THE WEST AFRICAN EXAMINATIONS COUNCIL
BASIC EDUCATION CERTIFICATE EXAMINATION FOR SCHOOL CANDIDATES, 2024

FINALMARKING SCHEME
SCIENCE

Section A
[40 marks]

Rubrics: Answer all the questions in this section

Question 1

(a) (i) Function of labelled parts

I - Carries blood from the heart / left ventricle to the circulatory system
II - brings (oxygenated) blood from lungs to heart/left auricle/atrium
IX - (deoxygenated) blood from the body to heart/right atrium/~~left~~ right side of heart
X - carry(oxygen deficient) blood from heart to lungs/right side of heart/right ~~ventride~~ Ventricle to lungs

4 x 1 = 4 marks

(ii) Contracts to pump (oxygenated) blood with high ~~under~~ pressure (1) to all parts of the body / To generate high pressure (1) to allow blood to reach all parts of the body (1)

Any 2 x 1 = 2 marks

(iii)
- Exercising
- Not smoking
- Taking iron rich foods / balanced diet
- Regulating ones blood pressure
- Stress management
- Get enough sleep
- Healthy weight
- Limit alcohol consumption
- Manage diabetes
- Regular health check-up

~~Correct spelling to award~~

any 2 x 1 = 2 marks

(iv)
- Aorta
- Pulmonary vein
- Left atrium
- Left ventricle

Spelling
Correct ~~sequence~~ to score any 2 x 1 = 2 marks

(b) (i) P (maize grains)

- ~~mark out the correct planting distances~~ ✓ (1)
- make holes (using cutlass or stick / dibber)
- place 2 or 3 seeds per hole and cover with soil (1)

correct sequence
Any 2 x 1 = 2 marks

Q (tomato seedlings)

- remove a plant seedling from a nursery gently (½)
- place the seedling in a prepared hole (½)
- firm the soil around the seedling with hands (½)
- water immediately (½)

correct sequence
Any 2 x 1 = 2 marks

R (Cassava cuttings)

- Dig a hole / loosen the soil / dig trenches (½)
- Turn the cutting with the nodes / buds facing upwards (½)
- Place(two thrifts of) cutting into the hole (½)
- Firm soil around the cutting (½)

correct sequence
2 marks

(ii) Conditions
- Adequate rainfall/water / irrigation
- Fertile soil
- Soil with good structure
- Absence of diseases
- Absence of pests
- Sunlight

Any 4 x 1 = 1 marks

(c) (i)
I - converts chemical energy to electrical energy / generates voltage
II - closes and opens circuit / allows chargesto flow or not flow
III - stores electric charges
IV - opposes flow of charges / current

Any 4 x 1 = 4 marks

(ii) $V = IR$ (1)

$\frac{V}{I} = R$

$\frac{2.4}{0.8} = R$ (1)

$R = 3\ \Omega$ (1) No units $(-\frac{1}{2})$

3 x 1 = 3 marks

(iii) - Open key when not taking readings **(1)**

(iv) - Ammeter will read / deflect
- Voltmeter will read / deflect

Any 2 x 1 = 2 marks

(d) (i) - Make the set-up as shown in the diagram
- Put two immiscible liquids into theseparating funnel / I
- Allow the mixture to stand
- And separate into two layers
- Open the tap to drain the liquid at the bottom into the ~~critical flask~~ conical flask / III
- Close the tap after draining the liquid at the bottom

should be in sequence
when sequence is broken stop marking
6 x 1 = 6marks

(ii) II - Regulate / control of the flow of liquid (1)
IV - To hold the separating funnel (1)

(iii) - The tap should be opened gently to release only the bottom liquid
- The retort stand should be firm enough to hold the ~~mixture~~ separating funnel.
- The mixture should be left to stand for sometime to settle and separate
- The retort stand should be placed ~~in~~ on a flat surface

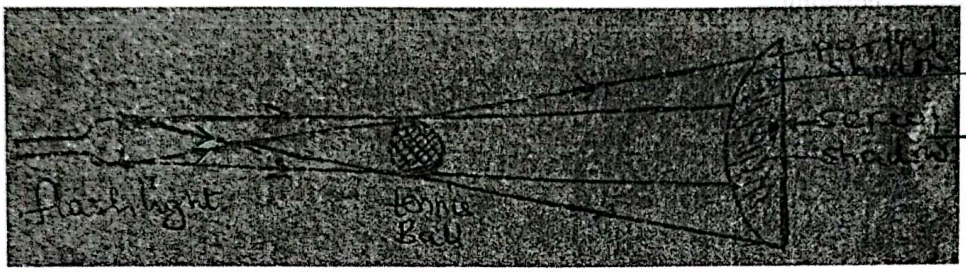
Any 2 x 1 = 2 marks

QUESTION 1 TOTAL = [40 MARKS]

SECTION B

Answer three (3) questions only from this section

Question 2



- correct diagram **(1)**
- 4rays (straight lines with arrows)**(1)**
- labelled shadow**(1)**

(ii) change in volume = $(75 - 50)cm^3 = 25\ cm^3$ **(1)**

Density = $\frac{\text{mass}}{\text{volume}}$ **(1)**

Density = $\frac{4}{0.025}$ = 160 kg dm^{-3} / 160 g cm^3 (1) wrong or no units(- 0.5) $-\left(\frac{1}{2}\right)$

(iii)
- The object should be dropped gently to avoid splashing the water
- The volume should be read at the correct meniscus

2 x 1 = 2 marks

(b)
- Turn the knob off when the cylinder is not in use
- keep doors and windows to the kitchen open
- Cylinders of LPG should be stored preferably in the open air
- The cylinder should not be exposed to heat or ~~flammable~~ flame ~~material~~
- Strike match before opening cylinder
- ~~The tube should be changed regularly~~

Any 3 x 1 = 3 marks

(c) (i) Composting

- microorganisms in organic matter make use of oxygen
- and decompose / breakdown organic matter into nutrients

2 x 1 = 2 marks

(ii) Recycling

- Involves processing / conversion / physically and chemically changing waste materials
- Into new products

2 x 1 = 2 marks

(iii) Incineration

- Involves burning of waste materials at high temperatures
- and converting them into gas / ash to destroy contaminants

2 x 1 = 2 marks

(d)

Goat	Rabbit
four chambered stomach	One chambered stomach

3 marks

QUESTION 2TOTAL = [20 MARKS]

Question 3

(a) (i)

Year / Plot	1	2	3	4
Plot 1	Maize	Cowpea	Cassava	Cabbage
Plot 2	Cabbage	Maize	Cowpea	Cassava
Plot 3	Cassava	Cabbage	Maize	Cowpea
Plot 4	Cowpea	Cassava	Cabbage	Maize

(1) (1) (1) (1) (1)

4 x 1 = 4 marks

(ii)
- Break in disease cycle
- Return of nutrients to the soil
- Break in pest cycle
- Weed control
- Cowpea is leguminous, so it fixes nitrogen, planted second
- Cassava is deep rooted crop and must be followed by swallowed rooted crops.

Shallow

Any 2 x 1 = 2 marks

(b) (i)

- Fever
- Persistent cough
- Loss of appetite
- Loss of taste
- Loss of smell
- Shortness of breath/lack of breath
- Dizziness
- Chills
- Sore throat
- Aching of muscles
- Heavy arms or legs
- Fatique / tiredness
- Sneezing
- Headache
- Sore throat etc

Any 3 x 1 = 3 marks

(ii)

- Keep physical / social distance
- Clean / wash hands frequently**with soap**
- Cover mouth / nose when coughing
- Wearing a properly fitted mask
- Vaccination
- Use of sanitizer
- Avoid hand shake / hugging

Any 2 x 1 = 2 marks

(iii)

- It caused a large social disruption - no funerals, no weddings etc
- It spread to a large part of the world
- It killed a lot of people
- The virus has ability to mutate regularly

Any 2 x 1 = 2 marks

(c) (i) $a = \frac{v - u}{t}$ (1)

$= \frac{150 - 100}{10}$ (1)

$= 5\ ms^{-2}$ (1) wrong or no units - 1/2

(ii) $F = ma$ (1)

$= 1000 \times 5$

$= 5000\ N$ (1)

(iii) Final momentum = mass x velocity (1)

$= 1000 \times 0$

$= 0$ (1)

QUESTION 3TOTAL = [20 MARKS]

Question 4

(a) Acid in the stomach is HCl **(1)**

$HCl + NaHCO_3 \rightarrow NaCl + H_2O + CO_2$ **(1)**

The liver salt is a base **(1)** and will neutralize the acid **(1)** in the stomach to ease the student of the pain

(b) $E = mgh$ (1)
$= 20 \times 10 \times 10$ (1)
$= 2000\ J / 2\ kJ$ (1) wrong or no unit $-\frac{1}{2}$

(c) (i) A device that emits light when an electric current is passed through it (2)

(ii)
- Traffic lights
- Smart phone screens
- Aviation lights
- Digital watch
- etc

Any 2 x 1 = 2 marks

(d) (i)
- Rake
- Hoe
- Shovel
- Garden fork / digging fork

Any 2 x 1 = 2 marks

(ii) Rake = levelling the soil
Hoe – digging / gathering / weeding
Shovel - scooping / fetching / moving soil
Garden fork - digging / levelling / breaking lumps
Watering can - for watering

Any 2 x 1 = 2 marks

(e) (i)
- mitochondrion
- cytoplasm
- nuclear membrane
- lysosome
- irregular shape etc

Correct spelling to score
3 x 1 = 3 marks

(ii)
- Release chemical regulators
- Respond to physical and chemical stimuli
- Transmits electrical impulses / messages

Any 2 x 1 = 2 marks

QUESTION 4TOTAL = [20 MARKS]

Question 5

(a) (i) effective resistance in Ω

$\frac{1}{R_T} = \frac{1}{R_1} + \frac{1}{R_2}$

$\frac{1}{R_T R_1 R_2} = \frac{1}{} + \frac{1}{}$ (1)

$= \frac{1}{4} + \frac{1}{5}$

$= \frac{5+4}{20}$ (1)

$\frac{1}{R_T} = \frac{9}{20}$

$\therefore R_T = \frac{20}{9} = 2\frac{2}{9}\ \Omega$ (1) 2.2Ω no unit $(-\frac{1}{2})$

wrong or no units - 1/2

(ii) $V = IR$ (1)

$6 = I \times \frac{20}{9}$

$I = \frac{6 \times 9}{20}$ (1)

$= \frac{27}{10}$

$I = 2.7\ A$ (1)

wrong or no units - 1/2

(b) (i) Organic fertilizers are derived from natural sources / plants and animals whereas
Inorganic fertilizers are manufactured artificially from physical and chemical processes

2 marks or 0

(ii)
- clearing of vegetation / weeds
- Digging / loosening of top soil
- Digging a path / furrow round the bed area
- breaking large lumps
- Removing roots and stones
- Shape the bed into size and firm the edges *
- Rake to level the surface of the bed
- Water the bed

* / build the frame

sequence should follow

Any 2 x 1 = 2 marks

NB. Accept

* **Build frame inserted at appropriate place in the sequence**

(c) (i) Red blood cells - Carry oxygen towards the tissues from the lungs / carbon dioxide**(1)**

White blood cells - Protects against illness / fights parasites**(1)**

Blood plasma - maintains blood pressure and circulation / transport nutrients / heat / water / hormones etc.**(1)**

(ii)
- Housefly helps in the breakdown and recycling of organic matter
- Houseflies help spread diseases such as dysentery, cholera etc

2 x 1 = 2 marks

- Grasshoppers consume crops vegetation
- Grasshoppers help the ecosystem by the decomposition of plants

2 x 1 = 2 marks

(d)
- $_7N$ has five valence electrons
- $_1H$ has one valence electron**(1)**

3 H atoms combine with one N **(1)**atom. Each H atom shares a bond with one electron from N**(1)** to form the NH_3 molecule.

3 marks

QUESTION 5TOTAL = [20 MARKS]