

0909021/2&1 BBEKO  
September 2021  
**INTEGRATED**  
**SCIENCE 2 & 1**  
**2 & 1**  
Essay & Objective  
2 hours

Name.....

Index Number.....

**BEST BRAIN EXAMINATIONS KONSORTIUM  
GHANA**

**Special Private Mock Examinations For BECE Candidates**

September 2021

**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.*

© 2021 Best Brain Examinations Konsortium  
(020-7732900 / 0249273049 / 0273175454)

0909021 bbeko science 2&1

Golearnershub.com

2  
PAPER 2  
ESSAY  
[100 marks]

1¼ hours

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.

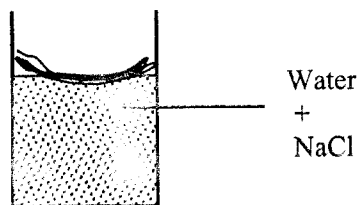
Credit will be given for clarity of expression and orderly presentation of material.

SECTION A  
[40 marks]

Answer **all** of Question 1

1. (a) The diagram below is an illustration of the behavior of sodium chloride in water.

Study the diagram carefully and answer the questions that follow.

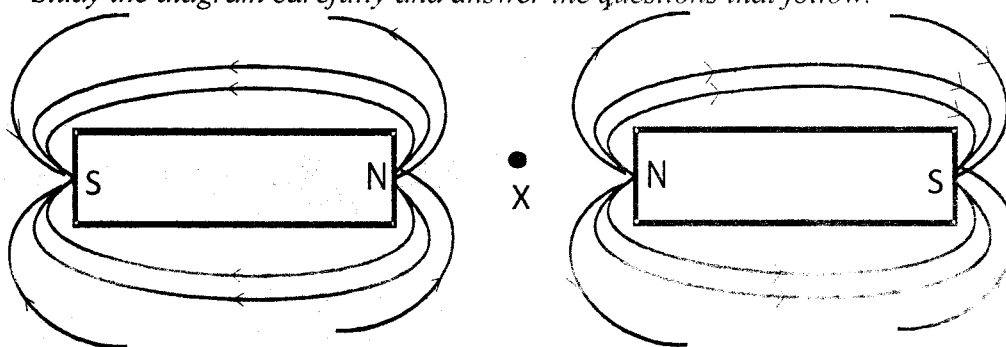


- (i) State what happens in the test tube. [2 marks]
- (ii) Describe the behaviour of sodium chloride in the diagram above. [2 marks]
- (iii) In what **two** ways would you increase the rate of the process? [2 marks]
- (iv) If more and more sodium chloride is added, what finally occurs? [2 marks]
- (v) Describe how you would separate the components in the set-up. [2 marks]
- (b) Below is the diagram of a vegetable crop.  
Study the diagram carefully and answer the questions that follow.

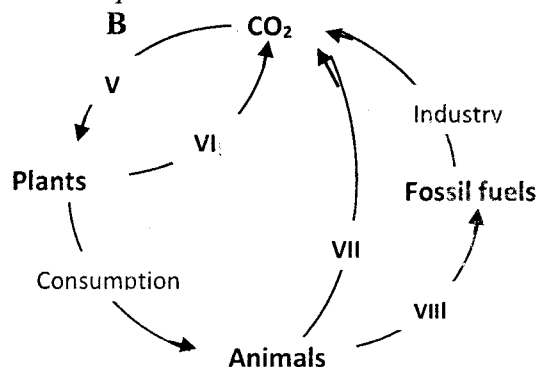
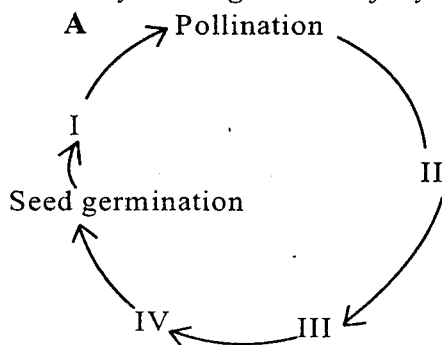


- (i) Identify the crop shown above and the class it belongs. [2 marks]
- (ii) Describe how the vegetable crop above is cultivated. [2 marks]
- (iii) Give **three** reasons why the crop above is important to farm soil. [3 marks]
- (iv) State **three** nutritional benefits of the crop above. [3 marks]

- (c) Below is a set-up showing two bar magnets placed close to each other. Study the diagram carefully and answer the questions that follow.



- (i) What magnetic force would exist between the pair of magnets? [2 marks]  
 (ii) Explain why the magnetic force mentioned in 1 (c) (i) will exist. [4 marks]  
 (iii) What is the name of the point X between the two magnets? [2 marks]  
 (iv) What is a *magnetic field*? [2 marks]
- (d) The diagrams below demonstrate two important cycles in life. Study the diagrams carefully and answer the questions that follow



- (i) Identify the cycles shown as A and B. [2 marks]  
 (ii) Identify the stages labeled I, II, III and IV of A. [2 marks]  
 (iii) Describe what occurs at each of the stages labeled I, II, III and IV. [2 marks]  
 (iv) Identify the processes labeled V, VI, VII and VIII of B. [2 marks]  
 (v) State **two** ways of maintaining the cycle B. [2 marks]

### SECTION B [ 60 marks]

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

2. (a) (i) State **four** functions of the stomach as a digestive organ. [2 marks]  
 (ii) Mention **two** ways of keeping the stomach healthy. [2 marks]  
 (b) Oxygen has an atomic number 8. Draw to show its atomic structure. [4 marks]  
 (c) Explain why fresh egg sinks in water but floats in salt solution. [3 marks]  
 (d) State **four** differences between clay and sand. [4 marks]

Turn over

3. (a) Explain the importance of each of the following in household wiring:  
 (i) fuse; [2 marks]  
 (ii) earthing; [2 marks]
- (b) Describe how pollination takes place in an insect-pollinated flower. [3 marks]
- (c) (i) State **two** uses of the hoe as a farming tool. [2 marks]  
 (ii) Name **four** other common farming tools. [2 marks]
- (d) (i) Give **two** differences between *condensation* and *sublimation*. [2 marks]  
 (ii) State **two** factors which affect the rate of evaporation of a liquid. [2 marks]
4. (a) (i) What is a *base*? [2 marks]  
 (ii) State **two** properties of a base. [2 marks]
- (b) State **three** uses of protein in the human body. [3 marks]
- (c) Name **two** industrial products of each of the following agricultural crops:  
 (i) Cocoa beans [2 marks]  
 (ii) Palm oil. [2 marks]
- (d) (i) State **two** properties of magnets. [2 marks]  
 (ii) Give **two** ways of demagnetizing magnets. [2 marks]
5. (a) State **two** methods each of controlling mosquitoes at the  
 (i) pupal stage; [2 marks]  
 (ii) adult stage. [2 marks]
- (b) (i) What is a *p-n junction diode*? [2 marks]  
 (ii) Explain the difference between *forward bias* and *reverse bias*. [2 marks]
- (c) (i) Give **two** harmful effects of weevils on crop production. [2 marks]  
 (ii) State **two** ways of controlling weevils on the farm. [2 marks]
- (d) (i) What is a *saturated solution*? [1 mark]  
 (ii) Describe how you can prepare a saturated salt solution in the lab. [2 marks]
6. (a) (i) Name **two** organisms which cause crop diseases. [2 marks]  
 (ii) List **two** methods of transmission of crop diseases. [2 marks]
- (b) Give **three** harmful effects of smoking on humans. [3 marks]
- (c) State **three** harmful effects of air pollutants. [3 marks]
- (d) (i) State **two** laws of reflection of light. [2 marks]  
 (ii) Draw a labeled diagram of a reflection of light in a plane mirror. [3 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

## PAPER 1 OBJECTIVE TEST

45 minutes

Answer all the questions on your Objective Test answer sheet.

- Use 2B pencil throughout
- 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*.
- In the boxes marked Candidate Number, Centre Number and Paper Code, **reshade** each of the shaded spaces.
- 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>
---	---------------------------------------

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, rul out your	5. Your question paper may have fewer than 60 Questions.

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

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

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

For Supervisors Only.

If candidate is absent shade this space

© 2021 Best Brain Examinations Konsortium  
(020-7732900 / 0249273049 / 0273175454)

Answer **all** the following 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 space.

Erase completely any answer you wish to change.

Now answer the following questions.

1. Ammonia is an important chemical in agriculture for manufacturing
  - A. pesticides.
  - B. weedicides.
  - C. fertilizers.
  - D. insecticides.
2. It is easier to walk on soft sand if with flat shoes rather than shoes with sharp heels because
  - A. flat shoes are better than heels.
  - B. pressure distribution is less for flat shoes.
  - C. less the area, less is the pressure so heels create less pressure.
  - D. in muddy area, it is not a good idea to wear heels.
3. Which pathogen causes paralysis of the legs?
  - A. Typhoid
  - B. Poliomyelitis
  - C. Tuberculosis.
  - D. Cholera
4. An animal cell placed in a salty solution will
  - A. stay the same.
  - B. swell and get bigger.
  - C. shrink and get smaller.
  - D. develop chloroplasts.
5. Which organ can be damaged as a result of tuberculosis infection?
  - A. Heart
  - B. Brain
  - C. Lungs
  - D. Stomach..
6. The correct decreasing order of the rate of diffusion in the different states of matter is
  - A. solids, liquids, gases.
  - B. liquids, gases, solids.
  - C. gases, liquids, solids.
  - D. gases, solids, liquids.
7. In a chemical formula, the figures in subscript represent the number of
  - A. atoms.
  - B. molecules
  - C. elements
  - D. compounds.

8. How many hydrogen atoms are present in 2 molecules of water?  
 A. 1  
 B. 2  
 C. 3  
 D. 4
9. Which of the following is **not** a common symptom of corona virus?  
 A. Loss of sense of smell  
 B. Rashes on the body  
 C. Shortness of breath  
 D. Fever and chills
10. Which of the following is **not** an example of a compound?  
 A. HCl  
 B. NaCl  
 C. Cl<sub>2</sub>  
 D. CO<sub>2</sub>
11. Which of these animals would exert the greatest pressure on the ground?  
 A. A fat cow with big feet.  
 B. A calf with big feet.  
 C. A fat cow with small feet.  
 D. A calf with small feet.
12. Which of the following is a semi-metal?  
 A. Beryllium.  
 B. Boron.  
 C. Sulphur.  
 D. Lithium.
13. Light emitting diodes are **not** found in  
 A. electrical bulbs.  
 B. digital clocks.  
 C. remote controls.  
 D. television sets.
14. Work is done on a box when you  
 A. carry the box on your head while standing.  
 B. drag the box on the floor.  
 C. walk beside the box.  
 D. push against an immovable box.
15. A planet may not support life because  
 A. of its size.  
 B. of the time it takes to rotate.  
 C. of the time it takes to complete one revolution.  
 D. the temperature on it is too high or too low.
16. Breast milk is a source of an organic acid called  
 A. gastric acid.  
 B. citric acid.  
 C. lactic acid.  
 D. tartaric acid.
17. The energy change that occurs in your body when you are running is  
 A. chemical to mechanical.  
 B. heat to chemical.  
 C. chemical to heat.  
 D. heat to mechanical.
18. The highest level of complexity of structures in living organisms is  
 A. cells.  
 B. organs.  
 C. systems.  
 D. tissues.
19. In the cultivation of yams, we require  
 A. mounds.  
 B. raised beds.  
 C. ridges.  
 D. sunken beds.
20. A chemical reaction occurs when  
 A. salt dissolves in water.  
 B. shea butter is heated.  
 C. candle wax melts.  
 D. an egg is boiled.
21. The canine tooth is mainly used for  
 A. grinding.  
 B. crushing.  
 C. tearing.  
 D. chewing.
22. Which of the following grains is a cereal?  
 A. Cowpea.  
 B. Groundnut.  
 C. Millet.  
 D. Soya bean.
23. In gardening, the rake is mainly used for  
 A. harvesting  
 B. leveling  
 C. making mounds  
 D. turning compost.
24. Nitrogen mineral is needed by plants for  
 A. respiration.  
 B. manufacturing chlorophyll.  
 C. translocation.  
 D. transpiration.

Turn over

25. The electronic configuration of sodium is  
 A. 2,8,1  
 B. 2,8  
 C. 1,2,8,1  
 D. 1,2,8.
26. Plaques are formed on the teeth when we  
 A. eat a lot of hot food.  
 B. do not clean our teeth regularly.  
 C. clean our teeth too often.  
 D. eat coloured food.
27. The carbon compounds in plants is transferred to animals when the  
 A. animals eat the plants.  
 B. plants transpire.  
 C. plants die  
 D. animals respire.
28. All the following components of blood are solid in nature **except**  
 A. plasma.  
 B. red blood cells.  
 C. white blood cells  
 D. platelets.
29. A common symptom of food poisoning is  
 A. reduction in body temperature  
 B. presence of blood in urine.  
 C. stomach ache  
 D. worm infestation.
30. Steel is an example of a  
 A. solid in solid mixture.  
 B. solid in liquid mixture.  
 C. gas in liquid mixture.  
 D. liquid in liquid mixture.
31. Light energy is being converted to electrical energy when  
 A. dry cell is in use.  
 B. using electric stove.  
 C. solar panel is in use.  
 D. hammering a piece of metal.
32. Which of the following is **not** known as a compound?  
 A. Water.  
 B. Sugar.  
 C. Ammonia.  
 D. Aluminium.
33. Scavengers in an ecosystem are the animals that  
 A. produce their own food.  
 B. feed on dead materials.  
 C. feed on other animals.  
 D. feed on plants.
34. One reason why some buildings are white washed is that white  
 A. emits heat and keeps the buildings warmer.  
 B. reflect heat and keeps the building cooler.  
 C. absorbs radiations into the building.  
 D. prevents formation of cracks in the buildings.
35. A symptom of calcium deficiency in humans is  
 A. development of anaemia.  
 B. malfunctioning of the kidney.  
 C. malformation of bones.  
 D. swelling of thyroid glands.
36. Which of the following pairs of minerals in plants is micro-nutrients?  
 A. Copper and phosphorous  
 B. Potassium and calcium  
 C. Magnesium and molybdenum  
 D. Manganese and zinc.
37. An immersed body displaces a quantity of liquid equal to its  
 A. density.  
 B. mass.  
 C. volume.  
 D. weight.
38. Which of the following structures in a plant cell is concerned with the manufacture of organic food?  
 A. Mitochondrion  
 B. Chloroplast  
 C. Ribosome  
 D. Vacuole
39. Which of the following life processes takes place in the mitochondrion?  
 A. Growth  
 B. Nutrition  
 C. Reproduction  
 D. Respiration.
40. Which of the following statements is **not** true about the solar system?  
 A. Mercury is the hottest planet.  
 B. Jupiter is the biggest planet.  
 C. The sun attracts other bodies with a very great force.  
 D. The moon revolves around every planet.

**END OF PAPER**



**BEST BRAIN EXAMINATIONS KONSORTIUM**  
**SPECIAL PRIVATE MOCK FOR BECE CANDIDATES – SEPTEMBER 2021**  
**MARKING SCHEME – INTEGRATED SCIENCE**

## PAPER TWO

## SECTION A [40 Marks]

**QUESTION ONE****(a) (i) WHAT HAPPENS IN THE TEST TUBE**

Sodium Chloride dissolves in the water.

[2 marks]

**(ii) DESCRIPTION OF SODIUM CHLORIDE IN THE DIAGRAM**NaCl is **soluble** in water      **OR:**NaCl **dissolves** in water

[2 marks]

**(iii) WAYS OF INCREASING THE REACTION IN TEST TUBE**

- By stirring
- By heating
- By breaking down the sodium chloride into smaller particles

[2 marks @ 1 mark each]

**(iv) WHAT WILL HAPPEN IF MORE NaCl IS ADDED TO TEST TUBE**

A Saturated Solution is formed/ it no more dissolves

OR: It does not dissolve any longer

[2 marks]

**(v) DESCRIPTION OF HOW TO SEPARATE COMPONENTS OF THE SET-UP**

Through evaporation, by heating the solution, water is separated from the mixture in the form of vapor leaving behind sodium chloride crystals.

[2 marks]

SUB-TOTAL = 10 MARKS

**(b) (i) IDENTIFICATION OF TYPE OF CROP AND THE CLASS IT BELONGS.****NAME OF CROP:**

Beans / Cowpea

[1 mark]

**CLASS IT BELONGS**

Legume/ leguminous crop

[1 mark]

**(ii) HOW CROP IS CULTIVATED**

The crop is cultivated by sowing its Seeds.

[2 marks]

**(iii) REASONS CROP IS IMPORTANT TO FARM SOIL**

- It adds nitrogen to the soil.
- It helps control soil erosion.
- It helps improve soil structure.
- Retains soil water content of the soil
- Etc.

[3 marks @ 1 mark each]

**(iv) NUTRITIONAL BENEFITS OF THE CRO**

- Protein,
- Fiber,
- Folate,
- Iron
- Magnesium.

[3 marks @ 1 mark each]

**SUB-TOTAL = 10 MARKS**

- (c) (i) **THE MAGNETIC FORCE THAT WOULD EXIST BETWEEN THE TWO BARS**  
Force of repulsion/Repulsive force. [2 marks]
- (ii) **WHY THE MAGNETIC FORCE WILL EXIST**  
This is because like poles of magnets repel when brought near each other. [4 marks]
- (iii) **THE NAME OF THE POINT X**  
Neutral point. [2 marks]
- (iv) **DESCRIBING A MAGNETIC FIELD**  
Magnetic field is the area around a magnet where magnetic force or magnetic influence can be felt. [2 marks]

**SUB-TOTAL = 10 MARKS**

- (d) (i) **IDENTIFICATION OF CYCLES**  
A - Life cycle of a flowering plant  
B - Carbon cycle [2 marks]
- (ii) **IDENTIFICATION OF STAGES LABELED IN A**  
I - Maturation  
II - Fertilization  
III - Seed/ fruit formation and maturation  
IV - Dispersal of fruits and seeds [2 marks @ ½ mark each]
- (iii) **DESCRIPTION OF WHAT WOULD OCCUR AT EACH STAGE**  
I - **Maturation:** This is the growth stage of flowering plants.  
II - **Fertilization:** It is stage at which fusion of the female gamete, the ovum or egg and the male gamete produced in the pollen tube occurs.  
III - **Seed/ fruit formation and maturation:** the stage at which ovules develop into seeds and ovaries develop into fruits.  
IV - **Dispersal of fruits and seeds:** at this stage, several agents of fruits and seed dispersion helps to move fruits and seeds to new locations or areas. [2 marks @ ½ mark each]
- (iv) **IDENTIFICATION OF PROCESSES IN B**  
V → Photosynthesis  
VI → Respiration  
VII → Respiration  
VIII → Decomposition [2 marks @ ½ mark each]
- (v) **WAYS TO MAINTAIN THE CARBON CYCLE**  
- Use of alternative fuels apart from fossil fuels.  
- Planting more trees.  
- Implementing sustainable greenhouse gas emission policies.  
- Avoid burning of bushes. [2 marks @ 1 mark each]

**SUB-TOTAL = 10 MARKS**

TOTAL FOR SECTION A = 40 MARKS

**QUESTION TWO**

(a) (i)

**FUNCTIONS OF THE STOMACH AS A DIGESTIVE ORGAN**

- Stores food for further digestion
- Destroys microorganisms in food
- Produces digestive enzyme
- Produces hydrochloric acid to help in food digestion
- Churns/mixes food for proper digestion

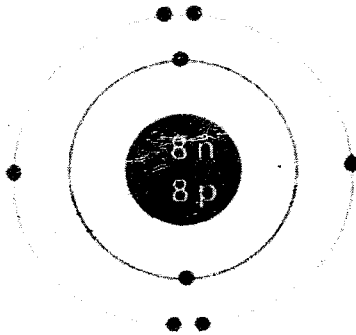
[2 marks @ ½ mark each]

(ii)

**WAYS OF KEEPING THE STOMACH HEALTHY**

- Eat food rich in fibre
- Eat on time
- Reduce alcohol intake
- Avoid taking too hot foods
- Avoid overeating
- Regular exercise
- Drinking adequate amounts of water
- Etc.

[2 marks @ 1 mark each]

(b) **ATOMIC STRUCTURE OF OXYGEN**

[4 marks]

(c) **WHY EGG SINKS IN WATER BUT FLOATS IN SALT SOLUTION**

Egg sinks in water because the density of egg is greater than the density of water. But the density of egg is less than density of salt solution which makes it possible to float in salt solution.

[3 marks]

(d) **DIFFERENCES BETWEEN CLAY AND SAND**

Clay soil	Sandy soil
The proportion of fine particle is higher.	The proportion of large particles is higher.
Particles are packed tightly.	Particles are loosely packed.
It can hold good amount of water.	Its ability to retain water is low.
Water cannot drain quickly.	Water can drain quickly.
It is rich in humus.	It is not rich in humus.

[4 marks @ 1 mark each]

TOTAL = 15 MARKS

**QUESTION THREE****(a) IMPORTANCE OF THE FOLLOWING IN HOUSEHOLD WIRING.**

- (i) **FUSE:** It is a form of wire which cut off or break off when the current is excessively high and thus prevents damage to the electrical appliances. [2 marks]
- (ii) **EARTHING:** This is a wire provided so that in the event of electrical leakage in metal the leakage is directed into the ground. [2 marks]

**(b) DESCRIPTION OF POLLINATION IN AN INSECT-POLLINATED FLOWER**

- An insect lands on the petals of the flower and its weight presses them.
- The tip of the (keel) petal open exposing the anther with the pollen grains oozing out.
- In the act of sucking nectar from the base of the (standard) petal with its long proboscis, the body of the insect touches the anthers and picks up some pollen grains.
- The insect then flies away with the body dusted with pollen grains.
- When the insect visits another flower with mature stigma, the pollen grains on its body are brushed off unto the stigma.

[3 marks]

**(c) (i) USES OF THE HOE AS A FARMING TOOL**

- Weeding
- Preparing mounds
- Preparing beds
- Uprooting stumps
- Digging the ground

[2 marks @ 1 mark each]

**(ii) COMMON FARMING TOOLS**

- Cutlass
- Hand trowel
- Pickaxe
- Watering can
- Secateurs
- Digging mattock
- Sickie
- Digging fork
- Rake
- Pruning saw
- Shears
- Hand fork
- etc.

[2 marks @ 1 mark each]

**(d) (i) DIFFERENCES BETWEEN CONDENSATION AND SUBLIMATION**

Condensation	Sublimation
Vapour changes to liquid	Solid changes into gas or vice-versa
Liquid state involve.	Liquid state not involved

[2 marks @ 1 mark each]

**(ii) FACTORS WHICH AFFECT THE RATE OF EVAPORATION OF A LIQUID**

- Atmospheric pressure
- Surface area
- Temperature
- Density of liquid
- Speed of wind
- Humidity
- Etc.

[2 marks @ 1 mark each]

**TOTAL = 15 MARKS**

**QUESTION FOUR**

(a) (i) **BASE:** It is any substance that gives hydroxide ions ( $\text{OH}^-$ ) when dissolved in water.

[2 marks]

(ii) **PROPERTIES OF BASES**

- Bitter taste
- Change red litmus paper to blue
- Corrosive when concentrated
- PH is greater than 7
- Feel slippery or soapy
- React with acids to produce salt and water

[2 marks @ 1 mark each]

(b) **USES OF PROTEIN IN THE HUMAN BODY**

- Repair and maintenance of body tissues
- May be used to generate energy
- Creation of hormones
- Making enzymes
- Transportation of important molecules
- Used as antibodies to fight infections

[3 marks @ 1 mark each]

(c) **INDUSTRIAL PRODUCTS OF THESE AGRICULTURAL RAW MATERIALS**

(i) Cocoa beans: Cocoa butter, Chocolate

1 each x 2 = 2 marks

(ii) Palm oil: Margarine, Ice cream, Peanut butter, Snacks and Cookies

1 each x 2 = 2 marks

(d) (i) **PROPERTIES OF MAGNETS**

- Aligns to the earth's magnetic north and south pole when suspended
- Have two poles namely north and south poles
- Opposite poles attract while like poles repel
- They attract magnetic materials

[1 each x 2 = 2 marks]

(ii) **WAYS OF DEMAGNETIZING ANY OF THE MAGNETS**

- Heating it into red hot and allowing it to cool whiles lying in an east-west direction.
- Hammering it
- Dropping it repeatedly
- Placing it in a solenoid and allowing alternating current (a. c) to flow through.

[1 each x 2 = 2 marks]

**TOTAL = 15 MARKS****QUESTION FIVE**(a) **METHODS OF CONTROLLING MOSQUITOES**(i) **PUPAL STAGE**

- Introducing predators or fishes into stagnant or pond water
- Use of biological methods or control
- Pouring of oil or kerosene on surface of the water
- Draining of stagnant water
- Etc.

[1 each x 2 = 2 marks]

(ii) **ADULT MOSQUITOES**

- Spray with or use of insecticides to kill adult mosquito
- Use of mosquito coil
- Clearing of weeds or bushes around houses
- Use of special electric bulbs
- Use of special paints or Inesfly
- Use of treated mosquito net.
- Etc.

[1 each x 2 = 2 marks]

(b) (i) **EXPLAINING A P-N JUNCTION DIODE**

A device which offers low resistance to electric current in one direction and a very high resistance in the opposite direction. It is formed by combining N – type and P – type semiconductor. The region where they meet is the p – n junction.

[2 marks]

(ii) **EXPLANATION OF FORWARD BIAS AND REVERSE BIAS*****Forward Bias***

Forward bias occurs when the p – type side of a p – n junction diode is connected to the positive terminal of a battery and the n – type to the negative terminal of a battery.

***Reverse Bias***

When the negative terminal of the battery is connected to the p – type side of junction and positive terminal to the n – type side of the junction.

[1 each x 2 = 2 marks]

(c) (i) **HARMFUL EFFECTS OF WEEVILS**

- It destroys grains
- It destroys beans
- It brings about shortage of grains for the next planting season
- It causes low yield.
- It leads to losses to the farmer.

[2 marks @ 1 mark each]

(ii) **METHODS OF CONTROLLING WEEVILS**

- Spraying with chemicals such as pesticide on harvested crops
- Hand picking
- Cultural control that has to do with sanitation

[2 marks @ 1 mark each]

(d) (i) **SATURATED SOLUTION**

A saturated solution contains as much of the solute as is possible under a particular temperature.  
OR: A solution that cannot take any more of the solute at that temperature.

[1 mark]

(ii) **HOW SATURATED SALT SOLUTION IS PREPARED**

- Measure a quantity of liquid / water
- Add small quantity of salt
- Stir till salt dissolves
- Repeat adding and stirring till no more salt can dissolve

[2 marks]

**QUESTION SIX**(a) (i) **ORGANISMS WHICH CAUSE CROP DISEASES**

- Fungi or correctly named fungus
- Bacteria
- Viruses
- Nematodes

[2 marks @ 1 mark each]

(ii) **METHODS OF TRANSMISSION OF CROP DISEASES**

- Wind
- Water
- Physical contact
- Planting materials
- Soil insect or birds or animals
- Farm tools or equipment
- Farm workers
- Etc.

[1 each x 2 = 2 marks]

(b) **HARMFUL EFFECTS SMOKING ON HUMANS**

- Narrowing of the blood vessels which leads to heart attack
- Lung cancer
- Miscarriage in pregnant women
- Raise blood pressure
- Catarrh
- Stroke
- Stained teeth
- Madness
- Heart diseases
- Bad breath
- Bronchitis

[3 marks @ 1 mark each]

(c) **HARMFUL EFFECTS OF AIR POLLUTANTS**

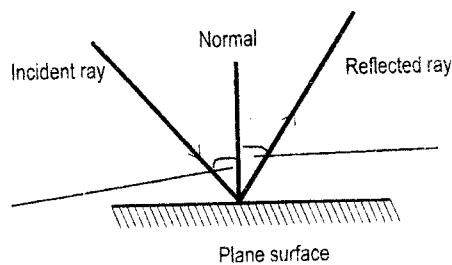
- It causes acidic rain which causes corrosion, kills plants and aquatic organisms.
- Inhaling of smoke and dust may cause respiratory diseases such as catarrh, lung cancer, asthma, etc.
- Smoke from forest fires affects visibility and may cause road accidents.
- It causes rise in temperature of the atmosphere leading to climate change.
- Dust particles settle on leaves of plants and cut off light supply – this prevents photosynthesis and kills plants.
- Some air pollutants are poisonous to plants and animals.
- Acid rain causes leaching of soil nutrients.
- Etc.

[3 marks @ 1 mark each]

(d) (i) **LAWS OF REFLECTION**

- The incident ray, the reflected ray and the normal at the point of incidence all lie in the same plane
- The angle of incidence is equal to the angle of reflection

[1 each x 2 = 2 marks]

(ii) **DIAGRAM TO SHOW REFLECTION OF LIGHT IN A PLANE MIRROR**

Correct drawing = 2 marks  
 2 or more labels correct  $\frac{1}{2} \times 2 = 1$  marks

TOTAL FOR PART II = 60 MARKS

THUS TOTAL FOR PAPER 2 = (PART I + PART II) = 100 MARKS

**PAPER I [40 MARKS]**

1. C	11. C	21. C	31. C
2. B	12. B	22. C	32. D
3. B	13. A	23. B	33. B
4. C	14. B	24. B	34. B
5. C	15. D	25. A	35. C
6. C	16. C	26. B	36. D
7. A	17. C	27. A	37. D
8. D	18. C	28. A	38. B
9. B	19. A	29. C	39. D
10. C	20. D	30. A	40. D

GRAND TOTAL = PAPER 1 (40) + PAPER 2 (100) = 140 MARKS

OVERALL SCORE =  $\frac{\text{TOTAL SCORE}}{140} \times 100$

140