



SOUTH AFRICAN COMPREHENSIVE ASSESSMENT INSTITUTE
SUID-AFRIKAANSE KOMPREENSIEWE ASSESSERINGSINSTITUUT

Adult Basic Education and Training (ABET)

Summative Assessment

Natural Science: NQF Level 1

Examination Session: June 2024

Total Marks: 100 Marks

Time: 3 Hours

Number of Pages: 22 Pages

Learner Information

Candidate Number

Centre

Date



EXAMINATION RULES FOR CANDIDATES

1. Candidates are bound in all matters relating to the examination to obey the instructions of the chief invigilator. The chief invigilator, where relevant, determines the dress code.
2. Candidates must be identified before they are permitted to write an examination. Identity documents must be produced when required. All candidates are to sign the attendance register.
3. Candidates will not be admitted to the examination room if they arrive an hour or more after the start of the examination. Candidates who have finished answering an examination paper within fifteen minutes of stopping time will not be allowed to leave the examination room, provided there are still candidates writing.
4. Candidates must occupy the places first allocated to them for the entire duration of the examination and for all other examination sessions, unless otherwise directed by the chief invigilator.
5. No explanation of examination questions may be asked or given by any person.
6. No candidate is allowed to leave the examination room within the first hour of the examination, except in an emergency and under supervision.
7. A candidate may only be allowed to leave the examination room in the case of an emergency or to go to the toilet, and in these cases, this must be done under supervision.
8. As soon as a candidate hands in his or her answer script, he or she must leave the examination room.
9. A candidate must carefully read and comply with the instructions, which appear in his or her question paper and the examination timetable.
10. A candidate is not allowed to assist another candidate or try to assist him or her or communicate with another candidate. Should this occur, it would constitute an irregularity. Invigilators are expressly forbidden from assisting candidates in the answering of questions.
11. All questions must be directed to the invigilator.
12. A candidate may not cause a disturbance in the examination room or behave in an improper or unseemly manner.
13. A candidate may not disregard the instructions of the invigilator or may not conduct themselves in a manner that is in conflict with the instructions of the chief invigilator.
14. The following are not allowed next to the candidate in the examination room: suitcases, school bags, Walkmans, CD players, cellphones, books, dictionaries, notes, sketches or paper other than the official examination material distributed by the chief invigilator. Slide-rules and non-programmable, silent calculators may be used, unless expressly prohibited in the question paper. Pens, erasers, rulers, etc. should be kept in transparent containers/bags. No borrowing is allowed. Wristwatch alarms must be switched off.
15. Candidates should be informed that the possession of notes constitutes an irregularity regardless of whether or not the notes are used. The excuse that a candidate has forgotten or was not aware that he or she has the unauthorised material listed in paragraph 14 in his or her possession will not be accepted.
16. No examination answer books (or part of an answer book), whether used or unused, may be removed from the examination room. Should this occur, it will be considered an irregularity and the candidate will receive NO credit for the examination. Should a candidate write the wrong subject or wrong grade of a subject, this will be a technical irregularity and will lead to the candidate's results being blocked/cancelled/delayed.
17. Should a candidate miss an examination due to illness, a valid doctor's certificate must be given to the chief invigilator. A Certificate will not be awarded to candidates who miss an examination.
18. Any candidate who disregards these rules or the instructions of the chief invigilator or his / her assistants, will have committed an offence in terms of the Regulations [Regulation 6 2(a) and (b)] or a contravention of the Rules [Rule 3(2)].



INSTRUCTIONS

1. This question paper consists of **TWO** sections.
2. **All** sections are compulsory.
3. Answer **ALL** the questions in Section A and Section B.
4. Answer all the questions in the space provided.
5. Write in a blue or black pen only.
6. Calculators may be used.



SECTION A

Question 1

1.1 Various possible options are provided as answers to the following questions. Choose the answer and ENCIRCLE only the letter [A-D].

1.1.1 The amount of matter in the object.

- A. Volume
- B. Area
- C. Weight
- D. Mass (2)

1.1.2 The instrument used to measure the magnitude of an earthquake.

- A. Mohs scale
- B. Richter scale
- C. Troponin scale
- D. Ordinal scale (2)

1.1.3 Body's state of coldness.

- A. Hypotension
- B. Hyperthermia
- C. Hypertension
- D. Hypothermia (2)

1.1.4 Which source of energy is non-renewable?

- A. Wind
- B. Natural gas
- C. Water
- D. Biomass (2)

1.1.5 Which pair of electrical components are connected in series?

- A. Cell and voltmeter
- B. Voltmeter and ammeter
- C. Cell and ammeter
- D. Voltmeter and resistor (2)

1.1.6 Identify a non-natural science field of study.

- A. Agriculture
- B. Astrology
- C. Biology
- D. Radiology (2)

1.1.7 Which quantity is an independent variable in the table below?

Time (s)	Distance (m)	Speed (m/s)
1	2	2
2	2	1
3	2	1.5

- A. Time
- B. Distance
- C. Speed
- D. None of the above (2)

- 1.1.8 Which of the following directly affects the aquatic ecosystem?
- A. Land pollution
 - B. Water pollution
 - C. Air pollution
 - D. Noise pollution (2)
- 1.1.9 The correct way of taking a reading on a lab thermometer.
- A. Hold the thermometer above the eye level
 - B. Hold the thermometer below the eye level
 - C. Hold the thermometer across the eye level
 - D. All of the above (2)
- 1.1.10 Which of the following hypotheses is CORRECT?
- A. A pill dissolves quicker with an increased surface area.
 - B. Speed increases with time and decreases with distance.
 - C. Heart rate beats faster at rest position.
 - D. Egg shells are biodegradable. (2)

Total Marks for Question 1.1

[20]

1.2 Indicate whether the following statements are **TRUE** or **FALSE**.

Choose the answer and write only **TRUE** or **FALSE** in the spaces provided.

1.2.1 The density of a substance increases with its volume. (1)

1.2.2 The mechanical energy of an isolated system is conserved. (1)

1.2.3 The fluid-like gel inside a vacuole is cytoplasm. (1)

1.2.4 Global warming is a natural phenomenon. (1)

1.2.5 The telescope revolves around the Earth. (1)

Total Marks for Question 1.2

[5]

- 1.3 Choose a statement from COLUMN A that matches a term in COLUMN B. Write only the letter (A – F) **UNDER** the question number (1.3.1 – 1.3.5) in the table below.

	COLUMN A		COLUMN B	
1.3.1	A material that is biodegradable.	A	Meniscus	(1)
1.3.2	Measurable level of water in a narrow container.	B	Satellite	(1)
1.3.3	The force holding atoms together to make molecules.	C	Measuring cylinder	(1)
1.3.4	Artefacts used for receiving information.	D	Ionic bond	(1)
1.3.5	Calibrated with volumetric line markings.	E	Carbon paper	(1)
		F	Chemical bond	

	1.3.1	1.3.2	1.3.3	1.3.4	1.3.5
Column B					

Total Marks for Question 1.3

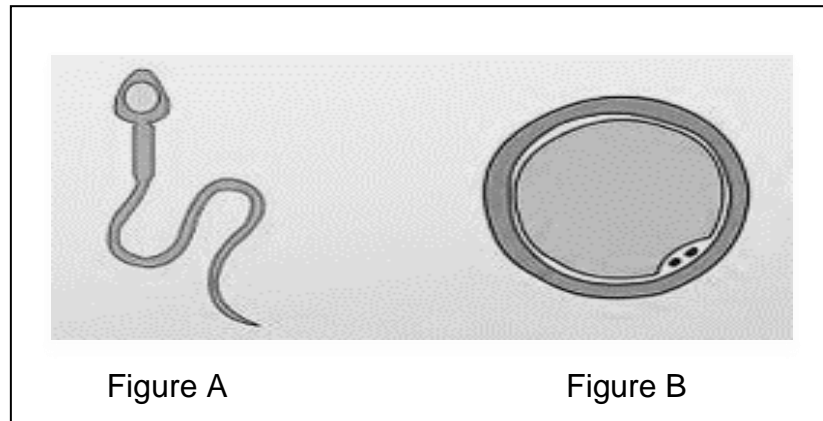
[5]

Total for Section A: 30 Marks
SECTION B is on the next page.

SECTION B

Question 2: Life and Living

2.1 Study the diagram and answer the questions.



Source: Gender-InclusiveBiology.org

2.1.1 Name the gametes (sex cells) labelled as follows: (2)

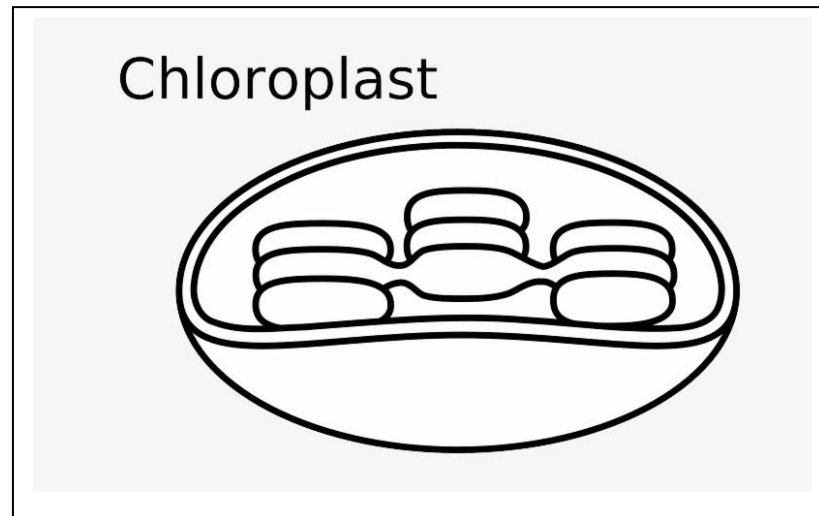
Figure A

Figure B

2.1.2 Define the term 'sexual reproduction'. (2)

2.1.3 What is the name of the medical procedure used to fertilize Figure A and Figure B non-naturally? (1)

2.2 Study the cross-sectional diagram and answer the questions.



Source: CellsBiology.com

2.2.1 In which cell is chloroplast found? Animal or Plant cell? (1)

2.2.2 Which energy is converted to chemical energy in the chloroplast? (1)

2.2.3 Name an instrument used to study the structure of chloroplast. (1)

2.3 Read the passage and answer the questions.

Farmers use chemicals, like pesticides and insecticides to protect and prevent their crops from being eaten and destroyed by plant-eating animals like birds and insects.

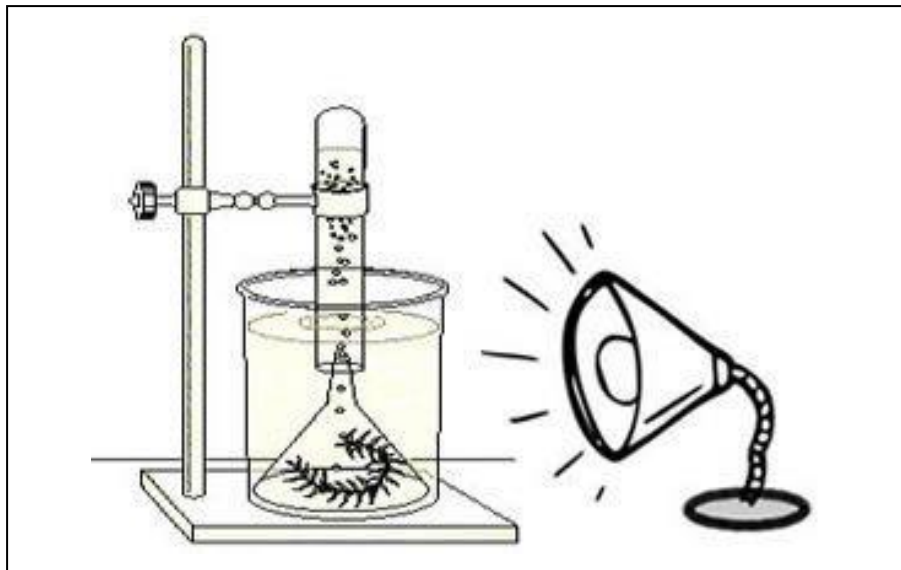
Source: Foodenergy.com

2.3.1 What is the biological term used to describe ‘plant-eating animals’? (1)

2.3.2 State how the use of insecticides affects the bird population. (2)

2.3.3 Is the passage illustrating ecology or ecosystem? (1)

2.4 Study the diagram of a conducted experiment and answer the questions.



Source: Shutterstock images

2.4.1 Complete the aim of the experiment. (2)

“To test the rate of ...

2.4.2 What is indicated in the diagram that proves the experiment has been successful? (1)

2.4.3 Name THREE materials used to conduct the experiment. (3)

Total Marks for Question 2

[18]

Question 3: Energy and Change

3.1 Study the diagram and answer the questions.



Source: Wikimedia-images

3.1.1 Name the heat transfer experienced by the campers. (1)

3.1.2 Other than warmth, provide TWO examples of how the campers may use the burning wood. (2)

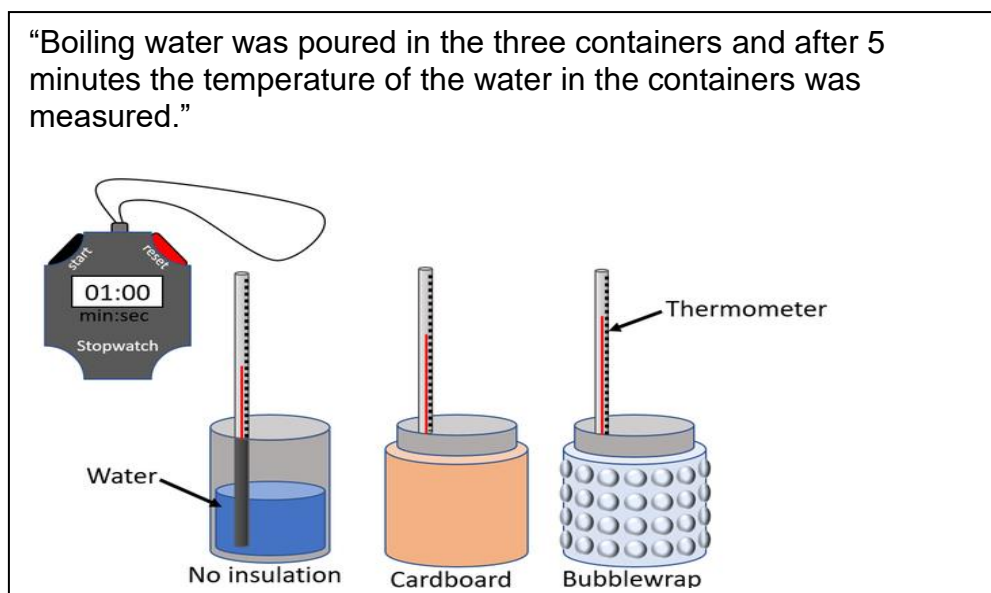
3.1.3 Mention TWO possible dangers associated with campfires. (2)

3.2 Classify the following objects as either Indigenous or Modern Technology.

3.2.1 Gas lighter (1)

3.2.2 Candle (1)

3.3 Study the diagram of an experiment set-up and answer the questions.



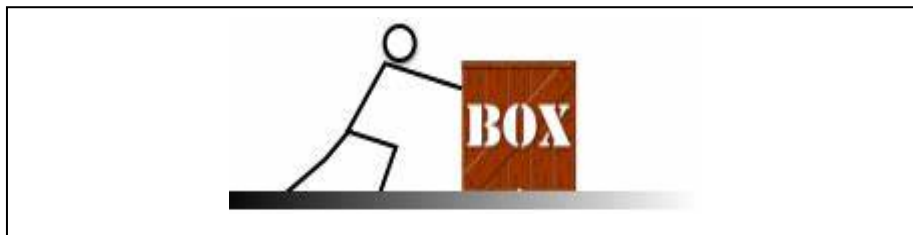
Source: Thermalstudy.com

3.3.1 Analyse the results of the insulated containers. (2)

3.3.2 Identify a good insulator. (1)

3.3.3 State TWO safety precautions for conducting the experiment. (2)

3.4 A box is pushed over a certain distance by a constant force of 30N as shown in the diagram below.



Source: Siyavula.com

3.4.1 The box experiences friction as it is pushed along the surface. (2)
Why does the box experience friction?

- 3.4.2 Is the distance covered by the box a Dependent or Independent variable? (1)
-

- 3.4.3 Calculate the work done on the box if it is pushed over a distance of 8 meters. (2)

Use the formula:

$$\text{Work done} = \text{force} \times \text{distance}$$

Total Marks for Question 3

[17]

Question 4: Matter and Materials

- 4.1 Read the passage and answer the questions.

A mixture is made up methylated spirit and water.
The boiling points of the mixed solutions are as follows:

- Methylated spirit – 78°C
- Water – 100°C

Source: own creation

- 4.1.1 Suggest a suitable method that can be used to separate the mixture. (1)
-

- 4.1.2 Which solution will separate first from the mixture? (1)
-

- 4.1.3 Provide a reason for the answer given in 4.1.2. (1)
-

- 4.2 Study the table and answer the questions.

Table 1: Water absorption by different materials

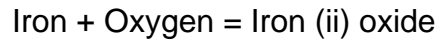
Cup	Material	Water in cups (ml)	Water absorbed (ml)	Water left in cups (ml)
1	Paper	100	0.92	99.08
2	Paper towel	100	81	19
3	Cotton wool	100	87	13
4	Dish sponge	100	69	31

- 4.2.1 Name a possible instrument that can be used to measure the amount of water left in the cups. (1)
-

- 4.2.2 Write a conclusion of the results recorded for the materials used to absorb water in Cup 1 and Cup 3. (2)
-
-
-

- 4.2.3 List TWO items that were kept constant when the experiment was conducted. (2)
-
-

4.3 Consider the chemical equation and answer the questions.



The chemical equation represents the rusting of metal when exposed to air and moisture.

4.3.1 Identify the following from the chemical equation:

(a) Compound (1)

(b) Element (1)

4.3.2 Mention TWO methods that can be used to prevent a metal from rusting. (2)

4.3.3 Houses built near the seashore are generally fitted with wooden doors and window frames. Provide a reason for this. (1)

4.4 Study the diagram and answer the questions.



Source: Shutterstock.com

4.4.1 Name the metallic fluid used in thermometers. (1)

4.4.2 What is the function of a thermometer? (1)

4.4.3 Is the thermometer used correctly to take the reading of the solution? Yes or No. Provide a reason for your answer. (3)

Total Marks for Question 4

[18]

Question 5: Earth and Beyond

5.1 Read the passage and answer the questions.

Communities and businesses cut down trees for various reasons including building of properties, furniture making amongst a few. Research conducted by nature conservation organisations shows that cutting down of trees, although done for a good cause, can cause a negative impact on the environment and atmosphere.

Adapted from Treesforlife.org

5.1.1 What is the term used to define the human activity of cutting down trees? (1)

5.1.2 What negative impact does cutting down of trees have on the...

(a) Environment? (1)

(b) Atmosphere? (1)

5.2 Differentiate between astrology and astronomy. (4)

Astrology

Astronomy

5.3 Study the image and answer the questions.



Source: Googleimages.com

5.3.1 What is the name of the artefact in the image? (1)

5.3.2 Mention ONE use of the artefact in the image. (2)

5.3.3 The artefact travels at a very high speed to overcome gravity to reach the fourth layer of the atmosphere. What is the name of this layer of atmosphere? (1)

5.4 Read the extract and answer the questions.

Before farmers grow their crops, they study the type of soil and its pH level because crops grow best in suitable soils, as some soils are acidic, neutral or alkaline. Carrots grow best in sandy soils which allows the tap root to grow down easily and because the pH level of sandy soil is generally neutral.

Source: ScienceMatters, Gr.8LB

5.4.1 Is the statement “Carrots grow best in sandy soils” a Hypothesis or Aim of the farmer’s study? (2)

5.4.2 What is the pH value of sandy soil? (1)

5.4.3 What do farmers add to reduce the acidity of the soil? Sulphur or lime? (1)

5.4.4 Provide a reason for the answer in 5.4.3. (2)

Total Marks for Question 5

[17]

Total for Section B: 70 Marks

TOTAL MARKS: 100 MARKS

END OF THE EXAMINATION

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Section	Question	Maximum Mark	Learner's Mark	Moderated Mark
A	Question 1.1	20		
	Question 1.2	5		
	Question 1.3	5		
	Total: A	30		
B	Question 2	18		
	Question 3	17		
	Question 4	18		
	Question 5	17		
	Total: B	70		

Grand Total (A + B)	100
Learner's Total (A + B)	
Percentage	
Final Grading	

Name and Surname of Marker

Date of Marking

Name and Surname of Umalusi Official

Date of Marking

Name and Surname of Moderator

Date of Moderation

