

# TEACHERS PALACE EXAMS

## GRADE 9 MID-TERM I 2025 EXAMS

### INTEGRATED SCIENCE PAPER 1



Time: 1 hour 40 mins

NAME: \_\_\_\_\_

SCHOOL: \_\_\_\_\_

STREAM: \_\_\_\_\_ DATE: \_\_\_\_\_

#### INSTRUCTIONS

- Write your name, school, stream and date in the spaces provided above.
- This paper consists of **two** sections: **A** and **B**.
- Section A** comprises Multiple Choice Questions numbered **1** to **30**.
- Section B** comprises short, structured questions number **31** to **38**.
- Answer **ALL** the questions in section A in the table provided below.
- Answer **ALL** the questions in section B in the spaces provided in this QUESTION PAPER.
- Do **NOT** remove any page from this question paper. Answer **ALL** the questions in English.

#### ANSWER SHEET - SECTION A

1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	

21.	22.	23.	24.	25.	26.	27.	28.	29.	30.

#### LEARNER'S SCORE

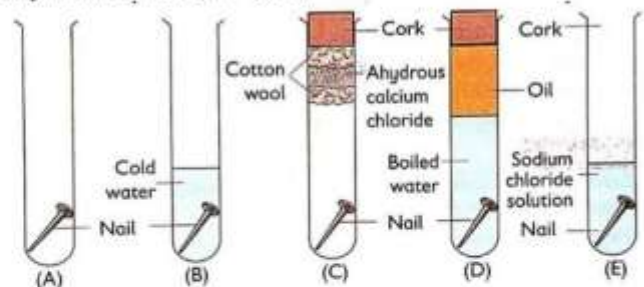
SCORES		TOTAL
A (Out of 30)		
B (Out of 40)		

*This paper consists of 8 printed pages. Candidates should check the question paper to confirm that all pages are printed as indicated and that no questions are missing.*

### SECTION A (30 marks)

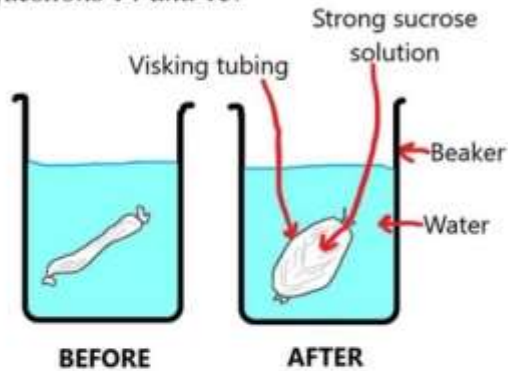
1. A \_\_\_\_\_ is the smallest unit of an element.  
 A. electron                      C. proton  
 B. atom                            D. neutron
  
2. Nitrogen has an atomic number of 7 and a mass number of 14. Which of the following illustrations is **CORRECT** about Nitrogen?  
 A.  $\frac{14}{7}\text{N}$     B.  $\frac{7}{7}\text{N}$     C.  $\frac{7}{14}\text{N}$     D.  $\frac{14}{14}\text{N}$
  
3. The elements below are metals. Which one is **NOT**?  
 A. Lithium                          C. Beryllium  
 B. Helium                            D. Sodium
  
4. Grade 9 learners at Tusome Junior School listed the following elements during a Science lesson.
  - i. Lithium
  - ii. Oxygen
  - iii. Potassium
  - iv. Sodium
 Which of the above elements does not have one electron in the outermost energy level of their electron configuration?  
 A. Lithium                          C. Potassium  
 B. Oxygen                            D. Sodium
  
5. \_\_\_\_\_ is the property of metals associated with their ability to be hammered into thin sheets without breaking.  
 A. Elasticity                        C. Ductility  
 B. Malleability                      D. Viscosity
  
6. Brass is an alloy that is formed by combining \_\_\_\_\_ and \_\_\_\_\_.  
 A. Copper and Zinc                C. Copper and tin  
 B. Iron and Carbon                D. Aluminium and tin
  
7. Iron reacts with oxygen to form \_\_\_\_\_.  
 A. Iron (I) oxide                    C. Iron (III) oxide  
 B. Iron (II) oxide                    D. Iron (IV) oxide
  
8. We should take care of our teeth by \_\_\_\_\_.  
 A. eating sugary foods  
 B. eating hard foods  
 C. eating cold foods  
 D. eating hot foods

Learners at Gahumbwa Junior School set up the experiment below to investigate the causes of rusting in Iron. The experiment was left to stay for three days. Study it and answer 7 to 9.



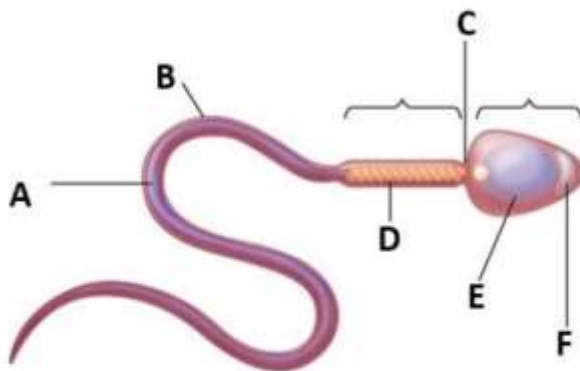
9. Which test tubes did not experience rusting?  
 A. Test tubes A and B            C. Test tubes B and E  
 B. Test tubes A and E            D. Test tubes C and D
  
10. Which test tube experienced the highest level of rusting?  
 A. Test tube B                      C. Test tube D  
 B. Test tube C                      D. Test tube E
  
11. During a class on functions of the parts of the male reproductive system, learners identified functions of various parts of the system. The function of testes is to \_\_\_\_\_.  
 A. produce hormones and sperms.  
 B. transport sperms only.  
 C. produce sperms only.  
 D. transport sperms and produce hormones.
  
12. What is diffusion?  
 A. the movement of particles from an area of low concentration to an area of high concentration.  
 B. the movement of particles from an area of high concentration to an area of low concentration until equilibrium is reached.  
 C. the movement of particles from an area of high concentration to an area of high concentration until equilibrium is reached.  
 D. the movement of particles from an area of low concentration to an area of low concentration until equilibrium is reached.
  
13. Which one is **NOT** a magnetic material?  
 A. Iron  
 B. Steel  
 C. Plastic  
 D. Nickel

Grade 9 learners at Tumaini Junior school set up the experiment below to investigate a certain type of movement of particles. Study it and use it to answer the questions 14 and 15.



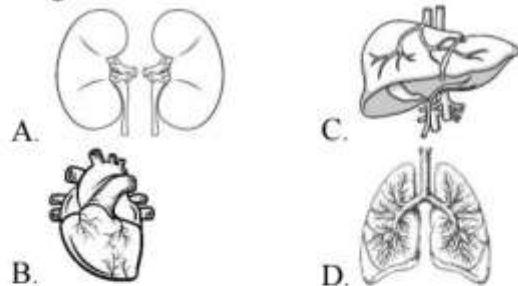
14. The experiment was to investigate;
  - A. Dilution
  - B. Osmosis
  - C. Diffusion
  - D. Evaporation
15. The Visking tubing was used because;
  - A. It is cheap.
  - B. It is soft.
  - C. It is semipermeable.
  - D. It is small.
16. Which of the following statements is correct?
  - A. Solvent + Solution → Solute
  - B. Solvent + Solvent → Solution
  - C. Solution + Solute → Solvent
  - D. Solvent + Solute → Solution

Study the diagram below and use it to answer questions 15 and 16



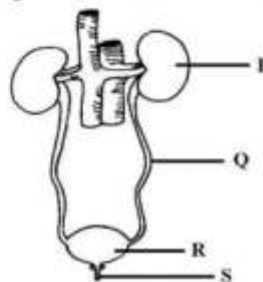
17. What is the part labelled E?
  - A. Head
  - B. Tail
  - C. Neck
  - D. Nucleus

18. What is the function of the part labelled A?
  - A. To mate.
  - B. To propel the sperm.
  - C. To store energy.
  - D. To make the sperm longer.
19. The following are sexually transmitted infections. Which one is NOT?
  - A. HIV
  - B. Syphilis
  - C. Genital Herpes
  - D. Gonorrhoea
20. The function of the outer layer of the skin is \_\_\_\_\_.
  - A. Insulation against heat loss.
  - B. Production of hair.
  - C. Protection against physical injury.
  - D. Supply of blood.
21. The human digestive system has various parts that perform different functions. In which one of the following parts of the system does the egestion take place?
  - A. anus
  - B. stomach
  - C. mouth
  - D. small intestines
22. The following are excretory organs in human beings. Which one is NOT?
  - A. Kidneys
  - B. Heart
  - C. Liver
  - D. Lungs



23. The skin is an important part of the skin. Which vitamin does it synthesize from the sun?
  - A. Vitamin A
  - B. Vitamin B
  - C. Vitamin C
  - D. Vitamin D

The diagram below was shown in a science textbook. Study it and use it to answer questions 21 and 22.



24. What is the function of the part labelled R?  
 A. Storing urine                      C. Passing urine  
 B. Excreting urine                    D. Purifying urine.

25. Name the part labelled Q.  
 A. Urethra                                C. Kidney  
 B. Bladder                                D. Ureter

26. Grade 9 learners were asked to name some of the common kidney diseases and disorders.

*Annabelle – Kidney failure*

*Cynthia – Kidney stems*

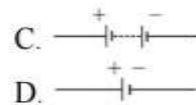
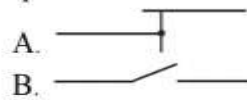
*Jay – Albuminuria*

*Sylvia – Nephritis*

Which learner gave an **INCORRECT** answer?

- A. Annabelle                              C. Jay  
 B. Cynthia                                D. Sylvie
27. Which type of electricity comes up as a result of buildup of electric charge on the surface of objects, typically caused by friction?  
 A. Low voltage electricity  
 B. High voltage electricity  
 C. Current electricity  
 D. Static electricity

28. Learners in Milimani Junior School drew the following circuit symbols. Which symbol represents a switch?



29. Magnets will attract each if you move which poles together?

- A. North and North  
 B. North and South  
 C. South and South  
 D. North and Center

30. A public health officer gave a talk on healthy lifestyles that promote kidney health. Which one of the following could not have been included in the talk as a healthy lifestyle that promotes kidney health?

- A. Drinking plenty of clean water.  
 B. Eating a balanced diet.  
 C. Eating sugary foods.  
 D. Getting enough sleep.

### SECTION B (40 marks)

31. Explain how we can separate the following:

a) Tea leaves from tea.

(3 marks)

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b) Husks from beans.

(3 marks)

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32. Grade 9 learners were learning about the applications of change of state of matter. Which correct answers could they have given for the following questions?

a) How is ice cream made? (2 marks)

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b) Why does ice cream remain cold in the vendor's cart even if the cart is exposed to a hot or warm environment the whole day? (2 marks)

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c) Why do people hang wet clothes after washing them? (2 marks)

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d) Why do car windows mist up on a cold day? (2 marks)

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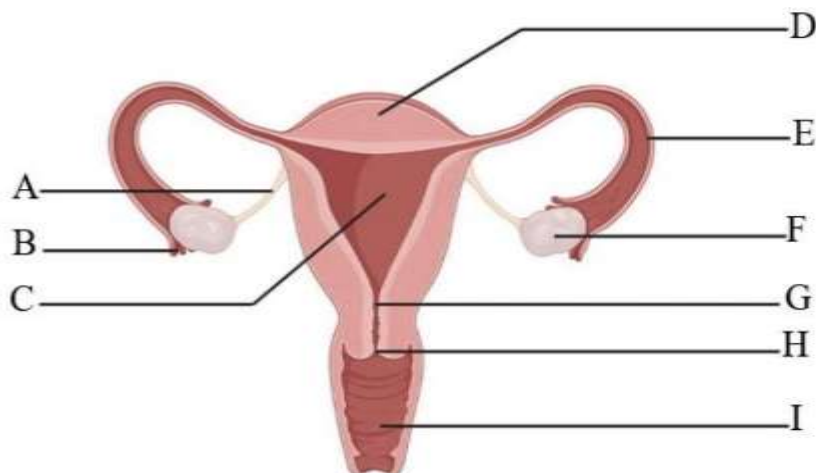
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33. Grade 9 science teacher drew the diagram below of the female reproductive system. Study it and answer the questions that follow.



a) Name the parts labeled: (2 marks)

C – \_\_\_\_\_  
E – \_\_\_\_\_  
I – \_\_\_\_\_

b) Which part produces ova? (1 mark)

\_\_\_\_\_

c) State **two** functions of the part labeled I. (2 marks)

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

d) What is the gestation period of human beings? (1 mark)

\_\_\_\_\_

e) State **two** changes that occur in girls **ONLY** during adolescence. (2 marks)

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

34. State the meaning of the following laboratory symbols. (2 marks)

a)   
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

b)   
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

35. Explain any **two** factors that affect the rate of osmosis. (2 marks)

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36. State **two** things needed for photosynthesis to take place in plants. (2 marks)

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37. The eye piece lens of a light microscope has a magnifying power of X20 and the low objective lens has a magnifying power of X30. Calculate the magnification. (3 marks)

38. Grade 9 learners were given a practical to view the epidermal cells of an onion under a light microscope. Their teacher gave them the procedures below which are in their correct order.

- i. Make a large, neat, well labelled drawing of two cells as observed under medium power objective lens.

- ii. Cut an onion bulb vertically into four quarters
- iii. Place a drop of water on another clean slide and quickly spread the piece of trimmed epidermis on the drop of water.
- iv. Place the piece of epidermis on a clean slide and trim down the epidermis to about 5 mm long.
- v. Repeat the above procedure with another epidermal strip using a drop of dilute iodine solution instead of distilled water to stain the cells.
- vi. Separate a fleshy leaf from one of the pieces.
- vii. The slide with mounted specimen can then be examined under low and medium power objective lenses.
- viii. Using a mounted needle, lower a clear coverslip onto the epidermis strip. Do this gently to avoid trapping air bubbles.
- ix. Peel a piece of epidermis from the fleshy leaf.

Rearrange the steps of the procedure in their correct order.

(9 marks)

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### INTEGRATED SCIENCE PAPER 1 MARKING SCHEME SECTION A

1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.
A	A	B	B	B	A	C	D	D	D	A	B	C	B	C	D	D	B	C	C

21.	22.	23.	24.	25.	26.	27.	28.	29.	30.
A	B	D	A	D	B	D	B	B	C

### SECTION B (40 marks)

31. Explain how we can separate the following:

a) Tea leaves from tea. (3 marks)

- Sieving – You can use a sieve or mesh to



separate the tea leaves from the tea. The tea leaves will be larger and will remain in the sieve while the liquid tea passes through.

- Filtration – Tea can be filtered using a fine filter paper to remove the solid tea leaves from the brewed liquid.

**b) Husks from beans. (3 marks)**

- Winnowing – By using air or wind to blow away the lighter husks, leaving the heavier beans behind.
- Crushing or rubbing – Gently crushing or rubbing the beans can loosen the husks, which can then be separated by winnowing or sieving.
- Mechanical separation – Machines such as a hulling machine can be used to remove husks from beans.

**32. Grade 9 learners were learning about the applications of change of state of matter. Which correct answers could they have given for the following questions?**

**a) How is ice cream made? (2 marks)**

- Freezing: Ice cream is made by freezing a mixture of cream, sugar and flavoring. The mixture is stirred while it freezes to prevent the formation of large ice crystals, creating a smooth texture.

**b) Why does ice cream remain cold in the vendor's cart even if the cart is exposed to a hot or warm environment the whole day? (2 marks)**

- Insulation: The ice cream remains cold due to the use of insulated containers or coolers in the cart, which slow down the transfer of heat from the outside environment.
- Sublimation of ice: Ice inside the cart may sublime (change directly from solid to gas), absorbing heat from the surroundings, thus keeping the ice cream cold.

**c) Why do people hang wet clothes after washing them?**

(2 marks)

- Evaporation: Wet clothes are hung so that water can evaporate from them, turning from liquid to gas. This process removes the moisture and dries the clothes.

**d) Why do car windows mist up on a cold day?**

(2 marks)

- Condensation: On a cold day, the warm air inside the car contains moisture that condenses on the cooler surface of the window, forming mist or fog. This is due to the water vapor turning back into liquid when it comes into contact with a cold surface.

**33. Grade 9 science teacher drew the diagram below of the female reproductive system. Study it and answer the questions that follow.**

**a) Name the parts labeled: (2 marks)**

- C – Uterus
- E – Oviduct/ Fallopian tube
- I – Vagina

**b) Which part produces ova? (1 mark)**

- Part F

**c) State two functions of the part labeled I. (2 marks)**

- The vagina serves as:
  - The passage through which menstrual blood is expelled.
  - The birth canal during childbirth, where the baby passes through.

**d) What is the gestation period of human beings?**

(1 mark)

- 9 months (or 40 weeks).

**e) State two changes that occur in girls ONLY during adolescence. (2 marks)**

- Development of breasts: Girls develop breasts as a sign of sexual maturity.
- Menstruation: Girls start their menstrual cycle, which is a key part of puberty.

**34. State the meaning of the following laboratory symbols. (2 marks)**

- a)** A substance that may cause **irritation** upon exposure.
- b)** A substance that is explosive.

**35. Explain any two factors that affect the rate of osmosis. (2 marks)**

- Concentration gradient - The greater the difference in concentration of solutes between two solutions, the faster the rate of osmosis. Osmosis moves water from an area of lower solute concentration to higher solute concentration.
- Temperature - Higher temperatures increase the rate of osmosis as molecules move faster at higher temperatures, speeding up the diffusion process.

**36. State two things needed for photosynthesis to take place in plants. (2 marks)**

- Light energy (usually from the Sun)
- Chlorophyll (a green pigment in plants that absorbs light energy)

**37. The eyepiece lens of a light microscope has a magnifying power of X20 and the low objective lens has a magnifying power of X30. Calculate the magnification. (3 marks)**

- **Total magnification** = Eyepiece magnification × Objective lens magnification
- **Total magnification** =  $20 \times 30 = \mathbf{X600}$

**38. Grade 9 learners were given a practical to view the epidermal cells of an onion under a light microscope. Their teacher gave them the procedures below which are in their correct order. Rearrange the steps of the procedure in their correct order. (9 marks)**

The correct order of steps:

1. **ii.** Cut an onion bulb vertically into four quarters.
2. **vi.** Separate a fleshy leaf from one of the pieces.
3. **ix.** Peel a piece of epidermis from the fleshy leaf.
4. **iv.** Place the piece of epidermis on a clean slide and trim down the epidermis to about 5 mm long.
5. **iii.** Place a drop of water on another clean slide and quickly spread the piece of trimmed epidermis on the drop of water.
6. **v.** Repeat the above procedure with another epidermal strip using a drop of dilute iodine solution instead of distilled water to stain the cells.
7. **viii.** Using a mounted needle, lower a clear coverslip onto the epidermis strip. Do this gently to avoid trapping air bubbles.
8. **vii.** The slide with mounted specimen can then be examined under low and medium power objective lenses.
9. **i.** Make a large, neat, well labelled drawing of two cells as observed under medium power objective lens.