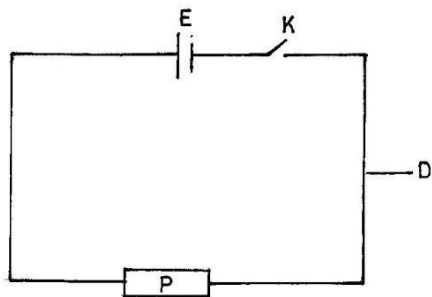


INTEGRATED SCIENCE 2

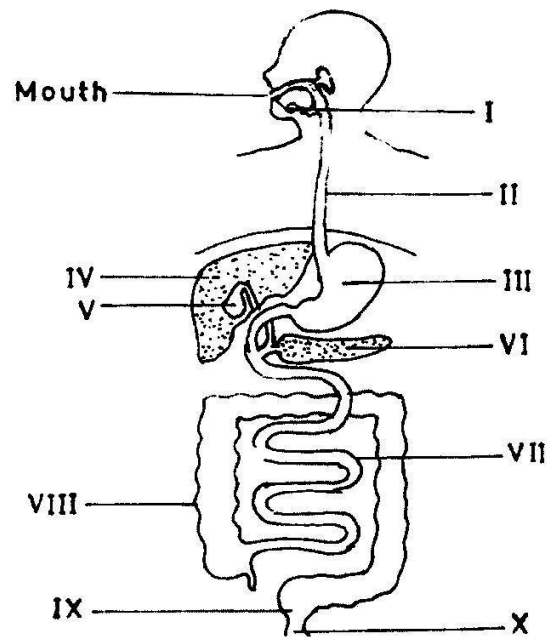
1. (a) The diagram below is used to demonstrate an activity in the laboratory.
Study it carefully and use it to answer the questions that follow:



- (i) What does the diagram represent?
- (ii) Identify the components labelled **D**, **E**, **K** and **P** in the diagram
- (iii) State **one** function **each** of the parts labelled **D**, **E**, **K** and **P**.
- (iv) Mention the energy transformation that occurs in **E** in the diagram when **K** is closed.
 [10 marks]
- (b) In an experiment, red and blue litmus papers were dipped separately into **three** test tubes each containing one of the test substances listed in the table below.

| <i>Test substances</i> | <i>Observations</i> | | <i>Conclusion</i> |
|----------------------------|-------------------------|--------------------------|-------------------|
| | <i>Red litmus paper</i> | <i>Blue litmus paper</i> | |
| Lemon juice | | | |
| Calcium hydroxide solution | | | |
| Dilute hydrochloric acid | | | |

- (i) Copy and complete the table by making the necessary **observation** and **conclusion** for **each** substance.
- (ii) Name **two** of the test substances that would react with each other to produce salt and water.
- (iii) Write down a balanced chemical equation for the reaction in (ii) above.
 [10 marks]
- (c) The diagram below is an illustration of the human digestive system.
Study it carefully and use it to answer the questions that follow:

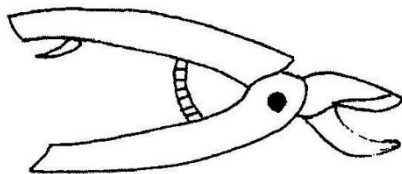


- (i) Name the parts labelled **I, II, III** and **IV**
- (ii) State **one** function of **each** of the parts labelled **V** and **VI**
- (iii) Name the part where the digestion of protein starts.

- (iv) Identify the part where
 - (α) absorption of end-products of digestion takes place
 - (β) re-absorption of water takes place
 - (γ) egestion takes place

[10 marks]

- (d) The diagram below is an illustration of a simple farm tool.
Study it carefully and use it to answer the questions that follow:



- (i) Identify the tool
- (ii) State **three** uses of the tool
- (iii) Mention **three** ways of maintaining the tool

[10 marks]

PART II
[60 marks]

Answer four questions only from this part.

2. (a) (i) What is *neutralization reaction*?
(ii) Write a balanced chemical equation for the reaction between **each** of the following pairs of substances:
(α) Sodium metal and dilute hydrochloric acid.
(β) Sodium hydroxide and dilute hydrochloric acid
[6 marks]
- (b) Explain *weaning* as used in animal production
- (c) (i) What is *milky way*? [2 marks]
(ii) State **one** use of artificial satellites [3 marks]
- (d) (i) What is a *habitat*?
(ii) Give **two** examples of a habitat. [4 marks]
3. (a) (i) Define *pressure*.
(ii) Explain why it is important to sharpen a knife before use
[4 marks]
- (b) (i) State **two** differences between *metals* and *non-metals*
(ii) What is an *alloy*?
(iii) Mention the components of **each** of the following alloys:
(α) steel
(β) brass
[6 marks]
- (c) Mention **three** conditions suitable for rearing tilapia in a fishpond
[3 marks]
- (d) Explain how the streamlined body of a bony fish enables it to live successfully in water
[2 marks]
4. (a) (i) What is a *disease vector*?
(ii) Mention **two** methods of controlling **each** of the following types of pests of farm animals:
(α) ectoparasites
(β) endoparasites
[6 marks]
- (b) (i) State **two** symptoms of nitrogen deficiency in a tomato plant.
(ii) Describe *side dressing* as a method of fertilizer application.
[5 marks]
- (c) (i) Define *power*
(ii) State the S.I. unit of power.
[2 marks]
- (d) Draw the electronic structure of sulphur
{Atomic number of sulphur = 16}
[2 marks]

5. (a) (i) What is *respiration*?
(ii) Name the types of respiration that occur in humans [4 marks]
- (b) List **three** ways of maintaining soil fertility [3 marks]
- (c) (i) Write the systematic name of **each** of the following chemical compounds:
(α) FeS;
(β) SO₂
(γ) CO₂
(ii) Give **one** reason why copper, silver and gold are mostly used in making ornaments and jewellery. [4 marks]
- (d) (i) What is a *fuse*?
(ii) Explain why a fuse is used in an electrical circuit. [4 marks]
6. (a) (i) What is the difference between *unicellular organism* and *multicellular organism*
(ii) State two reasons why vegetable crops are important to humans [4 marks]
- (b) (i) State **two** elements of climate
(ii) What is the difference between *climate* and *weather*? [4 marks]
- (c) Mention **three** advantages of staking in crop production [3 marks]
- (d) Explain **each** of the following processes:
(i) corrosion;
(ii) sublimation [4 marks]