

Candidate's Name		Assessment No.	
School Name		School Code	
Candidate's Sign		Date	



003-2025

JUNIOR SCHOOL ASSESSMENT

GRADE 9

JESMA
003

- INTEGRATED SCIENCE (THEORY) -

TIME: 1 hour 40

INSTRUCTIONS TO CANDIDATES

1. Write your **name** and **assessment number** in the spaces provided above.
2. Write the **name** and **code of your school** in the spaces provided above.
3. **Sign** and write the **date** of the assessment in the spaces provided above.
4. This paper consists of **two** sections: A and B.
5. **Section A** comprises Multiple Choice Questions numbered 1 to 30.
6. **Section B** comprises short, structured questions number 31 to 40.
7. Answer **ALL** the questions in section A on the separate **ANSWER SHEET** provided.
8. Answer **ALL** the questions in section B in the spaces provided in this **QUESTION PAPER**.
9. Do **NOT** remove any page from this question paper.
10. Answer **ALL** the questions in English.

For official use only

SECTION B

Task	Task 1	Task 2			Task 3				Task 4		Task 5
Question	31	32	33	34	35	36	37	38	39	40	41-55
Short question											
Maximum score	01	03	01	02	03	03	01	06	04	03	13
Candidate's score per task											

This paper consists of 8 printed pages.

Candidates should check the question paper to ascertain that **all** the pages are printed as indicated and that no questions are **missing**.

Website: www.jesmapublishersltd.com

E-mail: jesmapublishers@yahoo.com

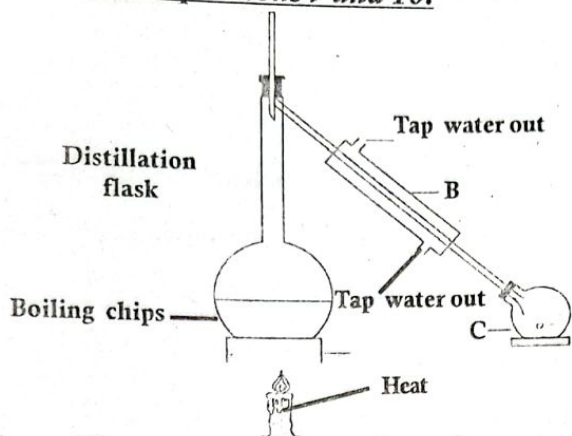
© Jesma Publishers & Educational Boosters Ltd. Tel: 0794677748/0701545759

WARNING: It is an offence to reproduce, copy or transmit whole or part of this paper on any social media platform. Any person contravening this is liable to criminal prosecution and **civil claims** for damages. **TURN OVER**

SECTION A (30mks)

1. Grade Nine learners were discussing about different ways of preventing rusting. The following answers were suggested, which one was **incorrect**?
 - A. Cleaning and drying
 - B. Galvanising
 - C. Making alloys
 - D. Oiling and greasing
2. Which among the following elements is a non-metal?
 - A. Mercury
 - B. Magnesium
 - C. Beryllium
 - D. Phosphorus
3. Which of the following statements about alloys is **incorrect**?
 - A. Most alloys are resistant to corrosion
 - B. Alloys are made up of two or more metals
 - C. Alloys are harder and stronger than pure metals
 - D. Alloys are softer which makes them more useful than pure metals.
4. When carrying out an experiment to investigate conditions necessary for rusting, Anyang used **anhydrous calcium chloride** in one of the test tubes. Which among the following answers was her reason?
 - A. To speed up the process of rusting.
 - B. To prevent oxygen from dissolving in the water
 - C. To reverse the process of rusting
 - D. To trap moisture present in the test tube
5. Muthoni visited her grandmother in the countryside. When washing clothes, she realised that the water was forming a white substance and no form that was formed. The white insoluble substance was likely to be a
 - A. Cream
 - B. Scrub
 - C. Soap
 - D. Scum
6. Mr Kariuki discussed with Grade Nine learners about the minerals present in hard water. Which learner gave the correct answer?
 - A. **Wairimu** : Calcium and manganese ions
 - B. **Joyce** : Manganese and magnesium ions
 - C. **Navman** : Calcium and magnesium ions
 - D. **Tess** : Sodium salts and calcium
7. We can remove water hardness through the following **except**
 - A. Filtration
 - B. Simple distillation
 - C. Boiling
 - D. Use of sodium carbonate
8. Which one of the following is **not** a characteristic of hard water?
 - A. Water does not lather easily with soap
 - B. Formation of white spots on glassware
 - C. Brightening of clothes
 - D. Has a metallic taste

Below shows a method of softening hard water. Use the diagram to answer questions 9 and 10.



9. The process shown above is
 - A. Condensation
 - B. Simple boiling
 - C. Simple distillation
 - D. Filtration
10. Why was apparatus marked B used in the experiment?
 - A. To speed up the process
 - B. To prevent scum from forming around the glassware
 - C. To cool down the steam formed
 - D. To collect soft water
11. Grade 9 learners from Mt Sinai Junior School were asked to state advantages of hard water.

Mutuse : *It is good for drinking since it contains dietary minerals*

Maggy : *Prevents lead poisoning*

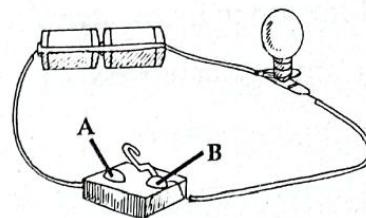
Amina : *Do not waste soap since it easily lathers with soap*

Abraham : *Has a nice taste due to presence of minerals.*

Who among the following learners gave **incorrect** answer?

- | | |
|------------|----------|
| A. Abraham | B. Maggy |
| C. Mutuse | D. Amina |

12. Below is an experiment set up by learners.



Which of the following materials will **not** make the bulb light when connected to part A and B?

- | | |
|---------------|-------------|
| A. Carbon rod | B. Graphite |
| C. Glass | D. Water |

13. Which among the following materials can be used as insulator for electricity?

A. Copper wire	B. Aluminium foil
C. Rubber band	D. Steel wool
14. The following are properties of solids. Which one is **not**?
 - A. Have a definite volume
 - B. Have a definite shape
 - C. Have indefinite shape
 - D. Have definite mass
15. The following are examples of different electrical appliances. Which among them shows a television powered by a battery?
 - A. Chemical energy → heat energy → light energy → sound energy
 - B. Electrical energy → chemical energy → heat energy → light energy
 - C. Chemical energy → electrical energy → light energy → sound energy
 - D. Chemical energy → electrical energy → sound energy → light energy

16. Which among the following is **not** a role of diffusion in living organisms?

- A. Carrying out process of photosynthesis support in plants.
- B. Gaseous exchange in human beings.
- C. Absorption of digested food.
- D. Absorption of mineral salts in plants

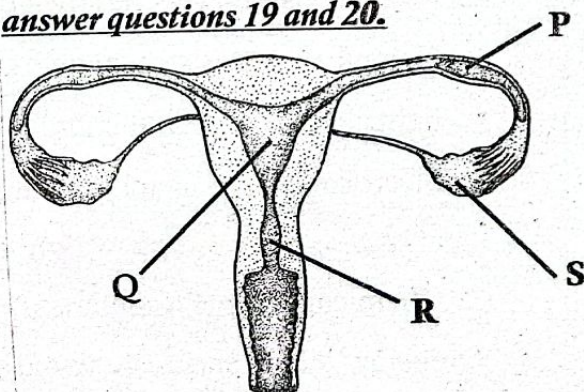
17. The following choices show different changes in a substance. Which among them show a temporary change in a substance?

- A. Burning a wood into charcoal
- B. A nail undergoing rusting
- C. Melting a candle
- D. Burning a newspaper

18. In which of the following situations will a person exert the greatest pressure on the ground?

- A. When lying down on the ground
- B. When standing on toes
- C. When standing on one foot
- D. When on the ground

Study the diagram below and use it to answer questions 19 and 20.



19. Implantation takes place part;

- A. S
- B. Q
- C. R
- D. P

20. Fertilisation takes place in the part labelled

- A. R
- B. S
- C. Q
- D. P

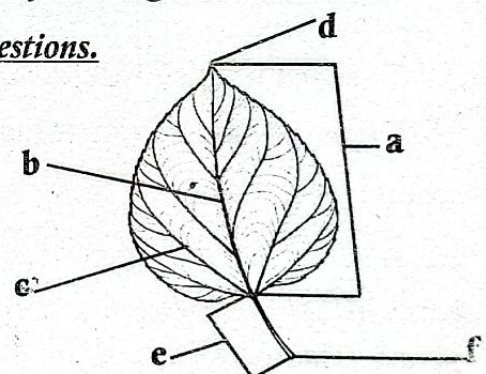
21. The smallest unit of an element that retains its chemical properties is

- A. A molecule
- B. An ion
- C. A compound
- D. An atom

22. Boiling point of pure water is

- A. 90°C
- B. 120°C
- C. 100°C
- D. 80°C

Study the diagram below and answer the questions.



23. What is the function of the part labelled C?

- A. Regulates water loss
- B. Supports and holds leaf blade
- C. Captures sunlight
- D. Transports water and mineral salts

24. The following are conditions are necessary for photosynthesis. Which one is **not**?

- A. Warmth
- B. Carbon (iv) oxide
- C. Water
- D. Chlorophyll

25. Which of the following metals is used for galvanising of steel?
- A. Iron B. Zinc
C. Lead D. Aluminium
26. The following are advantages of soft water. Which one is not?
- A. Less soap is required when washing
B. It contains minerals essential for growth
C. More efficient in cleaning
D. Does not lead to formation of scum
27. The following are examples of atoms. Which among them is a stable atom?
- A. Oxygen B. Nitrogen
C. Argon D. Hydrogen
28. Which among the following elements is not important in plant growth?
- A. Helium B. Potassium
C. Nitrogen D. Phosphorous
29. The following are modes of nutrition in animals except?
- A. Photosynthesis B. Parasitic
C. Symbiosis D. Holozoic
30. The following are examples of endoparasites. Which one is not?
- A. Liverfluke
B. Roundworms
C. Ticks
D. Hookworms

SECTION B: (40mks)

31. Define an atom. (1mk)

32. Name the three sub-atomic particles in an atom. (3mks)

a) _____

b) _____

c) _____

33. Define mass number. (1mk)

34. A certain element has 13 as the atomic number and 14 as the number of neutrons.

a) Name the element mentioned above. (1mk)

b) Calculate the mass number. (1mk)

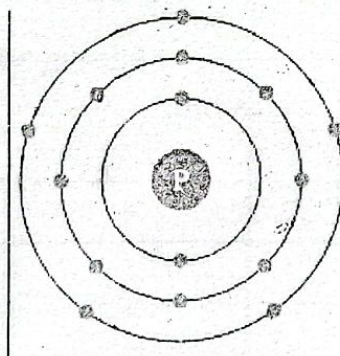
35. Mr Masinde gave an example of silicon as an example of an element whose mass number is 28 and has 14 as the number of neutrons. (1mk)

a) Calculate the atomic number.

b) Represent the atomic number and the mass number using the element symbol. (1mk)

b) Using numbers and full stops, show the electronic arrangement of the element. (1mk)

36. Study the diagram below and answer the questions.



a) Identify the element represented by the diagram above.

(1mk)

b) State whether the element above is a stable or unstable.

(1mk)

c) What is the atomic number of the element represented by the diagram?

(1mk)

37. What is the maximum number of electrons can the first energy level hold?

(1mk)

38. Using diagrams, show the electronic arrangements of the following elements.

a) Sodium (2mks)

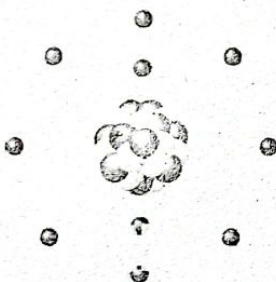
b) Oxygen (2mks)

c) Calcium (2mks)

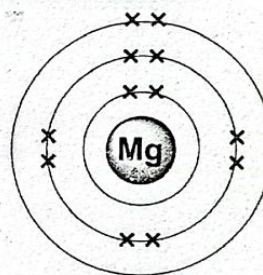
39. State whether the elements illustrated below are metals or non metals.

(4mks)

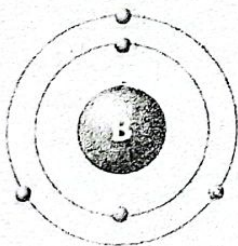
a)



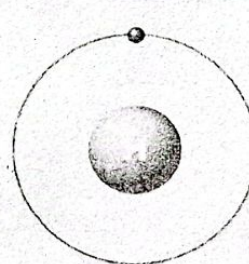
b)



c)



d)



40. Define the following terms.

(3mks)

a) Malleability

b) Ductility

c) Metallic lustre

41. State **two** reasons why copper is used in making of electrical wires. (2mks)

i) _____

ii) _____

42. Define an alloy. (1mk)

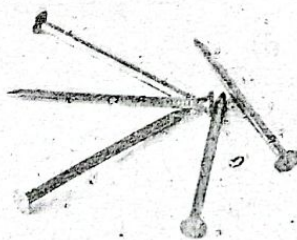
43. Complete the table below by writing the composition of the alloys. (3mks)

	Alloy	Composition
a)	Brass	
b)	Duralumin	
c)	Bronze	

44. Why are alloys mostly preferred and useful than pure metals? (2mks)

45. Gold and silver are used in making medals and jewellery. Which property of metal allows, this? (1mk)

46. The diagram below shows iron nails that were exposed to air for a long time.



a) The brown substance formed around the nail is known as (2mks)

b) State the conditions necessary for the formation of the brown substance. (2mks)