

0506022/2&1 B.B.E.K.O  
June 2022  
**INTEGRATED 2 & 1**  
SCIENCE 2&1  
Essay & Objective  
2 hours

Name

Index

**BEST BRAIN EXAMINATIONS KONSORTIUM  
GHANA**

**Special Private Mock Examinations For BECE Candidates**

June 2022

**INTEGRATED SCIENCE 2 & 1**

2 hours

*Do not open this booklet until you are told to do so. While you are waiting, read and observe the following instructions carefully. 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.*

*Handwritten signatures:*  
L. Legu  
L. Legu

This paper is in two sections: A and B. Answer Question 1 in section A and any other four questions in section B.

Answer all the questions in your answer booklet.

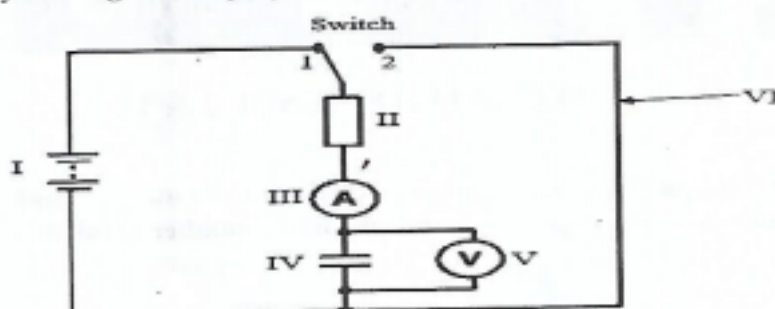
Credit will be given for clarity of expression and orderly presentation of material

SECTION A

[40 marks]

Answer all of Question 1

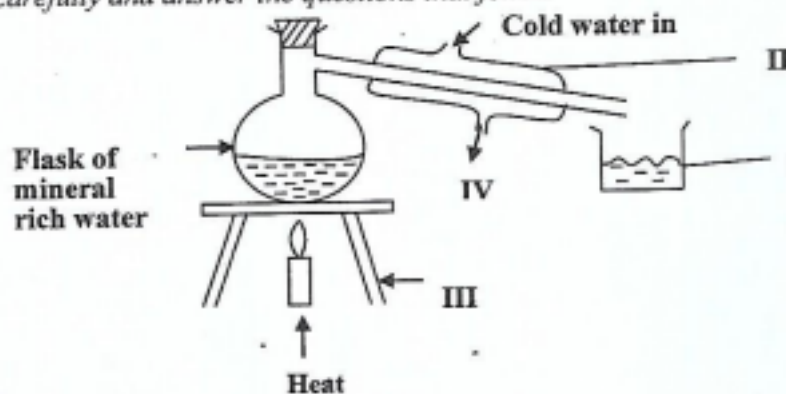
1. (a) The diagram below is an electronic circuit for charging and discharging a capacitor. Study the diagram carefully and answer the questions that follow.



- (i) Identify the components labelled I, II, III, IV, V and VI. [3 marks]
- (ii) State the function of the parts labelled I, II, III, IV, V and VI. [3 marks]
- (iii) Name and explain the process in IV when switch is on position 1. [2 marks]
- (iv) Name and explain the process in IV when switch is on position 2. [2 marks]

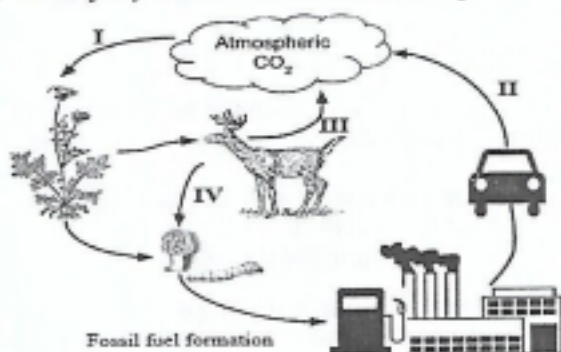
- (b) The set-up below was used to purify water which is rich in some mineral salts.

Study it carefully and answer the questions that follow



- (i) Name the process used in the experiment above. [2 marks]
- (ii) Name the parts labeled I, II, III and IV. [4 marks]
- (iii) What is the use of II? [2 marks]
- (iv) Give four properties of the liquid collected in I. [2 marks]

- (c) The diagram below is an illustration of a cycle in the natural environment. Study it carefully and use it to answer the questions that follow.



- (i) Identify the natural cycle illustrated in the diagram. [2 marks]
- (ii) Name the processes labeled I, II, III and IV. [2 marks]
- (iii) Explain each process labelled I, II, III and IV. [2 marks]
- (iv) Describe **two** ways in which plants contribute to the cycle above. [2 marks]
- (v) Identify **four** human activities that disrupt the cycle above. [2 marks]
- (d) (i) Below are the steps involved in transplanting vegetable seedlings. Study them and re-write them in the correct order.
- Gently lift uprooted seedlings in the container and put it in a hole.
  - Water the transplanted seedlings.
  - Remove seedling with a hand towel or dibber
  - Water the seedlings.
  - Make a hole with cutlass to fit the seedling and ball of earth.
  - Put uprooted seedling in a container and carry to the bed.
  - Mulch the top of the bed with a layer of grass.
  - Cover the hole with soil and press firmly.
- (ii) Describe **two** ways by which seeds can be sown on beds. [4 marks]
- (iii) List any **two** tools used in making vegetable beds. [2 marks]
- (iv) State **four** reasons why some seeds are nursed. [2 marks]

**SECTION B**

[60 marks]

Answer **four** questions **only** from this part

2. (a) (i) Give **four** benefits of organic matter in agricultural soils. [2 marks]
- (ii) State **four** characteristics of organic matter in soils. [2 marks]
- (b) (i) Describe **two** ways of softening hard water. [2 marks]
- (ii) State **two** reasons why it is better to wash cloths with soft water. [2 marks]
- (c) (i) Name **four** parts of the human respiratory system. [2 marks]
- (ii) Describe how air gets into the lungs. [2 marks]
- (d) (i) State the principle on which liquid-in-glass thermometers work. [1 mark]
- (ii) State **four** reasons why water is not a good thermometric liquid. [2 marks]

Turn over

3. (a) Give two examples each of the following simple machines:  
 (i) Pulleys;  
 (ii) Levers;  
 (iii) Inclined planes. [3 marks]
- (b) (i) List **four** diseases associated with the human circulatory system. [2 marks]  
 (ii) In what **four** ways can we keep the circulatory system healthy? [2 marks]
- (c) If one molecule of magnesium reacts with one molecule of oxygen, write a  
 (i) word equation for the reaction. [2 marks]  
 (ii) balanced chemical equation for the reaction. [2 marks]
- (d) (i) List **four** examples of leguminous crops. [2 marks]  
 (ii) Give **four** benefits of vegetable farming. [2 marks]
4. (a) (i) State **three** differences between chemical and organic fertilizers. [3 marks]  
 (ii) List **four** negative effects of using chemical fertilizers. [2 marks]
- (b) (i) Give **two** differences between pinhole and conventional camera. [2 marks]  
 (ii) State **two** characteristics of images formed in the pinhole camera. [2 marks]
- (c) (i) What is *osmosis*? [1 mark]  
 (ii) Give **one** way in which osmosis occurs in living organisms. [1 mark]  
 (iii) How is osmosis applied in fish preservation? [1 mark]
- (d) Give **two** examples **each** of the following types of hazardous substances  
 (i) toxic;  
 (ii) corrosive;  
 (iii) inflammable; [3 marks]
5. (a) (i) Identify **four** farming practices that could lead to soil erosion. [2 marks]  
 (ii) Give **four** farming practices that can help control soil erosion. [2 marks]
- (b) (i) Describe **four** functions of the mouth in the digestion process. [2 marks]  
 (ii) State **four** signs of poor functioning of the digestive system. [2 marks]
- (c) (i) State **four** properties of magnets. [2 marks]  
 (ii) Give **two** important uses of a magnetic compass. [2 marks]
- (d) (i) List **two** non – reactive metals usually used in making jewels. [1 mark]  
 (ii) Explain why non-reactive metals are suitable for making jewels. [2 marks]
6. (a) Explain why a metal sinks to a greater depth in distilled water than in sea water. [2 marks]
- (b) (i) Give **four** adaptations of birds to life. [2 marks]  
 (ii) Outline **two** ways of maintaining balance in an ecosystem. [2 marks]
- (c) The atomic number of chlorine atom is 17 and its mass number is 35.  
 (i) Indicate the number of protons, electrons and neutrons in the atom. [3 marks]  
 (ii) Draw the atomic structure of chlorine. [3 marks]
- (d) (i) Differentiate between mixed farming and mixed cropping. [1 mark]  
 (ii) State **two** advantages of mixed cropping. [2 marks]

**END OF ESSAY TEST**

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

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

INTEGRATED SCIENCE 1  
[40 marks]

45 minutes

Answer all the questions on your Objective Test answer sheet.

1. Use **2B** pencil throughout
2. On the pre-printed answer sheet, check that the following details are **correctly** printed:  
Your **surname** followed by your **other names**, the *Subject Name*, your *Index Number*, *Centre Number* and the *Paper Code*.
3. In the boxes marked Candidate Number, Centre Number and Paper Code, **reshade** each of the shaded spaces.
4. An example is given below. This is for a candidate whose name is Seyram BABANAWO. Her index number is 772384188 and she is writing the examination at Centre Number 77234.

**BEST BRAIN EXAMINATION KONSORTIUM  
SPECIAL PRIVATE MOCK FOR BECE CANDIDATES  
OBJECTIVE ANSWER SHEET.**

CANDIDATE NAME: <b>SEYRAM BABANAWO</b>	SUBJECT: <b>INTEGRATED SCIENCE</b>
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1. Use HB Pencil Press firmly	First mark completely
2. Answer each question by choosing one letter and then, shade through the letter chosen like this [A] <del>[B]</del> [C] [D] [E]	4. If only four alternative answers are given for each question, ignore the letter E
3. If you want to change an answer, rub out your	5. Your question paper may have fewer than 50 Questions.

CANDIDATE NUMBER										CENTRE NUMBER					PAPER CODE			
7	7	2	3	8	4	1	8	8	7	7	2	3	4	4	5	1	0	
[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	
[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	
[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	
[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	
[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	
[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	
[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	
[7]	[7]	[7]	[7]	[7]	[7]	[7]	[7]	[7]	[7]	[7]	[7]	[7]	[7]	[7]	[7]	[7]	[7]	
[8]	[8]	[8]	[8]	[8]	[8]	[8]	[8]	[8]	[8]	[8]	[8]	[8]	[8]	[8]	[8]	[8]	[8]	
[9]	[9]	[9]	[9]	[9]	[9]	[9]	[9]	[9]	[9]	[9]	[9]	[9]	[9]	[9]	[9]	[9]	[9]	

For Supervisors Only.  
If candidate is absent shade this space

Answer **all** the questions.

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

The element with the chemical symbol **Si** is

- A. Silver
- B. Silicon
- C. Selenium
- D. Sodium

The correct answer is Silicon, 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 paper.

Now answer the following questions.

1. Which of the following practices help to conserve the soil?
  - I. terracing.
  - II. continuous cropping.
  - III. contour ploughing.
  - IV. crop rotation
  - A. I, II and III only.
  - B. I, III and IV only.
  - C. I, II, III and IV.
  - D. I and III only
2. Which of the following climatic conditions is **not** suitable for cocoa cultivation?
  - A. High temperature
  - B. Low temperature
  - C. Heavy rainfall
  - D. High humidity
3. In an electronic circuit, when the value of a resistor increases,
  - A. initial charging current of a capacitor reduces.
  - B. initial charging current of a capacitor increases.
  - C. initial charging current of a capacitor is not affected.
  - D. the capacitor takes a shorter time to fully charge.
4. Oil is applied on the surface of a metal to prevent rusting because
  - A. it prevents moisture from coming into contact with the metal.
  - B. it makes the metal hard.
  - C. it reacts with the metal to form a shiny coat.
  - D. metals become non-reactive when mixed with oil.
5. The presence of cork in the thermos flask helps to minimize heat loss or gain through
  - A. conduction only
  - B. conduction and convection
  - C. convection only.
  - D. conduction and radiation
6. Which of the following is **true** about mixed cropping?
  - A. The same crop is grown on different pieces of land.
  - B. Farmer obtains both plant and animal products.
  - C. Plant waste is available to serve as manure.
  - D. Farmer obtains only plant products.
7. Which of the following metals is **not** suitable for making of jewels?
  - A. Platinum
  - B. Gold
  - C. Silver
  - D. Nickel



27. The duty of a farm manager is to  
 I. address farm problems.  
 II. set production targets.  
 III. purchase farm inputs.  
 IV. repair faulty farm machinery.  
 A. I, II and III only.  
 B. I, III and IV only.  
 C. I, II, III and IV.  
 D. I and III only.
28. Most of the veins in the human body carry  
 A. deoxygenated blood.  
 B. impure blood.  
 C. oxygenated blood.  
 D. pure blood.
29. Fats in our diet are mainly used for  
 A. bones and teeth formation.  
 B. growth and repair.  
 C. healthy blood.  
 D. stored energy.
30. Gari gets its characteristic flavor from the  
 A. roasting process.  
 B. fermentation process.  
 C. soaking process.  
 D. sieving.
31. The first metal on the periodic table is  
 A. sodium.  
 B. lithium.  
 C. magnesium.  
 D. hydrogen.
32. A physical reaction occurs when  
 I. an egg is boiled.  
 II. shea butter is heated.  
 III. candle wax melts.  
 IV. salt dissolves in water  
 A. II, III and IV only  
 B. I, III and IV only.  
 C. I, II, III and IV.  
 D. I, II and III only.
33. The function of the lungs is to  
 A. keep a constant amount of water in the body.  
 B. absorb oxygen from the body  
 C. absorb carbon dioxide from the blood.  
 D. keep the temperature of the body constant
34. Which of the following are correct about hard water?  
 I. It contains nutritive calcium minerals.  
 II. It wastes a lot of soap.  
 III. It does not waste soap.  
 IV. It boils very fast  
 A. II and IV only.  
 B. I, III and IV only.  
 C. I, II, III and IV.  
 D. I and II only.
35. The two main parts of a flower are the  
 A. stamen and pistil.  
 B. roots and leaves.  
 C. stem and root.  
 D. shoot and root.
36. The strength of an electromagnet depends on all the following except  
 A. material placed in the coiled wire.  
 B. source of electric current.  
 C. number of turns of the coil.  
 D. amount of current flowing through the coil.
37. One symptom of food poisoning is  
 A. reduction in body temperature.  
 B. presence of blood in urine.  
 C. stomach ache.  
 D. worm infestation
38. Technology benefits industrialization by  
 A. causing environmental pollution.  
 B. reducing skillful labour.  
 C. provision of machinery.  
 D. increasing the cost of production.
39. The formation of humus is aided by  
 A. earth worms.  
 B. insects.  
 C. roots.  
 D. wind.
40. In which of the following can organic acids be found?  
 I. Sour milk  
 II. Palm oil.  
 III. Grape fruits  
 IV. Car batteries  
 A. II, III and IV only  
 B. I, III and IV only.  
 C. I, II, III and IV.  
 D. I, II and III only

**END OF PAPER**