**KENYA JUNIOR SCHOOL EDUCATION ASSESSMENT (KJSEA)**

**GRADE 9: INTEGRATED SCIENCE (THEORY)**  
**CODE: 010 YEAR: 2025 TIME: 2 HOURS**

**Candidate’s Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Assessment Number: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**

**School Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. School Code: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**

**Candidate’s Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**

**INSTRUCTIONS TO CANDIDATES:**

1. This paper consists of **TWO** sections: **A** and **B**.
2. Answer **ALL** questions in Section A and B.
3. All answers **MUST** be written in the spaces provided.
4. Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.
5. Candidates should answer the questions in **English**.

**INTEGRATED SCIENCE (THEORY)**

**FOR OFFICIAL USE ONLY**

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| --- | --- | --- | --- | --- |
| Task | Question | Score per question | Maximum score | Candidate’s score |
| Task 1 | 31 |  | 03 |  |
|  | 32 |  | 02 |  |
| Task 2 | 33(a) |  | 02 |  |
|  | 33(b) |  | 01 |  |
|  | 34 |  | 03 |  |
|  | 35 |  | 03 |  |
| Task 3 | 36 |  | 03 |  |
|  | 37 |  | 03 |  |
|  | 38 |  | 03 |  |
|  | 39(a) |  | 01 |  |
|  | 39(b) |  | 01 |  |
| Task 4 | 40(a) |  | 02 |  |
|  | 40(b) |  | 02 |  |
|  | 41 |  | 02 |  |
|  | 42 |  | 02 |  |
|  | 43 |  | 02 |  |
|  | 44 |  | 03 |  |
|  | 45 |  | 02 |  |
|  | 46 |  | 02 |  |
|  | 47 |  | 01 |  |
|  | 48 |  | 02 |  |
|  | 49 |  | 02 |  |
|  | 50 |  | 03 |  |
| **Total Section B** |  |  | **40** |  |
| **Overall Total** |  |  | **70** |  |

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**SECTION A: MULTIPLE CHOICE QUESTIONS (30 MARKS)**

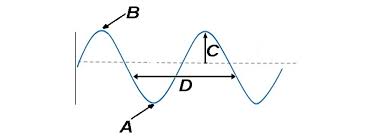
*Choose the correct answer in each question.*

1. During a science practical, Jane mixed sand and salt in water. Which method is BEST for separating the mixture?  
   A. Filtration and evaporation  
   B. Decantation only  
   C. Sublimation only  
   D. Distillation only
2. Which one of the following is a compound?  
   A. Oxygen gas  
   B. Sodium chloride  
   C. Sulphur  
   D. Iron
3. A drop of ink spreads in water without stirring.



This is explained by:  
A. Osmosis  
B. Diffusion  
C. Capillarity  
D. Filtration

1. When green vegetables are boiled for a long time, they lose their colour. This is an example of:  
   A. A temporary change  
   B. A reversible change  
   C. A permanent change  
   D. A physical change
2. The atomic number of sodium is 11 and its mass number is 23. How many neutrons are present?  
   A. 23  
   B. 11  
   C. 12  
   D. 34
3. Which element is correctly matched with its symbol?  
   A. Potassium – P  
   B. Calcium – C  
   C. Iron – Fe  
   D. Sodium – So
4. Which of the following is a property of metals?  
   A. Poor conductors of heat  
   B. Brittle when hammered  
   C. Good conductors of electricity  
   D. Dull in appearance
5. Oxygen is prepared in the laboratory by heating:  
   A. Copper carbonate  
   B. Potassium permanganate  
   C. Sodium hydroxide  
   D. Sodium chloride
6. Fire in an oil depot is best extinguished using:  
   A. Sand  
   B. Water  
   C. Foam extinguisher  
   D. Carbon dioxide
7. Which structure controls the movement of materials in and out of the cell?  
   A. Cytoplasm  
   B. Nucleus  
   C. Cell wall  
   D. Cell membrane
8. The part of a light microscope used to focus light onto the specimen is:  
   A. Stage B. Diaphragm  
   C. Mirror D. Eyepiece
9. The process by which plant root hairs absorb water from the soil is:  
   A. Diffusion  
   B. Osmosis  
   C. Active transport  
   D. Respiration
10. Which of the following is NOT a factor affecting the rate of diffusion?  
    A. Concentration gradient  
    B. Temperature  
    C. Surface area  
    D. Type of microscope used
11. A motor car engine converts:  
    A. Chemical energy to light energy  
    B. Chemical energy to kinetic energy  
    C. Heat energy to potential energy  
    D. Sound energy to chemical energy
12. A block of wood of weight 10 N has an area of contact 0.5 m². The pressure exerted is:  
    A. 20 N/m²  
    B. 5 N/m²  
    C. 0.05 N/m²  
    D. 50 N/m²
13. Which one of the following is NOT an alloy?  
    A. Bronze  
    B. Brass  
    C. Steel  
    D. Sulphur
14. Rusting of iron requires:  
    A. Oxygen and oil  
    B. Carbon dioxide and light  
    C. Water and oxygen  
    D. Heat and carbon dioxide
15. Which water type forms more lather with soap?  
    A. Hard water  
    B. Soft water  
    C. Salty water  
    D. Rain water
16. Which one of the following is NOT a condition for photosynthesis?  
    A. Carbon dioxide  
    B. Sunlight  
    C. Chlorophyll  
    D. Nitrogen
17. Which part of the human digestive system produces bile?  
    A. Pancreas B. Stomach  
    C. Liver D. Small intestine
18. Insect-pollinated flowers are adapted by having:  
    A. Small, dull-coloured petals  
    B. Large, brightly coloured petals  
    C. No nectar  
    D. Light pollen grains
19. The movement of seeds away from the parent plant is important because it:  
    A. Prevents overcrowding  
    B. Prevents photosynthesis  
    C. Reduces germination  
    D. Increases pollination
20. A food chain always begins with:  
    A. A herbivore B. A producer  
    C. A carnivore D. A decomposer
21. Which human activity is most likely to cause water pollution in rivers?  
    A. Tree planting  
    B. Industrial effluents discharge  
    C. Fishing  
    D. Poultry keeping
22. The type of mirror used by dentists to view teeth is:  
    A. Plane mirror  
    B. Convex mirror  
    C. Concave mirror  
    D. Periscope mirror
23. The distance between the mirror and its focal point is known as:  
    A. Radius  
    B. Diameter  
    C. Focal length  
    D. Image length
24. In a wave,



The distance between two successive crests is called:  
A. Wavelength  
B. Amplitude  
C. Frequency  
D. Trough

1. Which of the following is NOT an example of a transverse wave?  
   A. Water wave  
   B. Light wave  
   C. Sound wave  
   D. Seismic wave
2. Remote sensing satellites are mainly used for:  
   A. Cooking  
   B. Detecting earthquakes  
   C. Collecting information about the Earth  
   D. Transporting goods
3. Which one of the following best describes energy transformation in a torch?  
   A. Heat → light  
   B. Chemical → electrical → light  
   C. Sound → chemical → light  
   D. Potential → heat → sound

**SECTION B: STRUCTURED QUESTIONS (40 MARKS)**

**Part 1: Biology (14 Marks)**

1. (a) Draw and label a well-labelled diagram of a plant cell. (4 marks)

(b) State **three differences** between a plant cell and an animal cell. (3 marks)

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1. During a biology lesson, learners observed stomata under a microscope.  
   (a) State the function of stomata. (2 marks)

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(b) Explain two adaptations of a leaf for photosynthesis. (2 marks)

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1. A goat feeds on grass, which is then eaten by a human being. Draw a **food chain** to represent this relationship. (3 marks)

**Part 2: Chemistry (13 Marks)**

1. A student was asked to determine whether a sample of water was hard or soft.  
   (a) State one physical test that can be carried out. (1 mark)

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(b) Mention one advantage and one disadvantage of hard water. (2 marks)

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1. The atomic number of magnesium is 12.  
   (a) Write down its electron arrangement. (2 marks)

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(b) State two uses of magnesium in daily life. (2 marks)

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1. (a) Name two methods of preventing rusting of iron. (2 marks)

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(b) Write the chemical symbol for:  
i. Sodium

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ii. Copper (2 marks)

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1. Oxygen supports combustion. Explain this statement using a real-life example. (2 marks)

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**Part 3: Physics (13 Marks)**

1. A box of weight 200 N rests on a surface of area 0.5 m².  
   (a) Calculate the pressure exerted by the box. (2 marks)

(b) Give one application of pressure in liquids. (2 marks)

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1. A learner placed a candle in front of a concave mirror.  
   (a) State the meaning of focal length of a mirror. (2 marks)

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(b) Mention one use of concave mirrors in daily life. (1 mark)

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1. (a) Draw a labelled diagram of a transverse wave, showing crest, trough, wavelength, and amplitude. (4 marks)

(b) Give one difference between transverse and longitudinal waves. (2 marks)

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