BRIGHTSIDE MOCK EXAMINATIONS

SCIENCE

Essay and Objective

2hours

1&2

Name: _____

Index number: _____

Date: _____

SANCTIFIED B.E.C.E MOCK EXAMS - MAY, 2024

SCIENCE [140 marks]

*Write your **name** and **date** in **ink** in the spaces provided above*

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.

- ✓ *This booklet consists of two papers, Paper **2** and paper **1***
- ✓ *Answer paper **2** in your answer booklet and paper **1** in the objective test answer sheet*
- ✓ *Paper **2** will last 1hour.*
- ✓ *Paper **1** will last 1hour.*
- ✓ ***Do not start paper 1 until you are told to do so***



SEARCH AND JOIN @WAEC_WASSCE ON TELEGRAM

@ 2024 Brightside Examination Consult

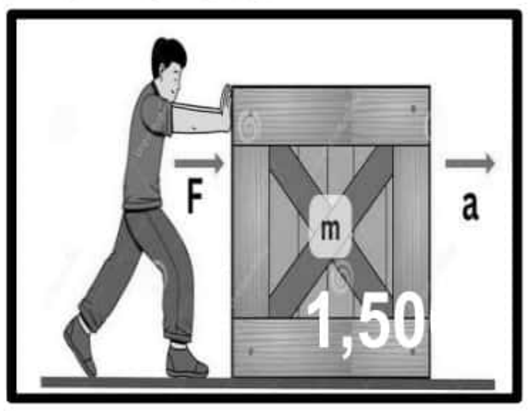
PAPER 2

*This paper is made up two sections; **Section A** and **B**. Answer **all** questions in section **A** and any other **three** questions from Section **B**.*

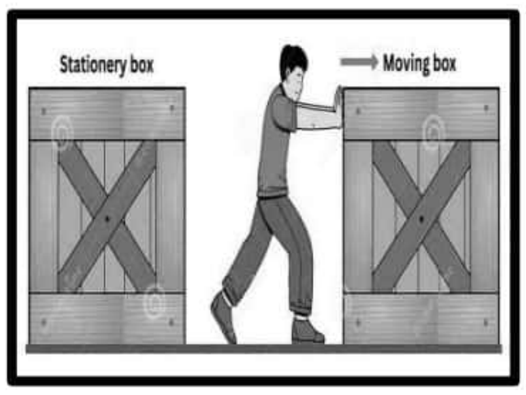
SECTION A [40marks]

*Answer **all** questions from this section.*

1. a) The diagrams below are illustrations of Newton's Laws of Motion. Carefully study them and answer the questions which follow.



A



B



C

i) Identify the laws of motion illustrated in the diagrams labeled A, B and C [1.5marks]
ii) Explain each of the laws illustrated in the diagrams labelled A and B [4marks]
iii) State two applications of the law illustrated in the diagram labelled C. [2marks]
iv) What is the magnitude of the force applied in the diagram labeled A if it caused the body to move with an acceleration of $5ms^{-2}$? [2.5marks]

b) Study the diagram below and answer the questions which follow.



i) Identify the organism above. [1mark]
ii) Mention two bleeding places of the organism mentioned in (a) above. [2marks]
iii) What are the stages involved in the development of the organism?[2marks]
iv) Mention two diseases transmitted by the organism. [2marks]
v) In three sentences, how would you reduce the effects of the activities of the organism on humans? [3marks]

c) Mr. Ansah, a farmer, had his crops fertilized with two different types of fertilizers. Below are the diagrams showing the types of the fertilizers. Study it carefully and answer the questions that follow.



A

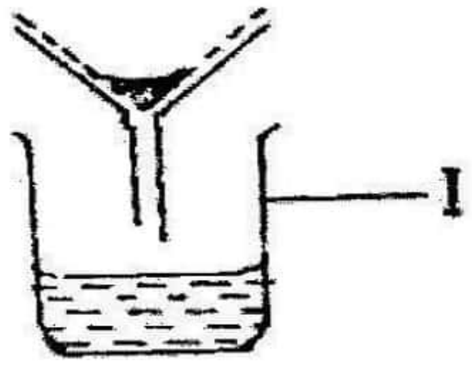


B

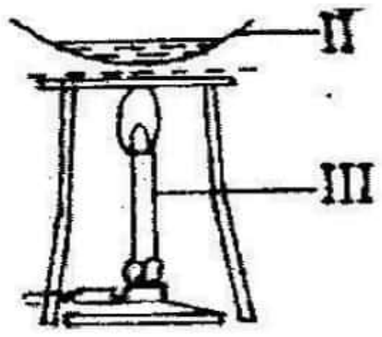
i) Identify and distinguish between the types of fertilizers labelled A and B. [2marks]
Mr. Ansah always had his crops burnt whenever he applied fertilizers to these crops.
ii) What type of fertilizers is he applying to the crops? [1mark]
iii) What did Mr. Ansah do wrong when applying the fertilizer? [2mark]
iv)Mention four methods of applying the type of fertilizer labelled A [2marks]
v) Why would you recommend the fertilizer labelled B to Mr. Ansah instead of A? Give three reasons. [3marks]

SEARCH AND JOIN @WAEC_WASSCE ON TELEGRAM

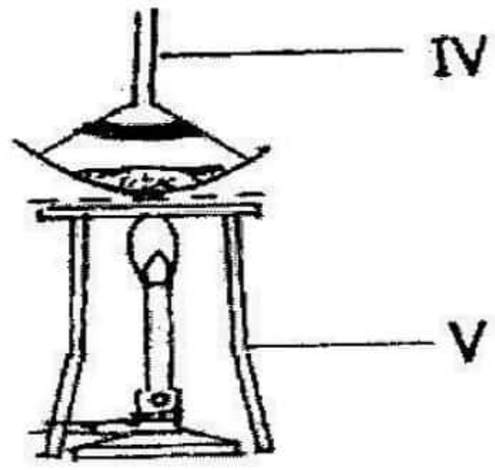
d) The diagrams below are different laboratory set-ups used in the separation of mixtures. Study the diagrams carefully and answer the questions that follow



A



B



C

(i) Name each of the parts labeled I, II, III, IV and V. [5marks]
(ii) Name the separation method represented by each diagram. [3marks]
(iii) Which of the set-ups is used to obtain clear water from muddy water? [1mark]
(iv) Which of the set-ups is used to obtain salt from salt solution? [1mark]

SECTION B [60marks]

Answer **three** *questions* **only** *from this section.*

2. (a) i) What is the difference between an atom and an element? [2marks]
ii) Why do elements in the same group have similar chemical properties? [2marks]
iii) Give two examples of noble gases. [1mark]
(b) i) Explain the term dentition. [2marks]
ii) Give one function each of the following parts of the mammalian tooth;
β) Crown
γ) Root [3marks]
(c) i) Explain the following types of seed beds;
β) Sunken bed
γ) Raised bed [3marks]
ii) Name four examples of crops that can be planted on raised beds. [2marks]
(d) i) What are compound machines? [2marks]
ii) In what three ways can the functions of compound machines improve the quality of life? [3marks]

3. (a) i) Describe the nature of the following bodies in solar system;
β) Asteriod
γ) Comet [3marks]
ii) Give two differences between comets and meteors [2marks]
(b) i) Give four examples of animal wastes that are used to prepare manure. [2marks]
ii) What is farmyard manure? [1marks]
iii) Name the two methods of preparing farmyard manure. [2marks]
(c) i) State two differences between colloids and suspension [2marks]
ii) Briefly describe how the following mixtures can be separated.
α) Vinegar solution
β) Sugar – salt solution [3marks]
(d) Kofi is suffering from anaemia.
Use the above information to answer questions (d) i), ii) and iii)
i) What symptoms would be seen? [2marks]
ii) What food nutrient is lacking in Kofi's diet? [1mark]
iii) Recommend a diet that can help Kofi recover from anaemia [2marks]

SEARCH AND JOIN @WAEC_WASSCE ON TELEGRAM

4. (a) i) Describe how the following viral diseases are transmitted;
   α) Ebola Virus Disease (EVD)
   β) COVID-19 [3marks]
   ii) Give four ways of preventing COVID-19 [2marks]

(b) Daniel shines a torchlight onto a mirror at an angle of 60° to the mirror. There is no object between him and the mirror.

Use the above information to answer questions (b) i), ii) and iii)

i) What would be the angle of reflection? [1mark]
ii) Briefly describe what will happen after the light ray incidents on the mirror. [2marks]
iii) Draw a diagram to represent the above information. [2marks]

(c) i) State three examples of organic acids and give one source each.[3marks]
ii) Give two properties of acids. [2marks]

(d) i) Tabulate three differences between mixed farming and mixed cropping. [3marks]
ii) State the reasons behind the practice of the following farming systems.
α) Land rotation;
β) Organic Farming [3marks]

5. (a) i) In what three ways does thermal electricity generation affect the environment negatively? [3marks]
ii) Outline two ways of reducing the effect of thermal power generation on the environment. [2marks]

(b) i) Explain the following processes involved in nitrogen cycle
α) Nitrification;
β) Denitrification. [4marks]
ii) State two importance of nitrogen cycle to the environment.

(c) State the functions of the following specialized cells in plants.
i) Guard cell
ii) xylem cell
iii) Epidermal cell
iv) Phloem cell [4marks]

(d) i) Briefly describe the following animal feeds;
α) Concentrates;
β) Roughages [3marks]
ii) What will happen to animals who are not provided with adequate water? Give two points. [2marks]

WASSCE ON TELEGRAM
SEARCH AND JOIN @WAEC

PAPER ONE [40marks]

*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 answer space which bears the same letter as the option you have chosen. Give only one answer to each question*

1. Which of the following human activities contribute to the proliferation of the greenhouse gases?
   A. Cooking of food
   B. Deforestation
   C. Afforestation
   D. Shifting cultivation
2. The economy that aims at reducing environmental risk is known as …
   A. blue economy
   B. flattened economy
   C. green economy
   D. developed economy
3. Which of the following rock is rich in calcium?
   A. Schist rock
   B. Limestone
   C. Marble rock
   D. Pumice rock
4. The IUPAC name for FeO is ….
   A. Ferious Oxide
   B. Iron Oxide
   C. Iron (II) Oxide
   D. Trinitrate(v) acid.
5. All the following elements exist as molecules except…
   A. fluorine
   B. chlorine
   C. carbon
   D. oxygen
6. Which of the following substances is capable of neutralizing acid?
   A. Oxygen
   B. Water
   C. Vinegar
   D. Sodium hydroxide
7. Cells are made up of different tiny parts called….
   A. organs
   B. organelles
   C. euglena
   D. tissues
8. The energy production chamber in a cell is known as the
   A. cytoplasm
   B. nucleus
   C. lysosome
   D. vacuole
9. Which of the following best describes evaporation?
   A. Heat turning liquid to gas.
   B. Cold turning gas to liquid
   C. Heat turning solid to liquid
   D. Heat turning solid to gas
10. Which of the following nutrients are likely to be found in a meal containing maize?
    A. Protein
    B. Carbohydrate
    C. Vitamin C
    D. Vitamin D
11. A stick which is partially immersed in water appeared to be bent due to
    A. absorption
    B. reflection
    C. refraction
    D. transmission
12. One difference between metals and non-metals is that metals
    A. have low density
    B. are not malleable
    C. have luster
    D. have low melting points.
13. The cultivation of different crops on different plots of a farmland in a definite cycle is called
    A. land rotation
    B. shifting cultivation
    C. crop rotation
    D. mixed cropping
14. Iodine deficiency in humans could result in a disorder known as
    A. diabetes
    B. goiter
    C. kwashiorkor
    D. scurvy
15. A substance is termed combustible if it
    A. easily catches fire
    B. dissolves common salt
    C. sublimes at room temperature
    D. boils at 100°C.
16. Micro-organisms that cause diseases are collectively called
    A. bacteria
    B. infections
    C. pathogens
    D. viruses
17. Which type of energy is lost when sweat evaporates from the human body?
    A. Sound energy
    B. Mechanical energy
    C. Chemical energy
    D. Heat energy
18. Which of the following gases is involved in the rusting of iron?
    A. Hydrogen
    B. Oxygen
    C. Nitrogen

SEARCH AND JOIN @WAEC_WASSCE_ON_TELEGRAM

D. Carbon dioxide

19. The feeling of soil between fingers is used to determine the

A. texture of the soil

B. drainage of the soil

C. capillarity of the soil

D. water holding capacity of the soil.

20. Sodium hydroxide is an example of a base because it

A. has sour taste

B. has a pH less than 7

C. turns wet blue litmus paper red

D. turns wet red litmus paper blue

21. Which of the following plants has its leaves modified for storing food?

A. Ginger

B. Onion

C. Pineapple

D. Tomato

22. Gases enter and leave the leaf of a plant through the

A. mesophyll cells

B. stomata

C. pith

D. palisade cells

23. Which of the following vegetable crops is cultivated for its leaves?

A. Carrot

B. Lettuce

C. Okro

D. Pepper

24. Which of the following devices converts electrical energy into sound energy?

A. Electric heater

B. Electric fan

C. Washing machine

D. Loudspeaker

25. Transplanting of young seedlings is usually done in the evening because

A. darkness promotes rapid growth

B. seedlings require less nutrients

C. pest attack is minimal

D. transpiration is minimal

26. A mixture of sugar and water could be separated by

A. decantation

B. evaporation

C. filtration

D. sublimation

27. Global warming is caused by the

A. circulation of oxygen in the atmosphere

B. excessive release of carbon dioxide into the atmosphere

C. release of hydrogen into the atmosphere

D. circulation of nitrogen in the atmosphere

28. The warning and safety signs on chemical containers are usually represented by a symbol placed within a

A. circle

B. rectangle

C. square

D. triangle

29. In which of the following structures in a living cell is cellulose found?

A. Chloroplast

B. Mitochondrion

C. Cell membrane

D. Cell wall

30. Elements that could easily lose electrons to form cations are

A. metals

B. non-metals

C. semi-metals

D. noble gases

31. The conversion of agricultural produce from its original form to other desirable forms is termed

A. preservation

B. processing

C. recycling

D. storage

32. The function of the hair in the nose of humans is to

A. make breathing easier

B. keep nose moist

C. filter dust from the air breathed in

D. keep the nose warm

33. A metal that is used as a thermometric liquid is

A. aluminium

B. copper

C. mercury

D. silver

34. The form of energy which flows from one point to another due to temperature differences is known as

A. mechanical energy

B. heat energy

C. solar energy

D. nuclear energy

35. Which of the following resources does not produce energy?

A. Coal

B. Sand

C. Water

D. Wind

TELEGRAM SEARCH AND JOIN @WAEC WASSCE ONLY

36. The main limitation of food chains and webs as a representation of energy transfer into ecosystems are that they usually exclude
    A. producers.
    B. primary consumers.
    C. decomposers.
    D. secondary consumers.
37. What is the most convenient form of storing energy?
    A. Heat.
    B. Light.
    C. Chemical.
    D. Electrical.
38. In which form is energy stored in a torch battery?
    A. Chemical.
    B. Light
    C. Heat
    D. Electrical
39. When we exchange our old freezers for newer ones, we will conserve energy by
    A. reduced use of electrical energy.
    B. judicious use of electrical energy.
    C. using alternative sources of energy.
    D. avoiding the use of electrical energy.
40. World Energy Conservation Day falls on every
    A. 1st July.
    B. 6th March.
    C. 4th August.
    D. 14th December.

SEARCH AND JOIN @WAEC_WASSCE ON TELEGRAM

BRIGHTSIDE EXAMS CONSULT

SANCTIFIED BECE MOCK – MAY 2024

SCIENCE

FINAL MARKING SCHEME

SECTION A (OBJECTIVE TEST) [40MARKS]

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

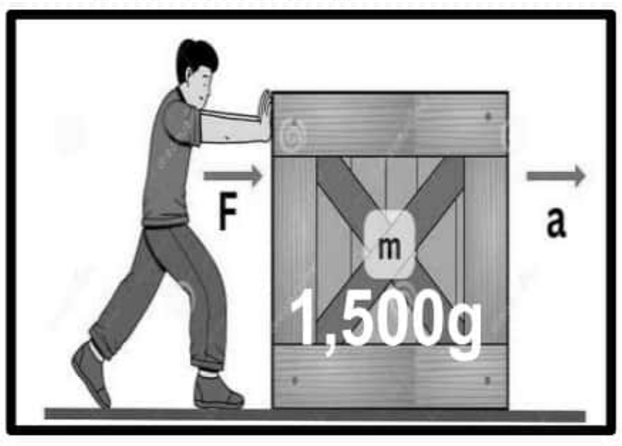
PAPER 2 [100MARKS]

*This paper is made up two sections; **Section A** and **B**. Answer **all** questions in section **A** and any other **three** questions from Section **B**.*

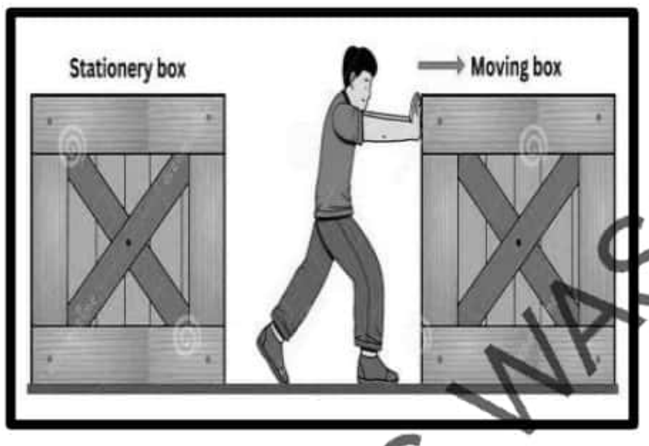
SECTION A [40marks]

*Answer **all** questions from this section.*

1. a) The diagrams below are illustrations of Newton's Laws of Motion. Carefully study them and answer the questions which follow.



A



B



C

i) Identify the laws of motion illustrated in the diagrams labeled A, B and C [1.5marks]

A – Newton's Second Law of Motion

B – Newton's Newton's First Law of Motion

C – Newton's Third Law of motion

[0.5marks each]

ii) Explain each of the laws illustrated in the diagrams labelled A and B [4marks]

A – Newton's second law of motion states that the force acting on a body is equal to the product of its mass and acceleration.

Mathematically, F=ma where F is the force acting on the body, m is the mass of the body and a is the acceleration.

B – Newton's First Law of motion states that a body continue to be at rest or in uniform motion until it is being acted upon by an external force.

[2marks each]

iii) State two applications of the law illustrated in the diagram labelled C. [2marks]

- A ball thrown against a wall returns in the opposite direction because the wall exert some force on the ball as the ball exerted on the wall.
- In the event of firing a gun, the gun recoils when fired
- When you jump, your legs apply a force to the ground and the ground applies an equal and opposite reaction force that propels you in the air
- Releasing a balloon full of air has an equal and opposite reaction.

[1mark each for any two]

SEARCH AND JOIN @WAEC_WASSCE ON TELEGRAM

iv) What is the magnitude of the force applied in the diagram labeled A if it caused the body to move with an acceleration of $5ms^{-2}$? [2.5marks]

Mass of the body, m = 1,500g

$= \frac{1,500}{1000} \times 1kg$

$= 1.5kg$

Acceleration, $a = 5ms^{-2}$

Force = m × a

$= 1.5 \times 5$

$= 7.5N$

Therefore, the magnitude of the force applied in the diagram labeled A is 7.5N

b) **Study the diagram below and answer the questions which follow.**



i) Identify the organism above. [1mark]

Housefly

ii) Mention two bleeding places of the organism mentioned in (a) above. [2marks]

- Dung
- Accumulated plant materials
- Organic manure
- Cabbages and wastes from food processing.
- Sewage

[1mark each for any two]

iii) What are the stages involved in the development of the organism? [2marks]

- Egg stage
- Larva stage
- Pupa stage
- Adult stage

[0.5 marks each]

iv) Mention two diseases transmitted by the organism. [2marks]

- Typhoid fever
- Cholera
- Dysentery
- Food poisoning
- Poliomyelitis
- Anthrax

[1mark each for any two]

v) In three sentences, how would you reduce the effects of the activities of the organism on humans? [3marks]

- Maintaining proper food hygiene
- Eliminating breeding sites of as much as possible
- Avoiding open defecation
- Using housefly repellent
- Growing housefly repellent plants in your house or community. Eg. Lavender, lemon grass

[1 marks each for any three]

SEARCH AND JOIN @WAEC_WASSCE ON TELEGRAM

c) Mr. Ansah, a farmer, had his crops fertilized with two different types of fertilizers. Below are the diagrams showing the types of the fertilizers. Study it carefully and answer the questions that follow.



A



B

i) Identify and distinguish between the types of fertilizers labelled A and B. [2marks]

A – Inorganic fertilizer

B – Organic fertilizer

Organic fertilizers are nutrients obtained from decomposed plant parts and animals while **inorganic fertilizers** are chemically prepared in the laboratory by industries.

[0.5marks each for identification]

[1mark for the difference]

Mr. Ansah always had his crops burnt whenever he applied fertilizers to these crops.

ii) What type of fertilizers is he applying to the crops? [1mark]

Inorganic fertilizer

iii) What did Mr. Ansah do wrong when applying the fertilizer? [2mark]

He applied excess quantity of the fertilizer needed by the crops causing the soil to be relatively hypertonic and thereby causing water to be pulled out of the plant.

iv)Mention four methods of applying the type of fertilizer labelled A [2marks]

- Broadcasting
- Foliar application
- Side dressing
- Ring method
- Band placement

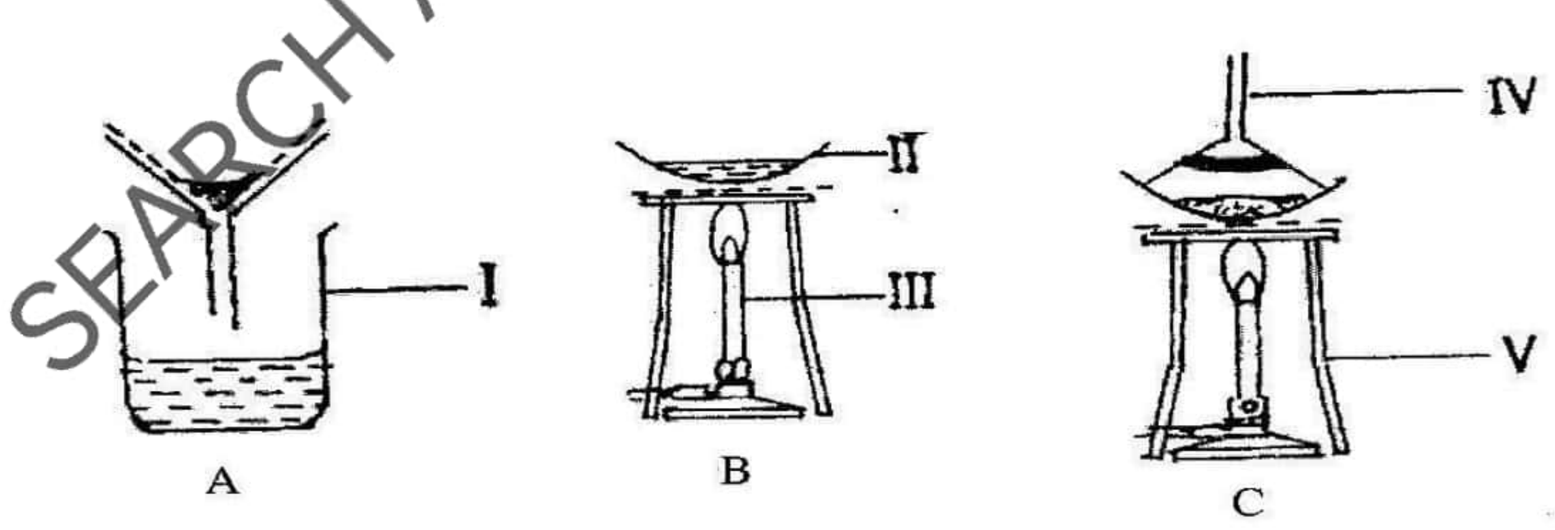
[0.5 marks each for any four]

v) Why would you recommend the fertilizer labelled B to Mr. Ansah instead of A? Give three reasons. [3marks]

- Organic fertilizers improves the structure of the soil
- It is safe to the environment
- They are easy to apply
- The risk of plant

[1mark each for any three]

d) The diagrams below are different laboratory set-ups used in the separation of mixtures. Study the diagrams carefully and answer the questions that follow



A B C

(i) **Name of the part labeled**

I. Beaker
II. Evaporating disc
III. Candle
IV. Inverted funnel
V. Tripod stand

[1mark each]

(ii) **Name the separation method represented by each diagram.**

SEARCH AND JOIN @WAEC_WASSCE ON TELEGRAM

A- Filtration
B- Evaporation
C- sublimation

[1mark each]

(iii) **The set-up used to obtain clear water from muddy water**
Set up A

[1mark]

(iv) **The set-up used to obtain salt from salt solution**
Set-up B

[1mark]

SECTION B [60marks]

Answer **three** *questions* **only** *from this section.*

2. (a) i) What is the difference between an atom and an element? [2marks]
An atom is the smallest particles of an element that can take part in chemical reaction while an element is a chemical substance that is made up of the same kind of atom.

ii) Why do elements in the same group have similar chemical properties? [2marks]
This is because they have the same valence shell electronic configuration.

iii) Give two examples of noble gases. [1mark]

- Helium
- Neon
- Argon
- Krypton
- Xenon
- Radon
- Oganesson

[0.5marks each for any two]

(b) i) Explain the term dentition. [2marks]
Dentition is the type, number and arrangement of a set of teeth in the buccal cavity of a mammal.

ii) Give one function each of the following parts of the mammalian tooth;

***β*) Crown**

- It protects the internal parts of the tooth
- It protects the tooth from decay
- It is used for biting and chewing

[1.5marks for any one]

***γ*) Root** [3marks]

- It supports and fasten the tooth into the jawbone
- It firmly holds down the tooth

[1.5marks for any one]

(c) i) Explain the following types of seed beds;

***β*) Sunken bed**
Sunken bed is a type of seedbed that is made below the surface area of the surrounding soil.

[1.5marks]

γ) **Raised bed** **[3marks]**
Raised bed is a type of seedbed that is prepared above the surface area of the surrounding soil.

[1.5marks]

ii) Name four examples of crops that can be planted on raised beds. [2marks]

- Tomatoes
- Onion
- Pepper
- Carrot
- Cucumber
- Cabbage

[0.5marks each for any four]

(d) i) What are compound machines? [2marks]
Compound machines are made up of two or more simple machines that work together to make work much easier.

TELEGRAM
WASSCE ON
JOIN @WAEC
SEARCH

ii) In what three ways can the functions of compound machines improve the quality of life? [3marks]

- Increasing production
- Making tough work simple
- Compound machines save labour
- They save time
- They save human energy
- They reduce the cost of production

[1mark each for any three]

3. (a) i) Describe the nature of the following bodies in solar system;

β) Asteriod

Asteroids are tiny, medium – sized or ultra – large pieces of rocks that orbit the sun.

[1.5marks]

γ) Comet [3marks]

Comets are formed of ice and gases mixed with dust and have an icy core surrounded by a huge, visible atmosphere of dust and gas that orbit the sun in an oval orbit with varying parameters.

[1.5marks]

ii) Give two differences between comets and meteors [2marks]

Comets	Asteroid
Comets are formed too far away from the sun where their ice could not melt	Asteroids are formed close to the sun where ice could not remain solid
Comets form tails when they pass through the inner solar system.	Asteroids do not form tails
Comets predominantly orbit the sun in two regions: the Oort Cloud and the Kuiper Belt	Asteroids are usually found in the Asteroid belt
Asteroids do not necessarily orbit the sun in any uniform way	Asteroids orbit the sun in the same direction.

(b) i) Give four examples of animal wastes that are used to prepare manure. [2marks]

- Pig dung
- Cow dung
- Sheep dung
- Poultry droppings
- Carcasses
- Urine

[0.5marks each for any four]

ii) What is farmyard manure? [1marks]

Farmyard manure includes solid and liquid excreta of livestocks, generally mixed with amount of straw, leaves, grasses, fodder or bedding materials.

iii) Name the two methods of preparing farmyard manure. [2marks]

- Heap or surface method
- Pit or sub – surface method

[1mark each]

(c) i) State two differences between colloids and suspension [2marks]

Colloids	Suspension
It is made up of smaller colloidal particles	It is made up of bigger suspended particles
It homogeneous	It is heterogeneous
Colloidal particles do not settle down when left undisturbed	Suspended particles settle down when left undisturbed
Colloidal particles can pass through filter paper	Suspended particles cannot pass through filter paper

[1mark each for any two]

SEARCH AND JOIN @WAEC-WASSCE ON TELEGRAM

ii) Briefly describe how the following mixtures can be separated.

***α*) Vinegar solution**

They can be separated by differences in their boiling point using distillation method. The boiling point of vinegar is 118°C while that of water is 100°C. As a result, water will be the first distillste to come out because it has a lower boiling point.

[1.5marks]

***β*) Sugar – salt solution**

Dissolve sugar in alcohol, separate the liquid away from the salt, and evaporate the alcohol and to recover the sugar

[1.5 marks]

(d) Kofi is suffering from anaemia.

Use the above information to answer questions (d) i), ii) and iii)

i) What symptoms would be seen? [2mark]

Fatigue, headache, pale skin and sore tongue

ii) What food nutrient is lacking in Kofi's diet? [1marks]

Lack of iron

iii) Recommend a diet that can help Kofi recover from anaemia [2marks]

Kofi must eat protein foods and green leafy vegetables with citrus fruits like orange.

4. (a) i) Describe how the following viral diseases are transmitted;

***α*) Ebola Virus Disease (EVD)**

Ebola Virus Disease (EVD) is transmitted through direct contact with an infected animal (bat or non-human primate), a sick or dead person that has been infected with the Ebola Virus.

[1.5marks]

***β*) COVID-19**

COVID-19 is transmitted through direct contact with respirstory droplets of an infected person and touching surfaces contaminated with the virus.

[1.5marks]

ii) Give four ways of preventing COVID-19 [2marks]

- Regular hand washing with disinfectants
- Maintain a safe distance (at least 1 metre) from others even if they do not appear to be sick
- Wear a nose mask in public places
- Choose open, well – ventilated places over closed ones
- Use alcohol hand gel to rub your hands regularly
- Cover your nose and mouth with your bent elbow or a tissue when you cough or sneeze
- Get vaccinated when asked to do so by the Government
- Follow local government guidance about vaccination
- Stay home if you feel unwell

[0.5marks each for any four]

(b) Daniel shines a torchlight onto a mirror at an angle of 60° to the mirror. There is no object between him and the mirror.

Use the above information to answer questions (b) i), ii) and iii)

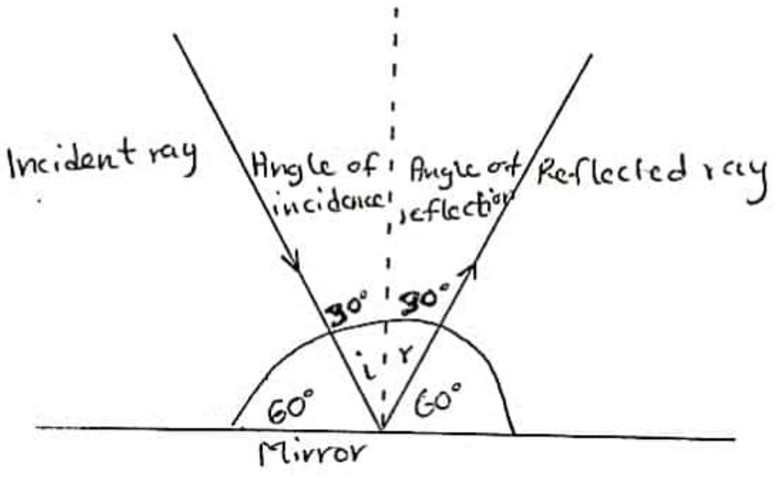
i) What would be the angle of reflection? [1mark]

30 degrees

ii) Briefly describe what will happen after the light ray incidents on the mirror. [2marks]

When the light ray incidents on the mirror, it will turn or bounces back into the original medium.

iii) Draw a diagram to represent the above information. [2marks]



EGRAM
SSCE ON TEL
JOIN @WAEC WA
SEARCH AND

(c) i) State three examples of organic acids and give one source each. [3marks]

Organic acid	Sources
▪ Lactic acid	Breast milk, sour milk
▪ Citric acid	Orange, lemon. Pineapple, lime
▪ Palmitic acid	Palm oil
▪ Tartaric acid	Graper
▪ Tannic acid	Tea
▪ Ethanoic acid	Vinegar, beer, sour, palm wine
▪ Methanoic acid	Ants, bees
▪ Ascorbic acid	Green vegetables and fresh fruits
▪ Malic acid	Apples, banana, beans, pear

[1mark each for any three]

ii) Give two properties of acids. [2marks]

- Acids generally have a sour taste
- Strong or concentrated acids are corrosive
- Acids have a P^H less than 7
- Acids change the colour of P^H indicators.
- Strong and concentrated acids conduct electricity
- Acids react with ammonia to produce ammonium salt
- Acids react with metals to produce salt and hydrogen except HNO_3 which reacts with metals to produce oxides of nitrogen but not hydrogen gas.
- Acids react with bases to produce salt and water.

[1mark each for any two]

(d) i) Tabulate three differences between mixed farming and mixed cropping. [3marks]

Mixed farming	Mixed cropping
Both crops and animals are raised on the farm	Only crops are cultivated
Dungs and droppings are available for plant use	No dungs and droppings available
Animals stray to graze on the farm crops	No animals to destroy crops
It requires large land	Small piece of land is sufficient for this system
It requires relatively huge capital	Relatively small capital needed

[1mark each for any three]

ii) State the reasons behind the practice of the following farming systems.

α) Land rotation;

To allow land to regain its fertility and control pest, diseases and soil erosion

[1mark]

β) Organic Farming

To use natural means to produce food without destroying the environment.

[1mark]

5. (a) i) In what three ways does thermal electricity generation affect the environment negatively? [3marks]

- Burning of fossil fuel pollutes the air
- It release soot and ashes into the environment causing respiratory problems
- Mining of fossil fuels causes water pollution

[1mark each]

ii) Outline two ways of reducing the effect of thermal power generation on the environment. [2marks]

- Use electricity more efficiently
- Construct efficient thermal plant
- Use electricity generation plants that use renewable primary sources of energy as fuel.

[1mark each for any two]

(b) i) Explain the following processes involved in nitrogen cycle

α) Nitrification;

Nitrification involves the conversion of ammonia into nitrate by the presence of bacteria in the soil.

[2marks]

β) Denitrification.

Denitrification is the process in which the nitrogen compounds makes their way back into the atmosphere by converting nitrate (NO_3) into gaseous nitrogen ($N_{2\,(gas)}$)

[2marks]

ii) State two importance of nitrogen cycle to the environment.

- It helps plants to synthetize chlorophyll from the nitrogen compounds
- It helps in coverting inert nitrogen gas into a usable form for the plants through the biochemical process.
- Nitrates and nitrites are released into the soil, which help in enriching the soil with the necessary nutrients required for cultivation.

[1mark each for any two]

(c) State the functions of the following specialized cells in plants.

i) Guard cell

It allows for the uptake of carbon dioxide

[1mark]

ii) xylem cell

It transports soluble mineral nutrients and water molecules from the roots to the aerial parts of the plant.

[1mark]

iii) Epidermal cell

It protect the plant from a variety of harmful factors.

[1mark]

iv) Phloem cell

It transports food and other nutrients including sugar and amino acids from leaves to the storage organs and growing parts of the plant.

[1mark]

(d) i) Briefly describe the following animal feeds;

α) Concentrates;

This is feed contains protein, carbohydrates, minerals and fibre which supplies the animals adequate nutrients for proper functioning, development and growth.

[1.5marks]

β) Roughages

This type feed contains higly fibre content which provides vitamins, minerals and other nutrients for farm animals.

[1.5marks]

ii) What will happen to animals who are not provided with adequate water? Give two points. [2marks]

Animals that are not provided with adequate water will;

- Suffer stress
- Be dehydrated
- Have tightening of the skin
- Have lost of weight
- Have dried mucous membranes and eyes

[1mark each for any two]

SEARCH AND JOIN @WAEC_WASSCE ON TELEGRAM