



**EXAMINATIONS COUNCIL OF ZAMBIA**

**JUNIOR SECONDARY SCHOOL LEAVING EXAMINATION (GRADE 9) 2014**

**INTEGRATED SCIENCE 502/2**

**PAPER 2  
(SPECIMEN)**

**(INTERNAL AND EXTERNAL CANDIDATES)**

**TIME: 2 HOURS**

**MARKS: 60**

**An extra 10 minutes will be given to you so that you complete your particulars on the Answer Booklet before you start writing.**

**INSTRUCTIONS TO CANDIDATES**

- 1** Pull out the **Answer Booklet** from the middle of the question paper.
- 2** Write your **name, examination number and school / centre name** on the **Answer Booklet**.
- 3** Write your answers in the spaces provided in the **Answer Booklet**.
- 4** Answer **ALL** the questions.

**INFORMATION TO CANDIDATES**

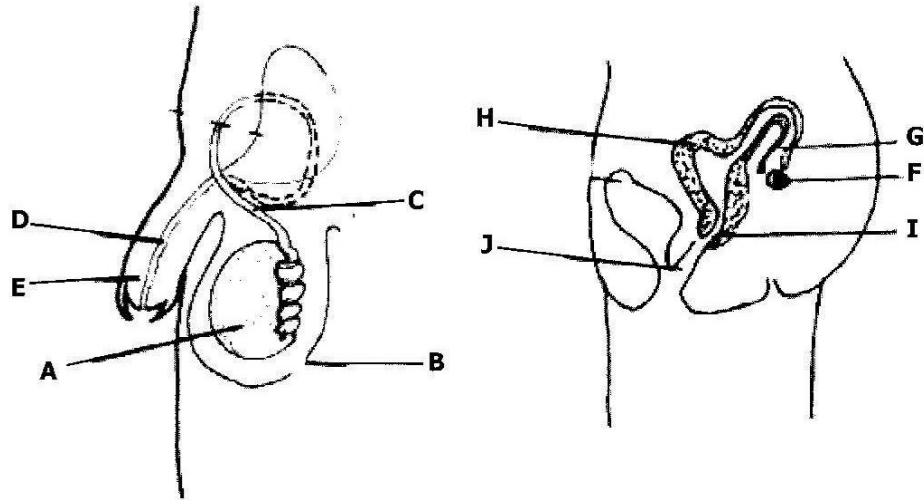
**Cell phones are not allowed in the examination room.**

**Calculators are not allowed in the examination room.**

**DO NOT TURN THIS PAGE UNTIL YOU ARE TOLD TO DO SO.**

## 1 THE HUMAN BODY

*The diagrams below show the reproductive system in the male and female.*

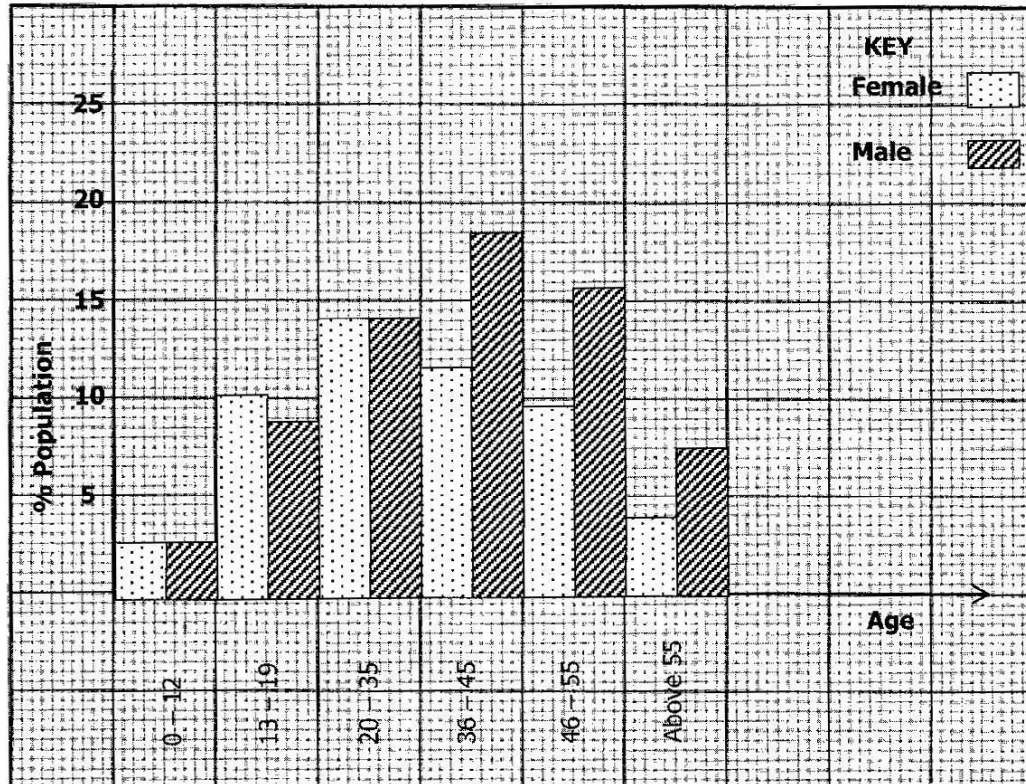


- (a) Name the parts labelled **B** and **G**. [2]
- (b) State the function of the parts labelled **A** and **H**. [2]
- (c) Human beings are able to reproduce when they reach puberty.  
Define the term puberty. [1]
- (d) Explain the importance of observing personal hygiene of the reproductive organs. [1]

**Total = 6 marks**

## 2 HEALTH

The graph below shows the percentage population of different age groups of people getting infected with HIV over a 28 month period for a particular town.

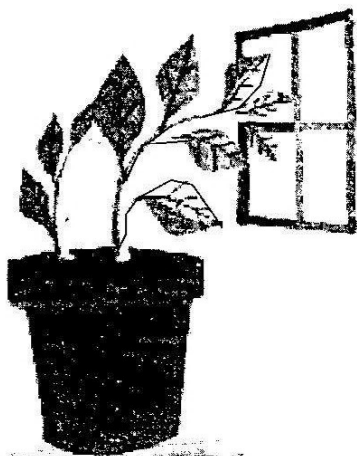


- (a) What was the difference in the percentage population between male and female in the age group 13 – 19? [1]
- (b) Suggest a reason why the HIV percentage in age group 0 to 12 was low. [1]
- (c) What **two** possible interventions could be introduced in this town to reduce HIV prevalence? [2]
- (d) Mention **one** sexually transmitted infection other than HIV. [1]
- (e) Give **one** social impact of HIV and AIDS in Zambia. [1]

**Total = 6 marks**

### 3 PLANT GROWTH AND NUTRIENTS

*The diagram below shows a plant in a dark room but near a window.*

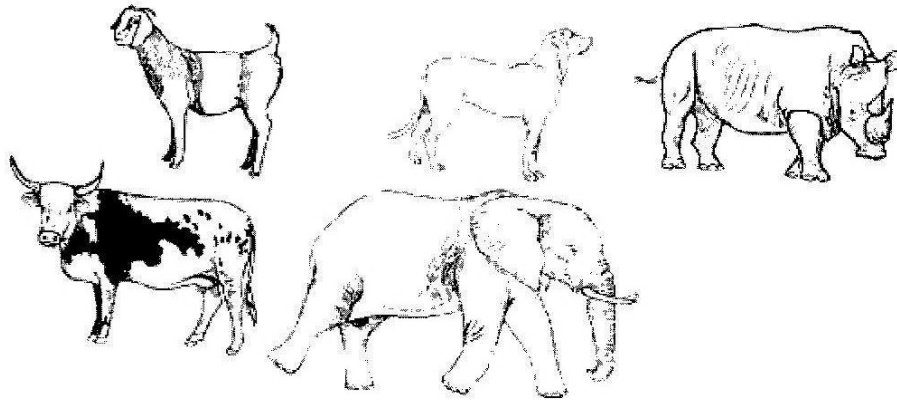


- (a) (i) What response is shown by the plant by growing towards the window?[1]
- (ii) What stimulus is responsible for this growth? [1]
- (b) Name **two** nutrients found in the soil in the pot which are important for plant growth. [2]
- (c) Explain how the plant obtains these nutrients from the soil. [2]

**Total = 6 marks**

**4 CONSERVATION OF ANIMALS AND PLANTS**

The diagrams below show five (5) different animals

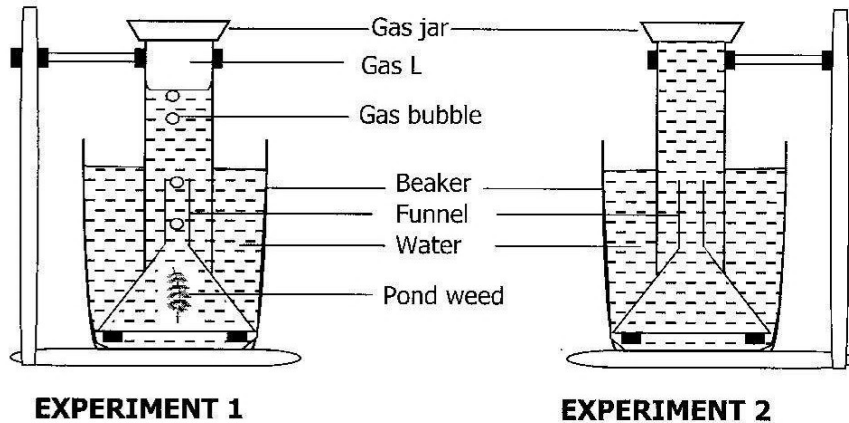


- (a) Identify **ONE**
- (i) domesticated animal
  - (ii) wild animal
- (b) Explain the importance of domesticating animals. [1]
- (c) State **one** animal that is threatened by extinction and give a reason for your answer. [2]
- (d) Suggest **one** method of protecting endangered animals. [1]

**Total = 6 marks**

## 5 PLANTS AND ANIMALS

*An experiment on photosynthesis was set up as shown in the diagram below and left in sunlight. After 6 hours, a gas was observed collecting in experiment 1.*

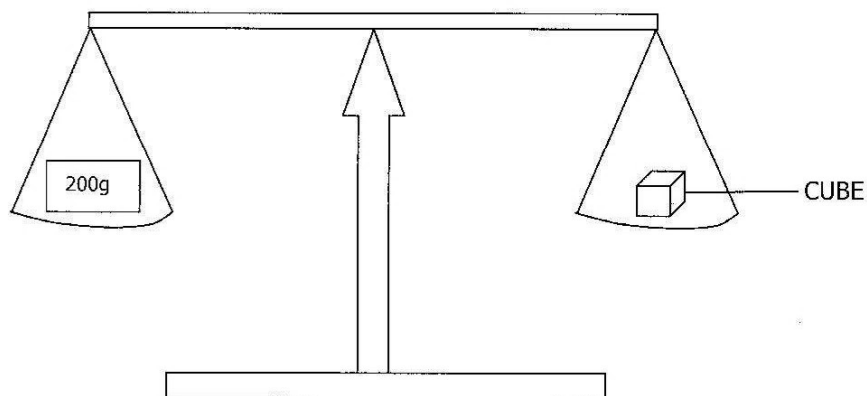


- (a) What is the identity name for gas **L**? [1]
- (b) State the identity test for the gas **L**. [1]
- (c) Suggest **one** condition necessary for the gas to be produced. [1]
- (d) What was the purpose of **not** including any pondweed in **experiment 2**? [1]
- (e) Apart from gas **L**, what other substance is produced by the pondweed during photosynthesis? [1]
- (f) Mention **one** way in which photosynthesis is useful to animals. [1]

**Total = 6 marks**

## 6 MATERIALS AND ENERGY

*The diagram below shows a cube whose mass was being measured.*

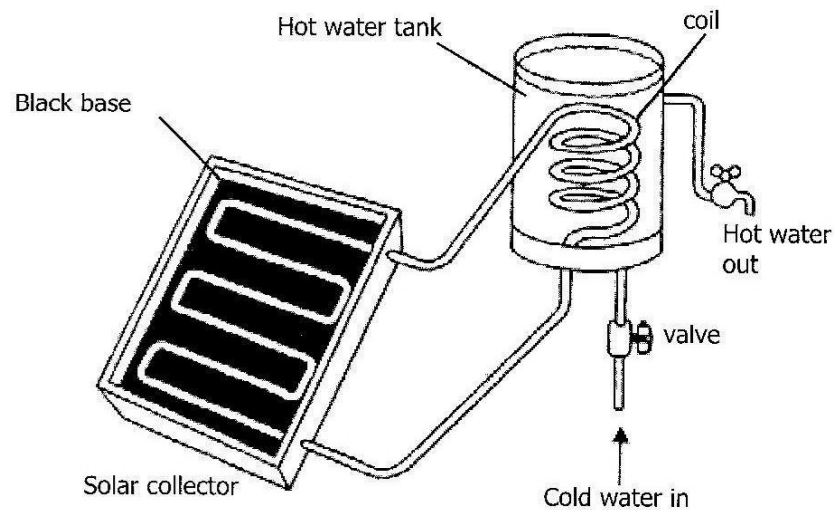


- (a) Define mass. [1]
- (b) (i) What is the mass of the cube in the diagram above? [1]
- (ii) The instrument above is used to measure mass, state one instrument used to measure weight. [1]
- (c) Given that acceleration due to gravity is  $10\text{N/Kg}$ , calculate the weight of the cube. [1]
- (d) (i) Calculate the volume of the cube if one length is  $2\text{cm}$  [1]
- (ii) The cube was lowered into a measuring cylinder containing  $56\text{cm}^3$  of water using a thin string. What will be the new volume of water in the cylinder. [1]

**Total = 6 marks**

## 7 HEAT AND EXPANSION OF SUBSTANCES

*The diagram below shows equipment that uses heat from the sun to produce hot water.*



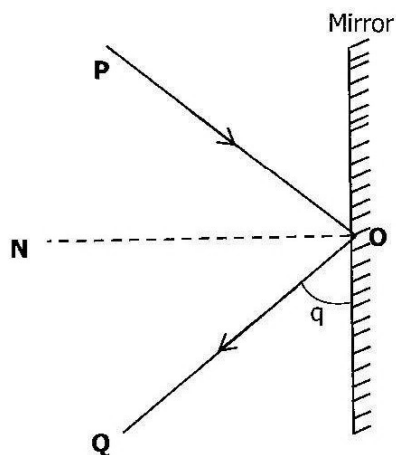
- (a) Explain why the solar collector has a black base. [1]
- (b) Which type of heat transfer enables the hot water to travel to the hot water tank? [1]
- (c) (i) Explain what would happen to the hot water in the hot water tank, if it was painted with silver or aluminium paint. [2]
- (ii) What could be done to reduce the effect you have mentioned in (c) (i)? [1]
- (d) Suggest **one** method of heat transfer which enabled heat to travel from the sun to the solar collector. [1]

**Total = 6 marks**



## 8 LIGHT

The diagram below shows the effect of directing a ray of light onto a plane mirror.

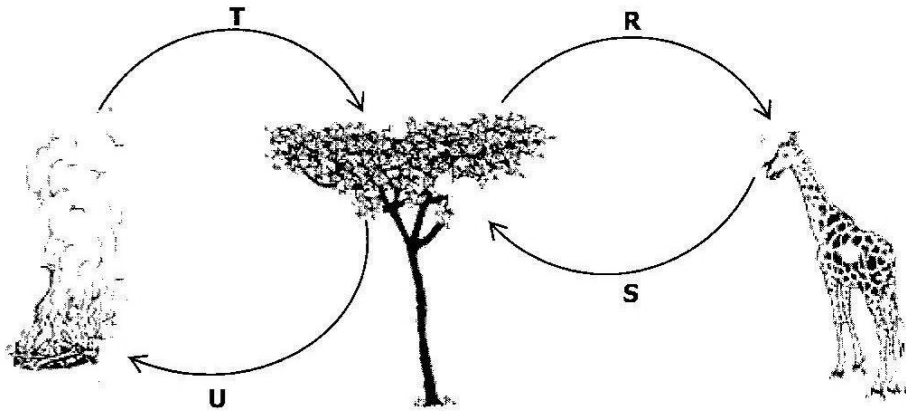


- (a) Name the bending of light exhibited by the mirror. [1]
- (b) (i) Identify the rays **PO** and **OQ**. [2]
- (ii) Given that angle  $\widehat{PON} = 40^\circ$ , find angle  $\widehat{q}$ . (show how you found the answer) [2]
- (c) Suggest **one** instrument that uses reflection of light in everyday life. [1]

**Total = 6 marks**

9 THE ENVIRONMENT

The diagram below shows oxygen and carbon dioxide cycles.

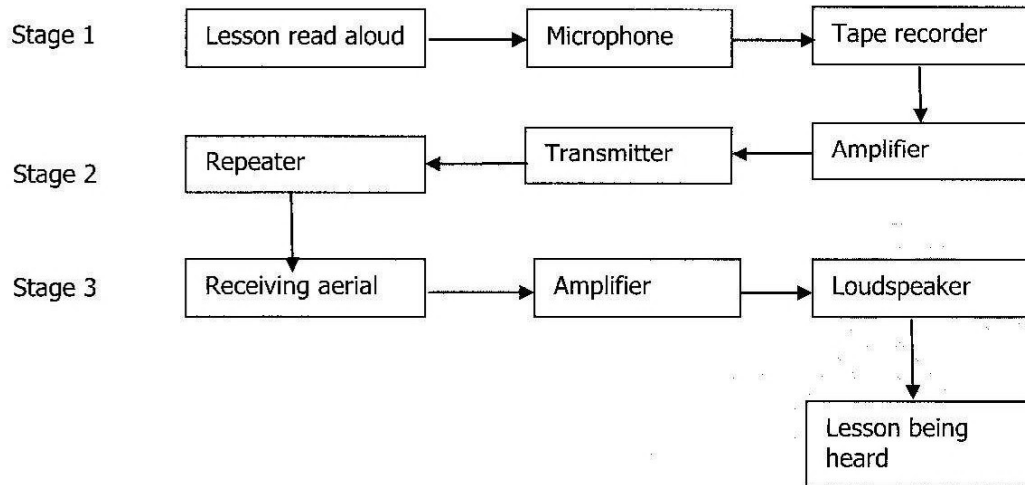


- (a) Which **two** letters represent oxygen gas? [1]
- (b) What process in the plant produces gas **R** and **U**? [1]
- (c) Explain the importance of these cycles in the atmosphere. [2]
- (d) Describe **one** other cycle in the biosphere. [2]

**Total = 6 marks**

## 10 MATERIALS AND ENERGY

The block diagram below shows one way of sending information over a long distance.



- (a) (i) Which type of broadcast is shown by the block diagram? [1]
- (ii) State whether this type of broadcast shown is digital or analogue transmission. [1]
- (b) What is the general term given to **stage 3**? [1]
- (c) Explain the function of the microphone. [1]
- (d) Apart from a tape recorder, name **one** other device which can store information. [1]
- (e) State **one** disadvantage of satellite communication. [1]

**Total = 6 marks**

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