

UNIVERSITY OF GHANA BASIC SCHOOL, LEGON
FIRST MOCK EXAMINATION – 2025



03403/2&1 MOCK 1
OCTOBER, 2025
SCIENCE 2 & 1
Essay and Objective
2 hours 10 minutes

2 & 1

Name:.....
Index No:..... Class:.....
Candidate's Signature:

OCTOBER 2025

SCIENCE 2 & 1

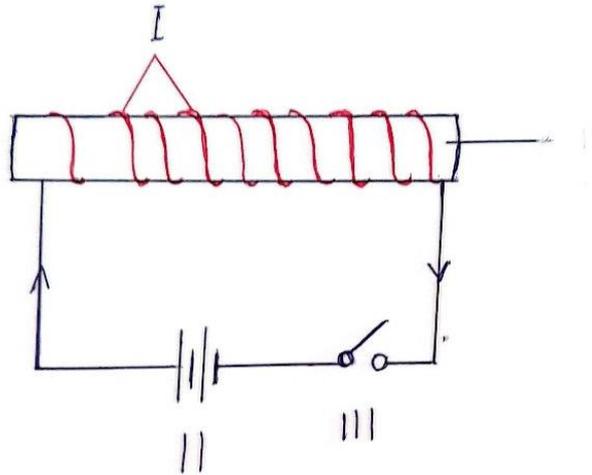
2 hours 10 minutes

SECTION B PART 1

Answer all the four questions at this section. They compulsory questions

Question 1 A

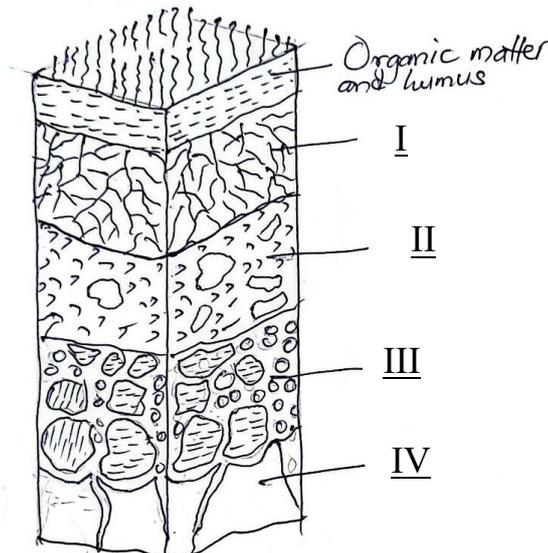
Below is an experimental set-up to make a magnet. Study it carefully and answer the questions under it.



1. Identify the method being used to magnetize the material. (2 marks)
2. Label the parts indicated I, II and III (3 marks)
3. Briefly explain how the magnetic material is magnetized using this method. (3 marks)
4. Mention any two materials that can be magnetized. (2 marks)

B.

The diagram below represents a section of the soil. Study it carefully and answer the questions that follow.



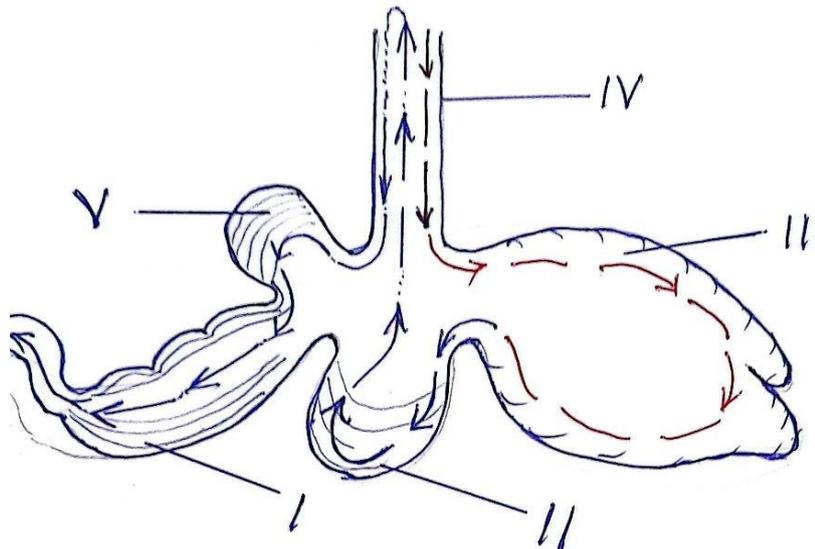
1. State the name of the section of the soil drawn above. (2 marks)

2. Label the parts of the diagram indicated I, II, III and IV. (4 marks)

3. State any two importance of the diagram in crop production. (4 marks)

C.

The diagram below is a section of the digestive system of a domestic animal. Study it carefully and answer the questions that follow.



I. Identify the **section of the digestive system** of the domestic animal. (2 marks)

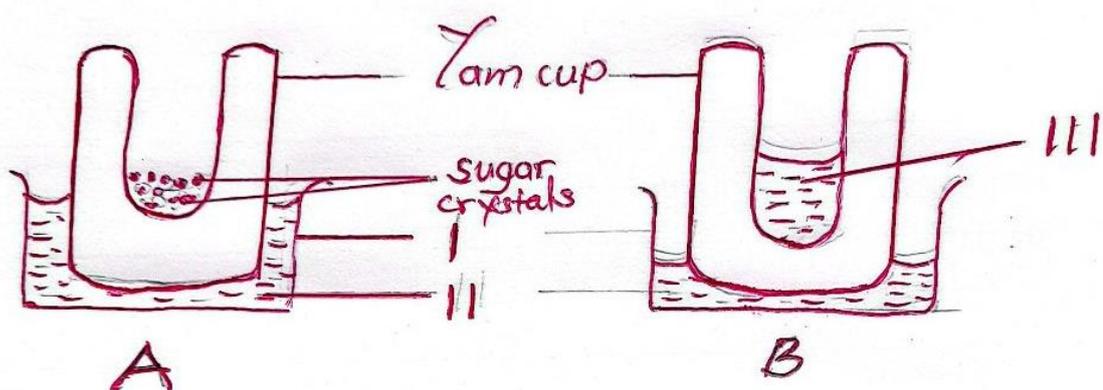
II. Name two domestic animals that have the same section of the digestive system. (2 marks)

III. Label the parts of the diagram indicated I, II, III, IV and V (2 marks)

IV. Mention any two reasons why the domestic animal possesses this section of the digestive system (4 marks)

D.

Study the diagram below carefully and answer the questions that follow.



I. What scientific principle is illustrated above by diagrams A and B (2 marks)

II. Label the parts indicated I, II, III (3 marks)

III. Mention any three observations you have identified with the two diagrams (3 marks)

IV. Give your conclusion about your observations. (2 marks)

SECTION B PART II

Answer any three (3) of the questions in this section. All questions carry equal marks

Question 2

a. How do the following processes contribute to the weathering of rocks?

I. Oxidation

II. Frost action

(4 marks)

B. Briefly explain

I. Organic farming

II. Mixed farming

III. Mixed cropping

(6 marks)

C. Write the chemical formula of each of the following compounds

I. Iron (II) chloride

II. Copper (I) oxide

III. Aluminium oxide

(3 marks)

D. I. Give any **two** examples of acid-base indicators

(2 marks)

II. State the effects of each of the acid-base indicator mentioned on Sodium hydroxide (NaOH)

(5 marks)

Question 3

A.I. What is magnetic field?

II. State the role played by magnetic field lines.

(4 marks)

B.I. Briefly explain the role played by rainfall and lightning in the Nitrogen cycle.

(3 marks)

II. What is image?

III. State any **two** characteristics of real image.

(4 marks)

C.I. Using a suitable diagram briefly explain how heat energy is transferred through conduction.

4 marks

II. Outline any **two** features which differentiate a Group from a Period as demonstrated on the periodic table.

(2 marks)

III. Outline any **three** features which differentiate Inner planets from Outer planets.

(3 marks)

Question 4

A.I. Briefly explain the water cycle.

(3 marks)

II. Distinguish between Soft water and Hard water

(3 marks)

III. State any **three** differences between heat and temperature

(3 marks)

B.I. What is a greenhouse gas?

II. Mention any **three** effects of Greenhouses gases on the environment.

(5 marks)

C.I Mention any **three** properties of magnetic field lines

(3 marks)

II. Mention any **two** household items that uses magnets

(1 mark)

D. What do you understand by an intrusive Igneous rock?

(2 marks)

Question 5

A.I. Draw the electronic configuration of Sodium ion

(2 marks)

II. State any **two** reasons why salt is important in the diet of humans.

(2 marks)

III. What is an electrical conductor?

(2 marks)

B.I. Two lamps of resistance 3Ω and 2Ω are connected in parallel to a 6v source . Calculate the value of the current supplied by the source.

(2 marks)

II. State **two** functions of respiratory system in human.

(2 marks)

III. Briefly describe how to test for protein

(3 marks)

C.I. What is a breed of domestic animal?

(2 marks)

II. Outline any **two** features which differentiate Igneous rocks from Sedimentary rocks

(2 marks)

D. Distinguish between Reflection of light and Refraction of light

(3 marks)

**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**

1. Use **2B** pencil throughout.
 2. On the answer sheet, write your surname followed by your other names, your index number, subject name, centre number.
 3. In the boxes marked Candidate Number, Centre Number and Paper Code, reshade each of the shaded spaces.
- Find 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.

1. Which of the following features describe the Igneous Rock;

- I – they do not contain fossils
 - II – they are non-crystalline
 - III – they do not react with acids
 - IV – they are crystalline
- A. I only
B. I and II only
C. I, II and III only
D. I, III and IV

2. Which of the following describes the group to which an Element belongs on the periodic table?

- A. Number of shells
B. Valence electron
C. the state of the atom
D. the atomic number

3. Which of the following microorganisms is Prokaryotic?

- A. Bacteria
B. Earthworm
C. Fungus
D. Plant

4. Which of the following substances are major components of the human blood?

- I – Hormones
 - II – Platelets
 - III – Plasma
 - IV – White blood cells
- A. I only
B. I and II only
C. III and IV only
D. II, III and IV only

5. A mango of mass 2kg hangs 25m on top of a mango tree. If it is allowed to drop, determine the value of its kinetic energy just before hitting the ground. ($g = 10 \text{ m/s}^2$)

- A. 50J
B. 100J
C. 200J
D. 500J

6. Which of the following insects shows the egg, nymph, and adult stages in its lifecycle?

- I – Grasshopper
 - II – Housefly
 - III - Mosquito
- A. I only
B. I and II only
C. I and III
D. II and III only

7. The chemical formula for Iron (III) oxide is

- A. FeO
B. Fe₂O
C. Fe₂O₃
D. FeO₃

8. Which of the following is a monogastric herbivore?

- A. goat
B. pig
C. cattle
D. rabbit

9. The rise in heat waves and floods globally may be due to the effect of ..

- A. climate change
B. greenhouse gases
C. increased drought
D. severe storms.

10. A rod appears bent when immersed in water. Which property of light is demonstrated?

- A. Refraction
- B. Reflection
- C. Dispersion
- D. Rectilinear propagation of light.

11. What is the resistance of a lamp when a potential difference (p.d) of 12V across it causes a current of 4A to flow?

- A. 48Ω
- B. 3Ω
- C. 0.33Ω
- D. 4Ω

12. Calculate the p.d. across 10Ω resistor carrying a current of 2A

- A. 5V
- B. 2V
- C. 20V
- D. 0.2V

13. Substances that can be attracted strongly by a magnet are known as...

- A. ferromagnetic substances
- B. conductors
- C. inductors
- D. capacitors

14. The work output of a machine is 80J. If the total input energy of the machine is 100J. Calculate the efficiency of the machine.

- A. 20%
- B. 180%
- C. 80%
- D. 25%

15. A stone of mass 50g was immersed in a measuring cylinder containing water. If the water level rose from 12cm^3 to 22cm^3 mark, calculate the density of the stone.

- A. 60gcm^{-3}
- B. 12gcm^{-3}
- C. 5gcm^{-3}
- D. 62gcm^{-3}

16. Which of the following is/are the reason why the output energy of a machine is always less than the input energy? The reason is that part of the input energy is..

- I – used to overcome friction
- II – used to move very fast
- III – converted to sound and heat
- IV - converted to heat

- A. I only
- B. I and II only
- C. I, II and III
- D. I, III and IV.

17. Kofi applied a force of 15N to move a load through a distance of 6m in 5seconds, determine the power with which the load was moved.

- A. 18W
- B. 90W
- C. 450W
- D. 2W

18. A body of mass 2.5kg moves with a velocity of 6m/s, calculate the kinetic energy of the body.

- A. 90J
- B. 45J
- C. 15J
- D. 36J

19. Which of the following is a breed of cattle?

- A. Naked-neck
- B. Rhodes Island red
- C. Sokoto Gudali
- D. Chinchilla

20. Distilled water easily lathers with soap because.....

- A. it is soft
- B. it contains high concentration of Magnesium and calcium ions
- C. it contains low amount of Calcium and Magnesium ions
- D. it has a pleasant taste.

21. Which of the following is a magnetic substance?

- A. Plastic
- B. Wax
- C. Chalk
- D. Cobalt

22. Lime juice is likely to have a P^H of

- A. Less than 7
- B. greater than 7
- C. equal to 14
- D. equal to 7

23. Inadequate amount of Calcium salt and Vitamin D in the diet of an organism is likely to lead to

- A. Goitre
- B. Anaemia
- C. Ricket
- D. Scurvy

24. A ray of light is incident on a smooth surface at an angle of 35°, find the angle of reflection.

- A. 60°
- B. 45°
- C. 50°
- D. 55°

25. Which of the following is/are true about Virtual images.

- I – the image formed is erect.
 - II – the image can be received on a screen
 - III – the image is of the same size as the object
 - IV – the image is laterally inverted
- A. I only
 - B. I and II only
 - C. I, II and III only
 - D. I, III and IV.

26. Plants take in nitrogen in the form of

- A. Carbonate
- B. Sulphate
- C. nitrate
- D. Phosphate

27. Which of the following is not a nitrogenous fertilizer?

- A. Sulphate of ammonia
- B. Potassium sulphate
- C. Urea
- D. Ammonium nitrate

28. Which of the following soils is capable of holding hydrogen ion strongly than the basic ions ?

- A. Sandy
- B. clayey
- C. Loamy
- D. Silt

29. Which of the following fertilizers can be used to correct soil acidity?

- A. 15 :15 :
- B. Ammonium sulphate
- C. Double superphosphate
- D. Quicklime

30. A streak of light created as a result of the burning of a meteoroid by friction as it travels through the earth's atmosphere is termed....

- A. satellite
- B. Meteorite
- C. Meteor
- D. Asteroid

31. The largest known Asteroid is called....

- A. Meteoroid
- B. Ceres
- C. Vesta
- D. Itokawa

32. An electric current is measured in....

- A. Ampere
- B. Volts
- C. Farads
- D. Watts

33. The colour code of the earth wire in a '3' pin plug is ...

- A. Brown
- B. Blue
- C. Yellowish green
- D. Red

34. An electrically neutral group of atoms that are held together by a chemical bond is...

- A. radical
- B. Molecule
- C. Mixture
- D. Compound

35. Which of the following organelles is responsible for the synthesis of lipids, their packaging, transport and storage?

- A. Lysosomes
- B. Ribosomes
- C. Rough endoplasmic reticulum
- D. Smooth endoplasmic reticulum

36. Which type of rock is formed through cooling and solidification of molten magma?

- A. sedimentary
- B. Metamorphic
- C. Igneous
- D. Limestone

37. Which of the following materials allows large amount of light to pass through them?

- A. Transparent
- B. Translucent
- C. Opaque
- D. Solid materials

38. The conversion of glucose to glycogen is the responsibility of the hormone...

- A. Oxytocin
- B. Oestrogen
- C. Insulin
- D. Testosterone

39. Wood, plastic, and rubber are preferably used as handles of cooking utensil due to their

- A. good conductivity of heat and electricity
- B. Durability
- C. poor conductivity of heat and electricity
- D. Low density.

40. Emulsification of fat and oil during the process of digestion is carried out by....

- A. Succus entericus
- B. Bile juice
- C. gastric juice
- D. Saliva