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1. You are provided with specimen K which is freshly killed.
a) Examine the head of the specimen and state how it is adapted to its habitat.
b) Open up the specimen and display the muscles of the thoracic region. Draw and label the muscles and other structures exposed in the thoracic region.
c) i) Open up the abdominal cavity of specimen K and cut out the alimentary canal. Dissect to display blood vessels taking away blood from the right hind leg and abdominal organs, back to the heart.
ii) Dissect the specimen further into the thorax and display the blood vessels draining the left fore limb and the half of the thoracic region.
Displace the heart to the right of the animal.
Draw and label what is displayed in (c) (i) and (c) (ii) in one drawing

2. You are provided with solutions X and Y and a filter paper.
a) You are required to carry out tests on the solutions using the filter paper, following the procedure provided.
Procedure:
i) Using a ruler measure out seven 1cm × 1cm square grids on the filter paper provided, then cut them out using a pair of scissors or razorblade.
ii) Pour 10cm3 of solution Y in a petri dish and immerse the seven pieces of filter paper into it.
iii) Label seven test tubes as 250C, 350C, 450C, 550C, 650C, HCl and NaOH and add 10cm3 of solution X into each.
iv) In a plastic beaker/cup provided, create a water bath maintained at 250C by mixing the cold and hot water where necessary, while monitoring the temperature with a thermometer.
v) Place the test tube containing solution X labeled 250C into the water bath and leave it for 2 minutes.
vi) Pick up one piece of the filter paper from the Petri dish with a pair of forces and drop it into the test tube in the water bath. Allow it to sink and immediately start a stop clock.
vii) Stop the clock when the piece of paper floats at the surface and record the time taken for the paper to float, in Table 1. Repeat steps (iv) to (vii) of the procedure using water baths maintained at 350C, 450C and 650C.

Table 1

Temperature (0C)	**Time taken for floatation (s)**
25	
35	
45	
55	
65	

b) Add 2 drops of 2M hydrochloric acid to the test tube labeled HCl and 2 drops of 2M sodium hydroxide solution to the test tube labeled NaOH.
Create a water bath in a beaker or plastic cup maintained at 350C and place both test tube into it. Leave the test tubes in the water bath for 2 minutes. Drop a piece of a paper from the Petri dish into each of the test tubes, one at a time and record the time taken for floatation to occur.
i) Hydrochloric acid
ii) Sodium hydroxide

c) Draw a graph in the space provided, of time taken for floatation to occur against temperature.
d) Explain the time taken for floatation to occur at different temperatures

e) From your results,
i) state the range of temperature with the fastest rate of floatation. Give a reason for your answer.
ii) State the effect of hydrochloric acid and sodium hydroxide on the rate of floatation. Give a reason for your answer.
3. You are provided with specimens B and C which are whole plants.
a) i)Examine specimen B and suggest its habitat
ii) Give five adaptations of the specimen to the habitat stated in (a) (i)
b) Examine both specimen B and C and give two differences between their laves, stem and roots.

	B	C
Leaves		
Stem		

Roots		

c) i) Using a razor blade, cut a small piece of the leaf from each separately on a microscope slide in a drop of water and observe under low power of a microscope. Record your observations.
ii) Peel off the epidermis on both sides of each specimen, mount and view them under low power of a microscope. Describe how each specimen is adapted for its habitat.
d) Cut very thin transverse sections through the stems of specimens B and C and observe them under low power of a microscope. Draw the tissue plan of both sections. Do not label.