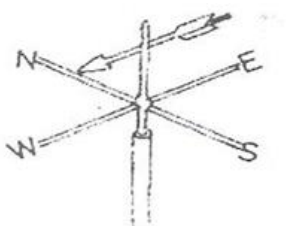


- C. activate the enzymes in the leaf cells.
D. dissolve out the chlorophyll in the leaf cells.
30. The vision of a person suffering from night blindness can improve when fed on a
A. carbohydrates. B. proteins.
C. vitamin A. D. vitamin E
31. One reason for brushing the teeth regularly is to
A. reduce the amount of saliva in the mouth.
B. remove dead cheek cells from the mouth.
C. dilute the alkali content of saliva.
D. reduce bacterial activity in the mouth.
32. A flower which is visited by many insects during the day is likely to
A. possess very small green petals.
B. be small and odourless.
C. be pale in colour with few anthers.
D. be brightly colored and sweet scented.
33. A food web is a
A. relationship between living and non-living organism in an ecosystem.
B. relationship between the non-living components of an ecosystem.
C. complex feeding relationship between living organisms in an ecosystem.
D. relationship between the living organisms in an ecosystem.
34. 
The diagram above illustrates a / an
A. anemometer. B. secchi disc.
C. wind vane. D. quadrat
35. The malaria parasite is found in the saliva of
A. female anopheles B. female culex.
C. male aedes. D. male anopheles
36. Exhaled air may readily put off a burning candle because it contains high levels of
A. oxygen and nitrogen B. nitrogen and heat.
C. heat and oxygen. D. carbon dioxide and moisture.
37. Which of the following diseases can be controlled by injecting patients with insulin?
A. Asthma B. Diabetes
C. Goitre D. Pneumonia
38. Heavy traffic in cities causes
I. Air pollution
II. Noise pollution
III. Hindrance to fast movement
A. I and II only B. I and III only
C. II and III only D. I, II and III
39. If a bond formed by two atoms is ionic, then
A. the two atoms share a pair of electrons.
B. there is transfer of at least one electron from one atom to the other.
C. the two atoms transfer neutrons to each other.
D. no electron transfer occurs between the atoms.
40. An atom of an element X has 21 protons and 23 neutrons. What is the number of electrons in it?
A. 2
B. 21
C. 23
D. 44

GHANA EDUCATION SERVICE



Name:

Index Number:

Signature:

Date of Examination:

BB CONSULT & SUPPLIES (STUDENTS ACADEMIC IMPROVEMENT AND CAREER PROGRAMS DEPARTMENT)

SCIENCE

TIME ALLOWED: 2 HOURS

PA SPONSORED MOCK EXAMINATION FOR J.H.S 3

INSTRUCTIONS

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**, **Index Number** and **Date** 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**

1. Use **2B** pencil throughout.
2. On the pre-printed answer sheet, check that's the following details are **correctly** printed:

PAER 2 1 HOUR, 15MINS
ESSAY

There shall be an essay paper made up of two parts, I and II to be answered in **1hour 15** minutes.

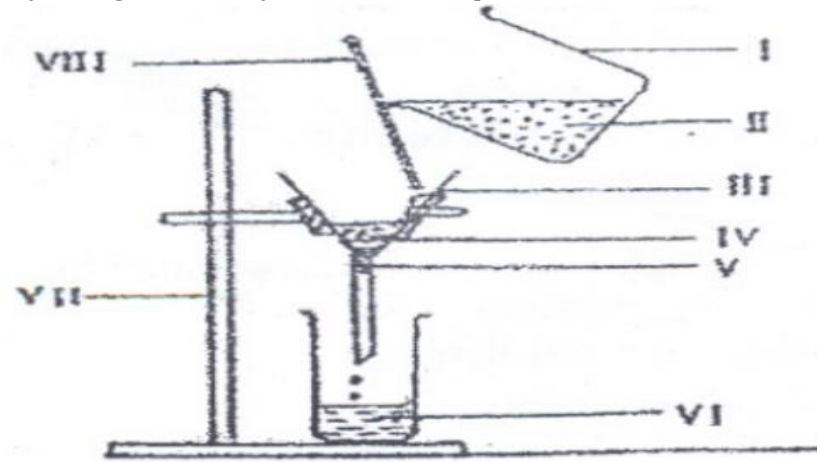
Part I consists of **one compulsory** question of 4 sub-questions testing the practical skills specified in physics, chemistry, biology and agriculture aspects. This part will attract **40 marks**.

Part II consists of **FIVE** essay questions. You are required to answer any **FOUR** questions for **60 marks**.

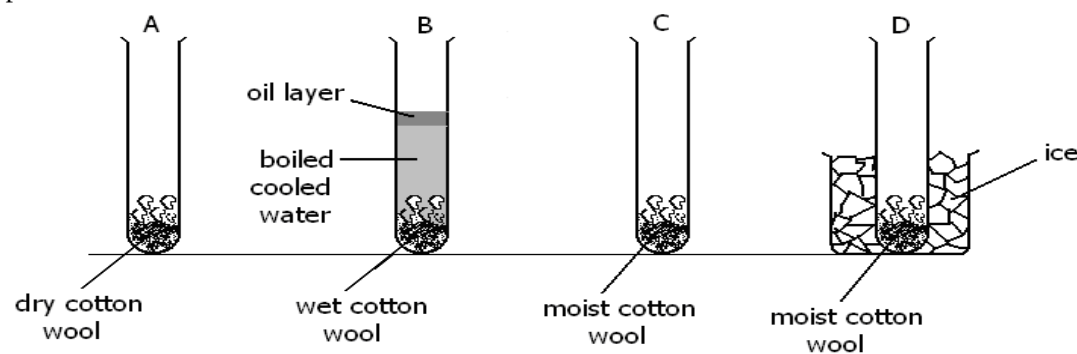
PART I (Compulsory – 40 marks)

Practical; Answer all questions from this section

1. Figure 1 below is an illustration of a set-up used in a school laboratory to separate the components of a suspension.
Study the figure carefully and answer the questions that follow.



- (a) Name the parts labelled I, II, III, IV, V, VI, VII and VIII.
(b) (i) State one function of **each** of the parts labelled V, VII and VIII.
(ii) Name **two (2)** materials that can be used for the part labelled V.
(c) Give **one** example of a suspension whose components can be separated with the set-up.
(d) State **one** precaution that should be taken during the performance of the exercise involving the set-up.
2. In an experiment to investigate the conditions necessary for germination of a seed to occur, a student set up four test tubes with cotton wool and five seeds of *Crotalaria* in each. The conditions he provided in each test tube are illustrated below.



The student left the four test tubes in the laboratory for seven days. Assuming all the *crotalaria* seeds are viable, answer the questions below.

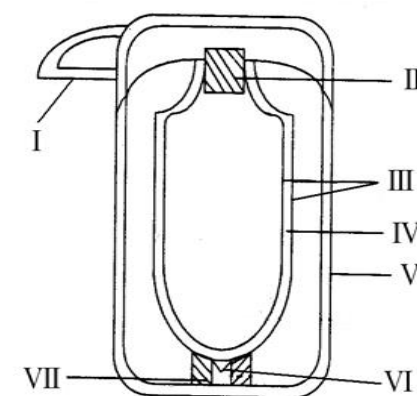
- (a) Why is boiled, cooled water used in test tube B?
(b) What is the purpose of the layer of oil in test tube B?
(c) Name the environmental conditions present in each test tube.
(d) In which test tube(s) did the seeds germinate after the **seven** days?
(e) What role did the cotton wool play in the experiment?
(f) List the conditions under which seeds germinate.

- C. Nm-1
D. Nm

18. In photosynthesis, light energy is converted to
A. chemical energy. B. heat energy.
C. potential energy. D. kinetic energy.
19. A stone of mass **600.0g** is held at height of **5.0m** from the ground. Calculate the potential energy of the stone [Acceleration of free fall, $g = 10 \text{ ms}^{-2}$]
A. 30.0 J B. 300.0 J
C. 3000.0 J D. 30000.0 J
20. In a simple electrical circuit, the voltage supply is 3.0 V. If the total internal resistance in the circuit is 6Ω , calculate the current in the circuit.
A. 0.5 A B. 2.0 A
C. 12.0 A D. 18.0 A
21. The importance of a fuse in an electric circuit is to.....
A. provide protection against electric shock.
B. protect electrical appliances from being damaged.
C. control electrical leakage.
D. protect the house from thunder and lightning.
22. An observer sees a distance flash of lightning before hearing the accompanying thunder because
A. light travels at a faster speed than sound.
B. light waves have a lower frequency than sound.
C. sound waves experience resistance in the cloud.
D. the source of the thunder is farther away from the observer.
23. The area between the like poles of two magnets where no lines of force appear is **called**.
A. Magnetic field
B. Neutral point
C. North pole
D. South pole
24. Which of the following methods is/are used in making magnets?
I. Single touch
II. Double touch
III. Electrical
A. I only B. I and II only
C. II and III only D. I, II and III
25. Work is done on a box when one
A. carries a box on the head while standing.
B. drags a box on the floor.
C. walks with a box on the head.
D. pushes against an immovable box.
26. A stone tied to the end of a rope and whirled round performs a type of motion **called**
A. Oscillatory motion.
B. Circulatory motion.
C. Rectilinear motion.
D. Vibratory motion.
27. Viruses can only multiply when they are present in
A. culture solution. B. living organism.
C. dead matter. D. sugary medium.
28. A tissue is made up of cells which
A. perform different functions. B. have different structures.
C. have similar structures and functions. D. look alike in shape.
29. In testing a leaf for the presence of starch, the leaf is first put into boiling water to
A. harden the leaf cells.
B. stop all chemical reactions in the leaf cells.
C. activate the enzymes in the leaf cells.

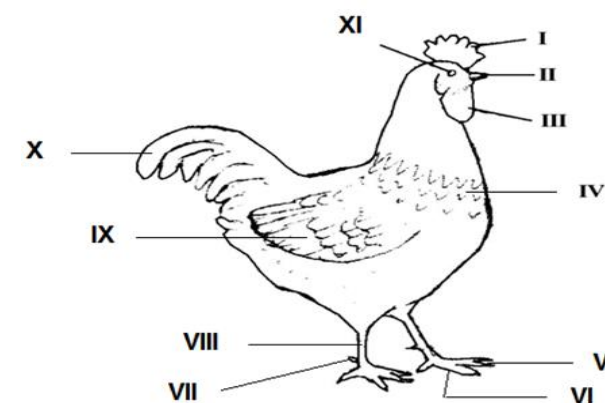
8. Which of the following characteristics is **not** associated with the image formed by a plane mirror?
- erect.
 - real.
 - laterally inverted.
 - same size as the object.
9. In the manufacturing of local soap, the solution obtained from ash of burnt cocoa pod is a source of
- alkali
 - ester.
 - fat
 - oil
10. The bicuspid valve in the heart of a mammal is located between the
- left auricle and the left ventricle.
 - aorta and the left auricle.
 - right auricle and the right ventricle.
 - right and the superior vena cava.
11. The silvery surface in a thermos flask prevent heat loss by
- conduction.
 - convection.
 - evaporation.
 - radiation.
12. Which of the following statements about the motion of a freely-falling object is correct?
- Total mechanical energy is conserved only at the start of the motion.
 - There is loss mechanical energy midway through the journey.
 - Kinetic energy increases at it approaches the ground.
 - Potential energy increases as it approaches the ground.
13. One reason for dehorning farm animals is to
- improve the tenderness of the meat.
 - remove offensive smell.
 - prevent indiscriminate mating.
 - make them easy to handle.
14. Which of the following quantities remains constant during the dilution of an aqueous solution with water?
- Volume.
 - Amount of substance.
 - Molar concentration.
 - Mass concentration.
15. It is obligatory to wear goggles in the laboratory when handling substances that
- are corrosive.
 - are highly inflammable.
 - are poisonous.
 - emit sparks.
16. Safety devices to be used in a chemistry laboratory include
- A pair of goggles
 - Nose guard
 - Crash helmet
 - Hand gloves
- I, II and III only
 - I, II and IV only
 - II, III, and IV only
 - I, II, III and IV
17. Which of the following is the unit of moment of a force?
- kgm-1
 - kg

3. The diagram below is a device that prevents heat loss or gain in several ways. Study it carefully and answer the questions following it.



- Identify the equipment in the diagram above.
- Name the parts labeled **I** to **VIII**.
- Which of the parts prevent heat loss?
 - Radiation
 - Conduction
 - Convection

4. The diagram below represents a good laying hen. Use it to answer the questions following it.



- Name the parts labeled **I**, **II**, **III** and **IV**
- What management practices are carried out on the parts labeled **I** and **II**?
- Name **two (2)** ectoparasites and **two (2)** endoparasites of the hen.
- Outline **four (4)** benefits of rearing the hen.

PART II THEORY

Answer ONLY three (3) questions from this section

- Define atomic number and mass number of an atom.
 - An atom contains **11** electrons.
 - Draw the electronic configuration of the atom.
 - State the type of chemical bond the element can form with chlorine (atomic number 17).
 - Distinguish between potential energy and kinetic energy.
 - A body of mass **2.5kg** is raised **20m** above the ground. Calculate the potential energy of the body given that gravity (g) is = **10m/s²**
 - List the **two (2)** main processes of carbon cycle.
 - Write **two (2)** ways to minimize greenhouse effects on the environment.
 - Explain the term 'mulching'.
 - Give **two (2)** advantages of mulching.

2. (a) (i) Name **three (3)** tools that can be employed in the preparation of a nursery bed.
(ii) differentiate between *pest* and *parasites* as used in agriculture and give **two** examples **each**.
- (b) (i) What is a *magnetic field*?
(ii) state any **two (2)** methods of making magnets.
- (c) (i) What is *climate change*?
(ii) List **two (2)** factors that affect climate change
- (d) Write down the systematic name of **each** of the following chemical compounds.
i) *FeS*
ii) *CO*
iii) *HNO₃*
iv) *NaOH*
3. (a) (i) What is *indiscriminate sex*?
(ii) Name the **three (3)** types of blood vessels in humans
- (b) (i) What is force?
(ii) **20N** force moves a body with acceleration of **2m/s²**
(iii) What is its mass?
- (c) Mention **one** danger involved in **each** of the following activities in the laboratory
(i) *Walking barefooted*
(ii) *Washing hands with unknown liquid in a beaker.*
(iii) *Eating or drinking water in the laboratory*
- (d) (i) Explain the term cultural practices
(ii) Mention **four (4)** cultural practices in vegetable crop production.
4. (a) (i) What is *neutralization reaction*?
(ii) Write a balanced chemical equation for the reaction between **each** of the following pairs of substances;
α) *Sodium metal and dilute hydrochloric acid*
β) *Sodium hydroxide and dilute hydrochloric acid*
- (b) (i) Define *power*.
(ii) State the **S.I** unit of power
- (c) (i) What is *respiration*?
(ii) Name the types of respiration that occur in humans.
- (c) (i) What is a *fertile soil*?
(ii) State any **two (2)** features of a fertile soil.
5. (a) (i) What is a *simple machine*?
(ii) State **two (2)** ways of overcoming friction in everyday activities
- (b) (i) What are *acids*?
(ii) State any **two (2)** difference *acid* and *base*.
- (c) (i) What is *malnutrition*?
(ii) State **one** symptom **each** of the following deficiency disease;
α) *scurvy*
β) *rickets*
- (d) (i) What is a *fertilizer*?
(ii) Name any **two (2)** plant nutrients.

END OF ESSAY TEST

PAPER 1 (ONE)

45 minutes

OBJECTIVE TEST

- Use **2B** pencil throughout.
- On the pre-printed answer sheet, check that's the following details are **correctly** printed:
Your **surname** followed by your **other names**, the Subject Name, your Index Number, Centre Number and Paper Code.
- In the boxes marked *Candidate Number*, *Centre Number* and *Paper Code*, **reshade** each of the shaded spaces.
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 spaced which bears the same letter as the option you have chosen. Give only one answer to each question. An example is given below.

Teenage pregnancy **mostly** occurs between the ages of

- A. 6 – 8 years
B. 13 – 19 years
C. 8 – 10 years
D. 20 – 24 years

☐ A ☐

☒ B ☐

☐ C ☐

☐ D ☐

The answer is '**B**' as shaded above.

Answer all these questions

- An example of a third -class lever is
A. Crowbar.
B. forceps.
C. pliers.
D. wheelbarrow
- The function of the stigma of a flowering plant is to
A. protect the pollen grains
B. protect the male gametes.
C. receive the pollen grains during pollination.
D. protect the flower at the bud stage.
- A metal that could be used in the laboratory preparation of hydrogen gas is
A. Copper.
B. mercury.
C. silver.
D. zinc.
- Which of the following elements is a micro-nutrient?
A. Magnesium.
B. Manganese.
C. Potassium.
D. Sulphur.
- Tapeworm living in the small intestine of a mammal illustrates
A. competition.
B. parasitism.
C. predation.
D. symbiosis
- Which of the following elements is a metalloid?
A. Carbon.
B. Oxygen.
C. Silicon.
D. Sodium.
- The **main** method of propagating cassava is
A. budding.
B. grafting.
C. use of seed.
D. stem cutting

