfy several of these titles, try to write/research paragraphs on each and learn them well.

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| How is the ultra/structure of different cells/cell organelles related to their function? (2 titles) |  |  |
| How the structure of proteins is related to their function/The properties and importance of enzymes to plants and animals (2 titles) |  |  |
| The structure and functions of membranes in cells. |  |  |
| Energy transfers which take place in living organisms /Use of ATP (2 titles) |  |  |
| A human being eats the equivalent of 700g of carbohydrate per day but turns over about 75kg of ATP. Explain what is happening. |  |  |
| The process of diffusion/osmosis and its importance in living organisms (2 titles) |  |  |
| The part played by the movement of substances across cell membranes in the functioning of different organs and organ systems. |  |  |
| Negative feedback in living organisms |  |  |
| The passage of water through plants |  |  |
| Importance of carbohydrates in organisms/ Structure and function of carbohydrates (2 titles) |  |  |
| How different organisms obtain the element nitrogen |  |  |
| Transport in living organisms/How substances are transported from one organ to another, both in animals and in plants |  |  |
| How micro-organisms can benefit humans/The part played by micro-organisms in nutrient cycles (2 titles) |  |  |
| The function of mineral ions in animals and plants |  |  |
| The similarities and differences between nervous and hormonal control in animals |  |  |
| Transfer of substances containing carbon between organisms and between organisms and the environment. |  |  |
| The ways in which genes and the environment affect the phenotype of an organism |  |  |
| The effect of ecological conditions on distribution/ Adaptations to life on land (2 titles) |  |  |
| Cycles in biology |  |  |
| How and why are organisms classified? |  |  |
| Homeostasis in a mammal/Negative feedback in living organisms |  |  |
| Photosynthesis and its importance in ecosystems |  |  |
| The effect of temperature on living organisms and the processes which occur in them /Mean temperatures are rising in many parts of the world. The rising temperatures may result in physiological and ecological effects on living organisms. Describe and explain these effects. (2 titles) |  |  |
| The causes of variation and its biological importance/Mutation and its consequences (2 titles) |  |  |