O level revision questions

1. a) Describe: (i) Structural features of insects and arachnids. (*05 marks*), (ii) The lifecycles of Housefly and Grasshopper. **(*05 marks*)**, b) How do mouthparts of insects in different orders suit them to their functions?
2. a) Compare monocotyledons and dicotyledons, using **structural** features.**(*09 marks*)**
3. How are the following parts suited to perform primary functions in plants?
4. Leaves, (ii) Stems (ii) Roots **(*06 marks*)**
5. a) Describe an experiment to show that soil contains living organisms. **(*06 marks*)**
6. Explain how; (i) Nitrogen is recycled through the activity of soil bacteria and fungi to make it available to plants. **(*06 marks*), (ii)** Human activity can maintain soil fertility. **(*03 marks*)**
7. a) What is meant by digestion, (b) State how the following region of gut is adapted to carry out digestion?

(i). Mouths region (ii) Stomach (iii) Ileum

(c) A Senior 2 student ate a meal containing yam and smoked fish. Describe the physical and chemical process that occurred in the child gut that enabling the brain cell to utilize the nutrient in the yams.

(d) In an experiment to investigate the effect of boiling water or the vitamin C content of cabbage scientist obtained the results show in the table opposite.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Time the cabbage is in boiling water in minute | 0 | 0.5 | 1 | 4 | 6 | 10 |
| Time to decolorize DCPIP | 10 | 25 | 34 | 42 | 48 | 46 |

1. Plot these results on the graph.
2. What does this result tell you about vitamin C contents of the cabbages as it is cooked?
3. Suggest an explanation of these results.
4. What does this suggest about cooking vegetables in order to preserve their contents?

(e) Describe how you would determine the presence of vitamin C in a food sample. State any conclusion of the about vitamin C content of cabbage as it is cooked.

(f) Suggest an explanation for these results.

(g) What does this suggest about cooking vegetable in order to preserve their vitamin C content?

5. a) what are the constituents of fertile soils. (b) In what ways may human activities;

(i) Improve soil? (ii) Degrade the soils

(c) Two soil samples x and y were weighed and found each to be 200g. to both soil samples, 50g of water was added and the total weight was 248g for A and 240g for B. the soils were heated to 100oc and for 3 times weighted until a constant weight was obtained. For A 192g for B 195g, 193g and constant weigh of 191g for B 192g, 190g and constant weight of 188g was reached. The same soil was heated until 450oc red hot and a constant weight of 188g for A and 186g for B was obtained.

**Table for summary of results**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Original amount of soils | Adding 50cm3 of water | Heated at 100oc 1st weight | Heated 100oc 2nd weight | Constant weight at 100oc | Constant weight at 450oc |
| Soil sample A | 200g | 248g | 195g | 193g | 191g | 188g |
| Soil sample B | 200g | 240g | 195g | 191g | 188g | 186g. |

Calculate the percentage of; (i) Air (ii) Humus (iii) Water

(b) Which soils sample? (i) Is highly aerated? (ii) Has high content? (iii) Has high Humus contents?

Explain you answer

6. Describe the digestive processes which occur at the following parts of the human alimentary canal.

(i) Mouth, (ii) Stomach, (ii), Duodenum (b) How is the human ileum suited for its functions

**7.** The table below shows the results of an investigation carried out to study the effect of pH on the decomposition of hydrogen peroxide by the enzyme in living Irish potato tubers. The rate of reaction was determined by measuring the time in minutes, taken to collect 10 cm3of oxygen.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| pH | 4 | 5 | 6 | 7 | 8 |
| Rate of oxygen production (cm**3** min**-1**) | 0.5 | 0.8 | 1.0 | 0.7 | 0.6 |

1. Plot a graph to represent the data in the table. **(*06 marks*)**
2. Describe the trend in the rate of oxygen production. **(*03 marks*)**
3. Explain the changes in the rate of oxygen production. **(*05 marks*)**
4. What is the biological benefit of decomposing hydrogen peroxide in bodies? **(*03 marks*)**
5. How does temperature affect the activity of enzymes? **(*03 marks*)**

END