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School's Name _____

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**THE UNITED REPUBLIC OF TANZANIA
NATIONAL EXAMINATIONS COUNCIL OF TANZANIA
A SAMPLE OF PRIMARY SCHOOL LEAVING EXAMINATION**

05E

SCIENCE AND TECHNOLOGY

Time: 1:40 Hours

SOLUTIONS

Year: 2024

Instructions

1. This paper consists of sections A, B and C with a total of **eight (8)** questions.
2. Answer **all** questions in the spaces provided in this paper.
3. Section A and B carry **twenty (20)** marks each and section C carries **ten (10)** marks.
4. All writings must be in **blue** or **black** pen, **except** drawings which must be in pencil.
5. Communication devices and any unauthorised materials are **not** allowed in the examination room.
6. Write your **Examination Number** and all other important information at the top right corner of every page.

| FOR EXAMINER'S USE ONLY | | |
|--------------------------------|---------------|----------------------------|
| QUESTION NUMBER | SCORES | EXAMINER'S INITIALS |
| 1. | | |
| 2. | | |
| 3. | | |
| 4. | | |
| 5. | | |
| 6. | | |
| 7. | | |
| TOTAL | | |
| CHECKER'S INITIALS | | |

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1. For each of the items (i) - (x), choose the correct answer then write its letter in the box provided.

(i) After a fire outbreak in the industry, the firefighter unit used gas cylinders to extinguish it. Which type of gas did the cylinders contain?

- A Chlorine
- B Oxygen
- C Hydrogen
- D Carbon dioxide
- E Nitrogen

Answer: D Carbon dioxide

Reason: Carbon dioxide is used to extinguish fires because it displaces oxygen around the fire, preventing combustion.

(ii) A pupil wanted to learn about diseases through the internet. Which web browser would be appropriate for obtaining the information needed?

- A DMZO
- B Google chrome
- C Yandez
- D Bing
- E dr.yahoo.com

Answer: B Google chrome

Reason: Google Chrome is a widely used web browser that allows efficient access to websites and online information.

(iii) The Science and Technology teacher assigned Standard Seven pupils to make an antenna. What is the first step to consider before they start making it?

- A Choose the type of antenna

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B Collect different antenna

C Identify the uses of antenna

D Choose the devices to be used

E Testing the antenna

Answer: C Identify the uses of antenna

Reason: Understanding the purpose of the antenna helps determine the design, size, and materials required for its construction.

(iv) A boy pushed a wall for 7 minutes, the wall did not fall down. His friends said he didn't do any work. Why did they say that?

A He used little force to push the wall

B He did not follow scientific procedures of pushing the wall

C He used little time to push the wall

D He stood very close to the wall while pushing

E He pushed the wall that did not move any distance

Answer: E He pushed the wall that did not move any distance

Reason: In physics, work is done only when a force causes displacement. Since the wall did not move, no work was done.

(v) A sports and games teacher prepared a budget for sports tour for her school by using a spreadsheet program. Why did she use this program?

A Cannot be easily erased

B Easy to use

C Saves time

D Needs few information

E It stores a lot of information

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Answer: C Saves time

Reason: Spreadsheet programs automate calculations, organization, and editing of data, which saves time compared to manual methods.

(vi) A teacher assigned Class Seven pupils to grow a seed in a closed box with a hole on one side. After a week a plant grew and bent towards the hole. This action explains which characteristic of plants?

- A Growing well outside
- B Growing towards light
- C Need an open space to grow
- D Growing by bending
- E Growing slowly

Answer: B Growing towards light

Reason: Plants exhibit phototropism, bending toward light to maximize photosynthesis.

(vii) Standard Seven Pupils learnt several examples about physical and chemical changes. Which example was used to explain chemical change?

- A Rotting of plants
- B Melting of candle
- C Freezing of water
- D Warming an ice block
- E Dissolving salt in water

Answer: A Rotting of plants

Reason: Rotting involves chemical reactions that produce new substances, which cannot revert to the original state.

(viii) Teacher brought different tools in the classroom, and asked a pupil to choose a tool that belongs to second class lever. Which tool did he choose?

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- A Wheel barrow
- B A pair of scissors
- C Claw hammer
- D Spade
- E Broom

Answer: A Wheel barrow

Reason: A wheelbarrow is a second-class lever because the load is between the effort and the fulcrum.

(ix) Sayuni saw her brother painting iron frame windows. What is the advantage of doing that?

- A Prevent them from damage
- B Make them clean
- C Prevent them from dust
- D Prevent them from rusting
- E Make them strong

Answer: D Prevent them from rusting

Reason: Painting iron frames protects the metal from moisture and oxygen, which cause rust formation.

(x) Which property of light is represented by the appearance of rainbow in clouds with several colours?

- A Shinning
- B Absorption
- C Bending
- D Diverging
- E Reflection

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Answer: D Diverging

Reason: A rainbow forms due to dispersion of light, which separates white light into its component colours as it passes through water droplets.

2. Match the function of plant parts in List A with the parts in List B and write the letter of the correct answer in the space provided.

(i) The part used to synthesize its food. (E Leaf)

Reason: Leaves contain chlorophyll and are the main site for photosynthesis, where plants make their food.

(ii) The tissue for transporting food. (F Phloem)

Reason: Phloem transports the products of photosynthesis, such as sugars, from leaves to other parts of the plant.

(iii) It is a tissue which transports water and minerals in the plant. (D Xylem)

Reason: Xylem carries water and dissolved minerals from roots to the rest of the plant.

(iv) A site for gaseous exchange in leaves. (B Stomata)

Reason: Stomata are pores on the leaf surface that allow exchange of gases like carbon dioxide, oxygen, and water vapor.

(v) Stores and protects stomata found in upper part of the leaf. (A Upper epidermis)

Reason: The upper epidermis is a protective layer that covers the leaf and helps regulate the opening of stomata.

3. Complete the items (i) - (v) by choosing the correct word given in the box and write it beside the item in the space provided.

(i) Digests and absorbs food nutrients in the body.

Small Intestine

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(ii) A part of large intestine which stores faeces before removing it from the body.

Rectum

(iii) Transports chewed food from the mouth.

Oesophagus

(iv) Produces an acid to kill the germs brought in the stomach with food.

Stomach wall

(v) Absorbs water and minerals from undigested food.

Large Intestine

SECTION B (20 Marks)

4. Industries affect the environment from the wastes they produce. Mention two waste products which can be produced from those industries.

(i) Wastewater containing chemicals and toxic substances.

(ii) Smoke or harmful gases such as sulfur dioxide and carbon monoxide.

(iii) What is the general effect caused by the wastes you have mentioned in part (i) and (ii)?

The wastes pollute the environment, harm living organisms like fish and plants, and can cause diseases in humans such as respiratory problems and skin infections.

5. Answer item (i) – (iii) by writing the correct answer in the space provided.

(i) Why it is important to apply lubricants to the bicycle chain, wheel and axle, and pedals?

Lubricants reduce friction between moving parts, making the bicycle easier to pedal and preventing wear and tear.

(ii) When a milling machine is connected to electric supply and turned on, what causes the axle with blades to rotate?

The electric current powers the motor, which rotates the axle and blades.

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(iii) A barber decided to shave his customer by using a shaving machine instead of razor blade.

What is the advantage of his decision?

Using a shaving machine is safer, faster, and reduces the risk of cuts and infections compared to a razor blade.

6. Tausi saw her uncle lighting wastes of papers and dry leaves using his spectacles. He placed the wastes under the spectacles until it lite.

(i) What type of lens did her uncle's spectacles have?

Convex lens

(ii) How did the lens light wastes?

The convex lens focused sunlight into a small point, increasing the heat at that spot until the paper and leaves caught fire.

(iii) What eye defect does Tausi's uncle have?

Hypermetropia (farsightedness), which makes it difficult to see nearby objects clearly.

(iv) Mention another type of lens used to correct eye defects apart from that of Tausi's uncle.

Concave lens, which is used to correct myopia (nearsightedness).

SECTION C

Answer all questions in this section.

7. Observe the following drawing then answer the questions that follows.

From the diagram:

- **A – Fallopian Tube**
- **B – Ovary**
- **C – Uterus/Womb**
- **D – Cervix**
- **E – Vagina**

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(i) What will happen if the part labeled C in the diagram becomes swollen?

If C (**Uterus**) becomes swollen (for example due to **fibroids** or **uterine cancer**), the following may occur:

- **Severe pain** in the lower abdomen and back.
- **Excessive menstrual bleeding** (menorrhagia) or **bleeding between cycles**.
- **Infertility** or **difficulty sustaining pregnancy** (miscarriage).
- **Pressure on other organs**, such as the bladder, causing frequent urination.

(ii) What is the function of the part labeled B as shown in the diagram?

Part **B is the Ovary**. Its main functions are:

- **Production and release of eggs (ova):** Each month, the ovary releases eggs ready for fertilization.
- **Hormone production:** It produces essential reproductive hormones, mainly **estrogen** and **progesterone**, which regulate the menstrual cycle and female secondary sexual characteristics.

(iii) What will happen if the part labeled A is cut?

If A (**Fallopian Tube**) is cut (a procedure known as **tubal ligation** or **female sterilization**), **pregnancy cannot occur**.

This is because:

- The Fallopian tube is the **site of fertilization**, where the egg meets sperm.
- Cutting the tube prevents the egg from reaching the uterus (C) and stops sperm from reaching the egg.

8. Observe Figure 1 and answer the questions that follows:

- Rafii created a simple circuit as seen in Figure 1. Which type of circuit did he create?
Paralle circuit.
- If the circuit that is created by Rafii had a total of 12 volts and the current of 6 amperes, what is the value of total resistance in bulbs connected?

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We can use **Ohm's Law**, which states:

$$V = I \times R$$

Where:

V = voltage (volts)

I = current (amperes)

R = resistance (ohms)

Rearranging to find resistance:

$$R = V / I$$

Substitute the given values:

$$R = 12 \div 6$$

$$R = 2 \text{ ohms}$$

Answer: The total resistance in the bulbs connected is **2 Ω**