

033/2 & 1 AKWAABA MOCK

July 2020

INTEGRATED
SCIENCE 2 & 1

Essay and Objective

2 hours

2&1

Name:.....

Index Number:.....

YOUR STEP ASSESSMENT CONSULT

0241637256 / 0545226543 / 0209512109 (ys.assessment.consortium@gmail.com)

AKWAABA MOCK

July 2020

INTEGRATED SCIENCE 2 & 1

2 hours

Essay and Objectives

*Do **not** open this booklet until you are told to do so. While you are waiting, read and observe the following instructions. Write your **name** and **index number** in **ink** in the spaces provided above.*

*This booklet consists of two papers. Answer paper 2 which comes first, in your answer booklet and Paper 1 on your Objective Test answer sheet. Paper 2 will last **1** hour **15** minutes after which the answer booklet will be collected. Do **not** start paper 1 until you are told to do so. Paper 1 will last **45** minutes.*

PAPER 2

1 hour 15 minutes

Essay
[100 marks]

This paper consists of **two** section: **A** and **B**. Answer Question **1** in section **A** and any other **four** questions in section **B**.

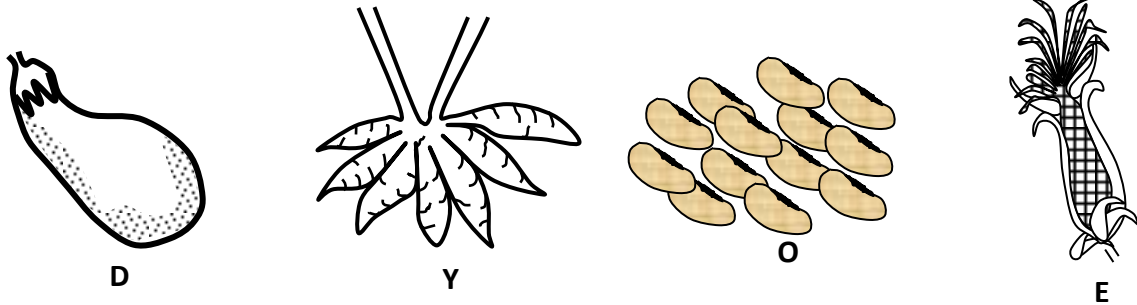
Answer **all** questions in your answer booklet.

Credit will be given for clarity of expression and orderly presentation of materials.

SECTION A
[40 marks]

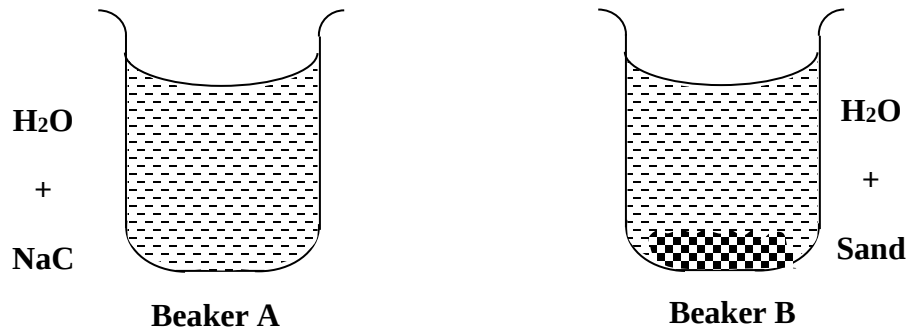
Answer **all** of Question 1.

1. (a) Study the crops carefully and answer the questions that follow.

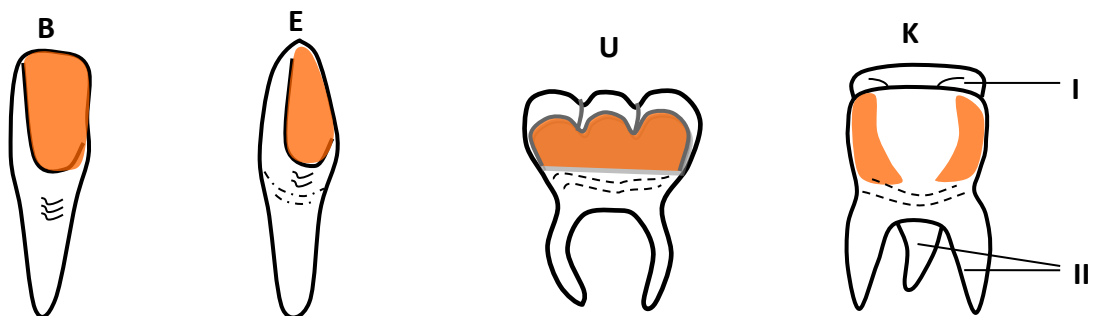


- Identify **each** of the crops **O**, **Y**, **E** and **D**. [2 marks]
- Use **the principles of crop rotation** to draw up **a four year rotation plan**. [2 marks]
- Mention **two** importance of Crop **O** in the rotational programme. [2 marks]
- Give **one** advantage a farmer is likely to gain from **the crop rotation programme**. [2 marks]
- Classify the crop plants above according to their **uses**. [2 marks]

- (b) Mr. Maxwell Bentum performed an experiment as shown in the set-ups below. By using two **Beakers A** and **B** both filled with equal volume of water. A spoonful of **sodium chloride** is put into **Beaker A** while the same quantity of **sand** is put in **Beaker B**. Study the diagram carefully and answer the question below.

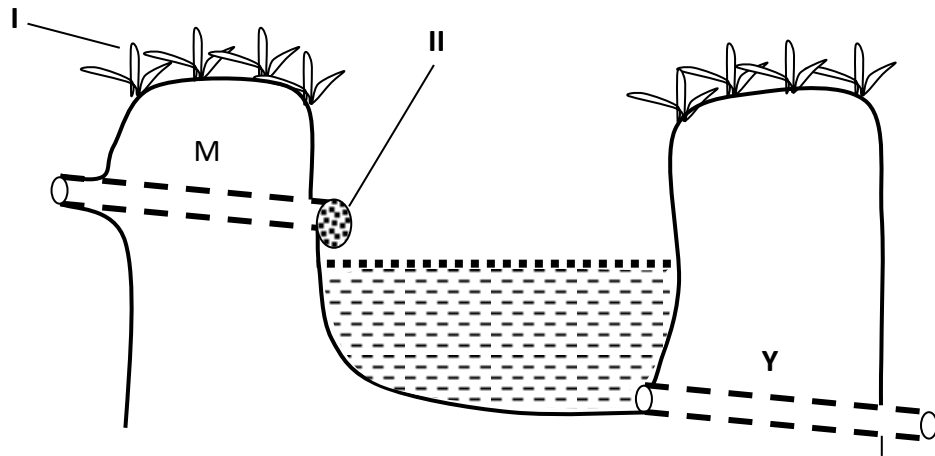


- State what will happen after sometime in **Beaker A** and **Beaker B**. [2 marks]
 - How would the behaviour of **sodium chloride** and **sand** be described in water as shown above. [2 marks]
 - In what way will the reaction be increased in **Beaker A**? [1 mark]
 - If **more** and **more** of the sodium chloride is added to **Beaker A**. What will eventually happen after sometime? [1 marks]
 - If the content in **Beaker A** and **Beaker B** are put together. Explain briefly how the **sand**, **water** and **sodium chloride** will be obtained back. [4 marks]
- (c) Mr. Mensah studied the different types of mammalian teeth in humans as shown in the diagrams below. Study the diagrams carefully and use them to answer the questions that follow.



- Identify **B**, **E**, **K**, **U**. [4 marks]
- Name the parts labelled **I** and **II** on **K**. [2 marks]
- State the **main** function of **B**, **E**, **K**, and **U** in relation to diet or food. [4 marks]

(d)



Mr. Acquah constructed a fish pond in his backyard garden, as illustrated above. Study the diagram carefully and answer the questions below.

- i. Identify the Parts labelled **I** and **II** and state their function. [2 marks]
- ii. Identify and state the **main** role of Part **M** and **Y**. [2 marks]
- iii. Mention **three** factors a farmer must consider before constructing a pond. [2 marks]
- iv. List **two** management practices in fish farming. [2 marks]
- v. State **two** fishes that can be reared in the pond. [2 marks]

SECTION B

[60 marks]

*Answer **four** of questions **only** from this section*

2. (a) i. What is a biennial crop? [1 mark]
 ii. List **four** signs of **nitrogen** deficiency in vegetable crop production. [2 marks]
- (b) i. What is **energy conservation**? [1 mark]
 ii. What is **energy transformation**? [1 mark]
 iii. State the **energy change(s)** that are involved in the following activities;
 (α) **Adding acid to water.**
 (β) **Using electric iron.** [2 marks]
- (c) i. Mention the **stages** of reproduction in humans in the order in which they occur. [2 marks]
 ii. State the **male** and **female sex gametes** in humans. [2 marks]
- (d) i. What is an **acid**? [2 marks]
 ii. State the **types** of acids with an example **each**. [2 marks]
3. (a) i. State the **Ohm's law**. [1 mark]
 ii. Draw a simple electrical circuit showing **two dry cell connected in series, two bulbs connected in parallel, a resistor, a voltmeter and an opened switch.**(Label all the parts) [2 marks]
- (b) i. What is **an element**? [1 mark]
 ii. If the **mass number** of an element is **27** with **13 electrons**.
 Find the following;
 (α) **Atomic number** of the element [1 mark]
 (β) The number of **neutrons** of the element [1 mark]
- (c) i. What are **digestive enzymes**? [1 mark]
 ii. Mention **three** examples of digestive enzymes. [3 marks]

- (d) i. What is **soil structure**? [1 marks]
 ii. State **three** importance of soil micro organisms. [3 marks]
4. (a) i. What is a **base**? [1 mark]
 ii. State the **types** of bases with an example **each**. [2 marks]
- (b) i. What is a **lever**? [1 mark]
 ii. State the **three** classes of lever with an example **each**. [2 marks]
 iii. State the **five** parts of the lever. [2 marks]
- (c) i. List **four** farming systems in Ghana. [2 marks]
 ii. Mention **four** benefits derived from mixed farming. [4 marks]
- (d) i. Explain the term **feeding**. [1 mark]
 ii. Distinguish between the following terms;
 (α) **Predator** and **prey**. [1 mark]
 (β) **Food chain** and **food web**. [1 mark]
5. (a) i. What is **carbon cycle**? [1 mark]
 ii. Explain the **two main** pathways of carbon cycle. [2 marks]
- (b) i. Define
 (α) **the mass of an object**.
 (β) **the weight of a substance**
 (Y) **the volume of a stone**. [2 marks]
 ii. Name one device each that convert electrical energy to
 (β) **Heat**.
 (α) **Sound**. [1 mark]
- (c) i. Write down **a balanced chemical equation** between the following elements;
 (α) **Oxygen** and **Aluminium**.
 (β) **Calcium** and **Chlorine**. [2 marks]
 ii. What is the **charge** of an ion formed from an element with **16 protons** and write down the **chemical symbol** of this particular ion? [2 marks]

- (d) i. What is a **pest**? [1 mark]
- ii. List **three** effects of parasites on their hosts. [2 marks]
- iii. Copy and complete the table below. [2 marks]

Parasite	Host
<i>Lice</i>	
	<i>Dog</i>
<i>Plasmodium</i>	
	<i>Cocoa</i>

6. (a) i. What is **heredity**? [1 mark]
- ii. State **three** characteristics of traits inherited by offspring from parents. [2 marks]
- (b) i. State **the branches** of science with an example **each**. [1 mark]
- ii. State **two** uses and misuses of science **each**. [2 marks]
- (c) i. Explain the term fertilizer [1 mark]
- ii. List **two** benefits of the fertilizer application to crops. [2 marks]
- iii. Give **two** examples of elements found in an inorganic fertilizer. [2 marks]
- (d) i. Group the following under; **Radicals, Ions, Compounds** and **Elements**. [2 marks]
- | | |
|-------------------------------|--|
| <i>Hg</i> | <i>NH₄⁺</i> |
| <i>NO₃</i> | <i>F⁻</i> |
| <i>CO₂</i> | <i>NH₃</i> |
| <i>Ca²⁺</i> | <i>Au</i> |
- ii. What is a **salt** and give an example **each**. [2 marks]

END OF ESSAY TEST

**YOU WILL BE PENALIZED SEVERELY IF YOU ARE
FOUND LOOKING AT THE NEXT PAGE BEFORE YOU
ARE TOLD TO DO SO.**

45 minutes

*Do **not** open this booklet until you are told to do so. While you are waiting, read and observe the following instructions. Write your **name** and **index number** in **ink** in the spaces provided above.*

1. Use 2B pencil throughout.
2. On the Objective Answer Sheet, write the following details all **correctly**;
Your **surname** followed by **other names**, *Subject Name*, your *Index Number*, *Centre Number* and *Paper Code*.
3. In the boxes marked *Candidate Number*, *Centre Number* and *Paper Code*, shade each of the numbers correspondingly.
4. An example is given below. This is for a candidate whose name is Farouq Sessah Mensah.
His *index number* is 0301019048 and he is writing the examination at *Centre Number* 30106.
He is offering *Integrated Science 1* and the *Paper Code* is 0012

OBJECTIVE ANSWER SHEET

[illegible]

© 2020 *Your Step Assessment Consult*

Answer **all** questions.

Each question is followed by four options lettered A to D. Find the **correct** option for **each** question and shade in **pencil** on your answer sheet the answer space which bears the same letter as the option you have chosen. Give only **one** answer to **each** question. An example is given below

From the list of words lettered A to D, choose the one which is **closest in meaning** to the underlined word in the sentence.

Which of the following substances is **not** an element?

- A. Aluminum
- B. Ammonia
- C. Oxygen
- D. Sodium

The correct answer is Ammonia, which is lettered B and therefore answer space **B** would be shaded.

☐ A

☒ B

☐ C

☐ D

Think carefully before you shade the answer spaces. Erase completely any answer you wish to change.

Do all rough work on this question paper.

Now answer the following questions.

- | | |
|--|---|
| <p>1. The ability of soils to supply the right amounts of essential nutrients to plants is known as</p> <ul style="list-style-type: none"> A. soil consistency B. soil structure C. soil texture D. Soil fertility | <p>4. A suitable instrument that could be used to measure the internal diameter of a bamboo flute is</p> <ul style="list-style-type: none"> A. beam balance B. metre rule C. surveyor's tape D. vernier callipers |
| <p>2. Washing down of soil nutrients beyond the reach of roots of plants is referred to as</p> <ul style="list-style-type: none"> A. aeration B. infiltration C. leaching D. percolation | <p>5. Which of the following life activities are common to both plants and animals?</p> <ul style="list-style-type: none"> I. feeding II. locomotion III. respiration <ul style="list-style-type: none"> A. I and II only B. I and III only C. II and III only D. I, II, and III |
| <p>3. Water that forms lather readily with soap is said to be</p> <ul style="list-style-type: none"> A. clean B. hard C. soapy D. soft | <p>6. The simplest way of making well water suitable for laundry purposes is by</p> <ul style="list-style-type: none"> A. adding alum B. boiling C. chlorination D. filtering |

7. Which of the following statement(s) explain(s) why an object floats in water. A floating object
- is less dense than water
 - is denser than water
 - has the same density as water
- I only
 - II only
 - III only
 - I and III only
8. An example of leafy vegetable crop is
- cucumber
 - lettuce
 - okro
 - onion
9. A beneficial effect of wind on the environment is
- promotion of photosynthesis in green plants
 - pollination in flowering plants
 - leaching in soils
 - erosion in soil
- ysac/akmock/033/2&1/fak/20
10. The structure in the respiratory system of humans where gaseous exchange occurs is
- alveolus
 - bronchus
 - nostril
 - trachea
11. The farm animal which has crop as part of its digestive system is the
- goat
 - pig
 - fowl
 - sheep
12. The gas produced when glucose is oxidized during internal respiration is
- carbon (ii) oxide
 - carbon (iv) oxide
 - hydrogen
 - nitrogen
13. Which of the following statement(s) about bush fire(s) is/are true?
- they cause air pollution
 - they deplete vegetation cover
 - they contribute to global warming
- I only
 - II only
 - II and III only
 - I, II and III
14. The chemical solution that can be used to test for the presence of protein in food substances is
- Benedict's solution
 - Fehling's solution
 - Iodine solution
 - Millon's reagent
15. The most effective method of controlling soil erosion on steep slopes is
- cover cropping
 - mulching
 - strip cropping
 - terracing
16. The farming system which involves the growing of one type of crop on the same piece of land every season is known as
- mixed cropping
 - mixed farming
 - mono cropping
 - mono culture
17. Which of the following agencies is responsible for providing information on the weather and climatic conditions of an area?
- Animal Husbandry Department
 - Extension Services Department
 - Information Services Department
 - Meteorological Services Department
18. The fifth planet from the sun in the solar system is
- Jupiter
 - Mars
 - Neptune
 - Venus

19. The process that takes place when the sperm and the egg of humans fuse together is referred to as
 A. menstruation
 B. ovulation
 C. reproduction
 D. fertilization
20. In humans, the conversion of poisonous into harmless forms takes place in the
 A. Bladder
 B. Duodenum
 C. Kidney
 D. Liver
21. The process by which water vapour moves through the stomata of leaves into the atmosphere is known as
 A. absorption.
 B. diffusion
 C. osmosis
 D. transpiration
22. A spot made on a white paper with a given food substance turned the spot on the paper translucent. The food substance is likely to contain
 A. glucose
 B. oil
 C. protein
 D. starch
23. Which of the following sources of energy is non-renewable?
 A. sun
 B. waves
 C. wind
 D. wood
24. Fish ponds are often stocked using
 A. anchovies
 B. fingerlings
 C. fish eggs
 D. frys
25. Which of the statements about the properties of an acid is correct. It
 I. Is colourless and tasteless
 II. Is neutral to litmus paper
 III. turns blue litmus red
 A. I and II only
 B. III only
 C. I and III only
 D. I, II and III
26. Which of the following blood vessels carries deoxygenated blood?
 A. Aorta
 B. Pulmonary artery
 C. Pulmonary vein
 D. Renal artery
27. The type of liquid suitable to construct a thermometer to read temperatures of about 150°C is
 A. alcohol
 B. mercury
 C. turpentine
 D. water
28. The energy transformation that takes place in a car battery is
 A. electrical energy $\rightarrow$ chemical energy $\rightarrow$ light energy
 B. chemical energy $\rightarrow$ light energy $\rightarrow$ electrical energy
 C. chemical energy $\rightarrow$ electrical energy $\rightarrow$ light energy
 D. electrical energy $\rightarrow$ light energy $\rightarrow$ chemical energy
29. Amino acids are the end-products of the digestion of
 A. carbohydrates
 B. fats
 C. oils
 D. proteins

30. The type of teeth used by mammals to cut food materials is
 A. canine
 B. incisor
 C. molar
 D. premolar
31. Which of the following processes result(s) in the formation of a new substance ?
 I. burning of wood
 II. rusting of iron nail
 III. heating water into vapour
 A. I only
 B. I and II only
 C. II and III only
 D. I, II and III
32. The use of resistant breeds of farm animals in controlling diseases is a
 A. chemical control method
 B. biological control method
 C. cultural control method
 D. physical control method
33. A load of $10N$ is moved through a distance of $2m$, calculate the work done.
 A. 5 J
 B. 10 J
 C. 20 J
 D. 50 J
34. Which of the following components of human blood is dissolved in the plasma?
 A. phagocytes
 B. mineral salts
 C. platelets
 D. red blood cells
35. An atom of carbon is represented as $^{12}C_6$ How many neutrons are in the nucleus of the carbon atom?
 A. 2
 B. 4
 C. 6
 D. 12
36. In agribusiness, middlemen operate within the
 A. production chain
 B. processing chain
 C. supply chain
 D. value chain
37. The human sex cells are produced in the
 A. scrotum and uterus
 B. testis and ovary
 C. penis and vagina
 D. scrotum and ovary
38. Which of the following implements is used for primary tillage on a large farm?
 A. harrow
 B. plough
 C. cultivator
 D. planter
39. All the following are compounds except
 A. CO
 B. NaOH
 C. N_2
 D. SO_2
40. The part of a seed which grows to become the shoot of a plant is the
 A. Cotyledon
 B. Plumule
 C. Radicle
 D. Testa

END OF PAPER