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.

This question paper consists of 11 printed pages.
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
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.

(c) State one animal that is threatened by extinction and give a reason for your answer.

(d) Suggest one method of protecting endangered animals.

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.

EXPERIMENT 1

EXPERIMENT 2

(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 10N/Kg, calculate the weight of the cube. [1]

(d) (i) Calculate the volume of the cube if one length is 2cm [1]

(ii) The cube was lowered into a measuring cylinder containing 56cm$^3$ 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.  

(b) Which type of heat transfer enables the hot water to travel to the hot water tank?  

(c) (i) Explain what would happen to the hot water in the hot water tank, if it was painted with silver or aluminium paint.  

(ii) What could be done to reduce the effect you have mentioned in (c) (i)?  

(d) Suggest one method of heat transfer which enabled heat to travel from the sun to the solar collector.  

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 $PON = 40^0$, find angle $\hat{q}$. (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? 

(b) What process in the plant produces gas **R** and **U**? 

(c) Explain the importance of these cycles in the atmosphere. 

(d) Describe **one** other cycle in the biosphere. 

*Total = 6 marks*
10 MATERIALS AND ENERGY

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

Stage 1
Lesson read aloud → Microphone → Tape recorder

Stage 2
Repeater → Transmitter → Amplifier

Stage 3
Receiving aerial → Amplifier → Loudspeaker
Lessons being heard

(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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