



EXAMINATIONS COUNCIL OF ZAMBIA

JUNIOR SECONDARY SCHOOL LEAVING EXAMINATION (GRADE 9) – 2016

Integrated Science 502/1 Paper 1

(INTERNAL AND EXTERNAL CANDIDATES)

Time: 1 hour

Marks: 40

Instructions to candidates

1. Separate the **Answer Sheet** from the question paper.
2. Write your name, examination number and school/centre name on the Answer Sheet.
3. Answer **all** questions in this paper.
4. For each question, four suggested answers are given **A, B, C** and **D**. Choose the best one and show it on the **Answer Sheet** by marking it with a cross (X).

Example

A	B	<input checked="" type="checkbox"/> C	D
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5. Hand in the **Answer Sheet** and the rest of the question paper separately.

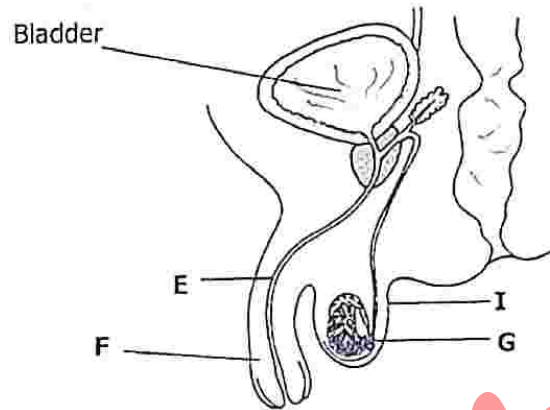
Information for candidates

Cell phones are not allowed in the examination room.

Calculators are not allowed in the examination room.

DO NOT TURN THIS PAGE UNTIL YOU ARE TOLD TO DO SO.

- 1 Which of the following is a natural sign of puberty that occurs only in boys?
 - A Growth of pubic hair
 - B Deepening of the voice
 - C Menstruation begins
 - D Pimples appear on the face
- 2 The diagram below shows the side view of the male reproductive organs.



What is the function of structure I?

- A Producing sperms
 - B Producing ova
 - C Protecting the testes
 - D Storing male sex cells
- 3 A pregnant woman is 120 days pregnant and would like to find the approximate number of remaining days in an average gestation period. Calculate the number of remaining days for her before she delivers. Which of the following shows the correct answer?
 - A 40 days
 - B 160 days
 - C 280 days
 - D 320 days



- 4 The table below shows symptoms and nutritional deficiency diseases.

	Symptom	Deficiency disease
A	Poor vision in light	Kwashiokor
B	Swollen stomachs and thin limbs	Marasmus
C	Poor healing of wounds	Rickets
D	Unhealthy bones and teeth	Scurvy

Which one correctly shows the symptom and corresponding deficiency disease?

- 5 Study the food nutritive substances below.

- Bread, rice, potatoes, mealie meal
- Butter, cheese, port, doughnuts
- Beef, chicken, beans, liver
- Calcium, magnesium, potassium, sodium

Which of the following best describes carbohydrates and proteins?

	Carbohydrates	Proteins
A	1	3
B	2	3
C	1	2
D	3	4

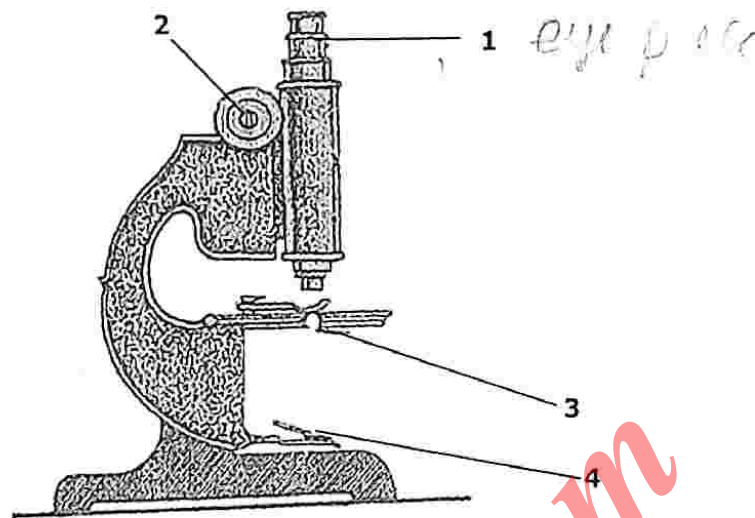
- 6 Which of the following statements best describes pollution? Pollution is the addition of ...

- harmful gases in air.
- contaminating substances in water.
- inorganic fertilizers in soil.
- harmful substances to the environment.

- 7 Which of the following is **not** a common type of pollution in rural areas of Zambia?

- Water pollution.
- Soil pollution.
- Noise pollution.
- Land pollution.

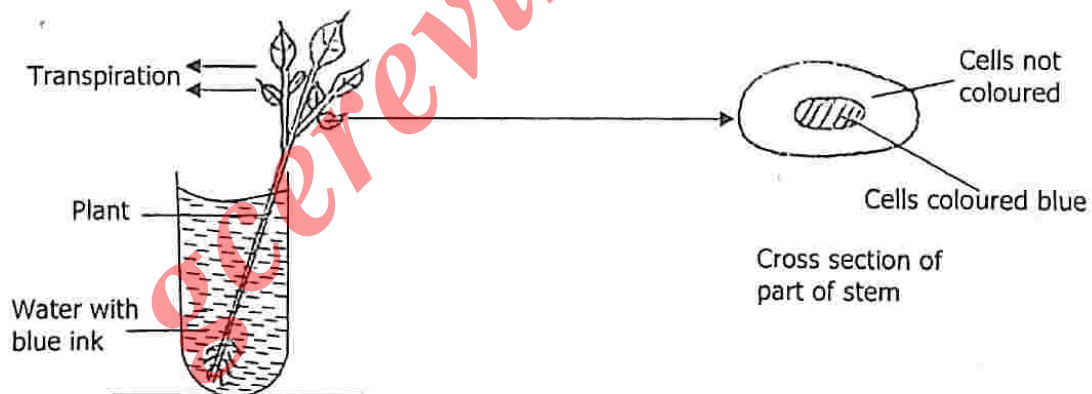
- 8 The diagram below shows a microscope



Which part is adjusted to obtain a clear image?

- A 1
- B 2
- C 3
- D 4

- 9 Study the diagram below.



The cells which were coloured blue are called ...

- A xylem.
- B phloem.
- C palisade cells.
- D guard cells.

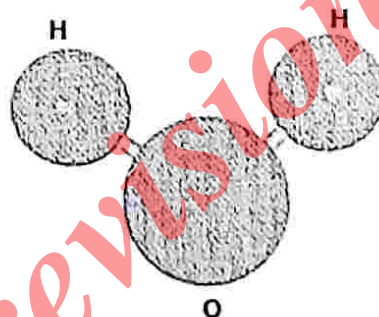
- 10 Which of the following is **not** a way of reducing negative effects of inorganic fertilizers in a maize field?

A Using composite manure
 B Keeping the soil aerated
 C Adding agricultural lime to the soil
 D Rotating the crop with rice crop

- 11 Which of the following shows the correct structure and comparison between plant and animal cells?

	Structure	Plant Cell	Animal cell
A	Cytoplasm	Present	Absent X
B	Cell membrane	Absent	Present
C	Cell wall	Present	Absent
D	Chloroplasts	Absent	Present

- 12 The diagram below shows a model of a molecule.



The molecule is of ...

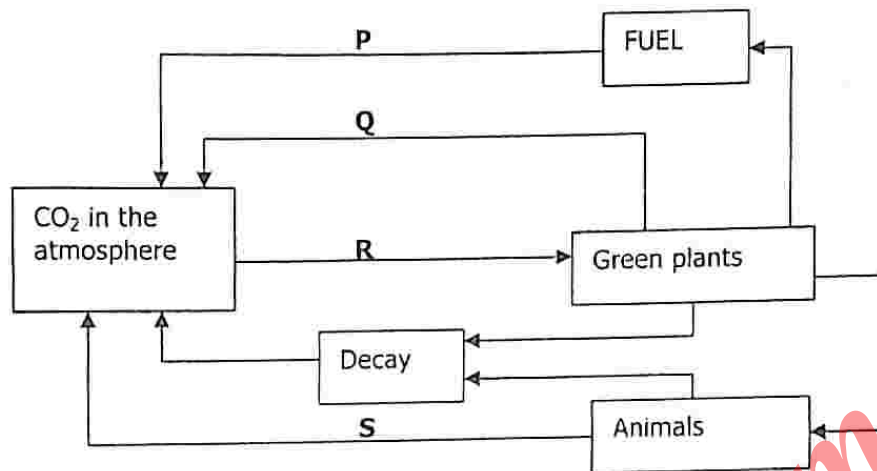
A water.
 B hydrogen.
 C copper.
 D nitrogen.



- 13 Which of the following is **not** true about the freezing point of water? The freezing point of water is ...

A also its point of melting.
 B when water loses heat energy and changes into solid.
 C also its boiling point.
 D 0°C under normal conditions at sea level.

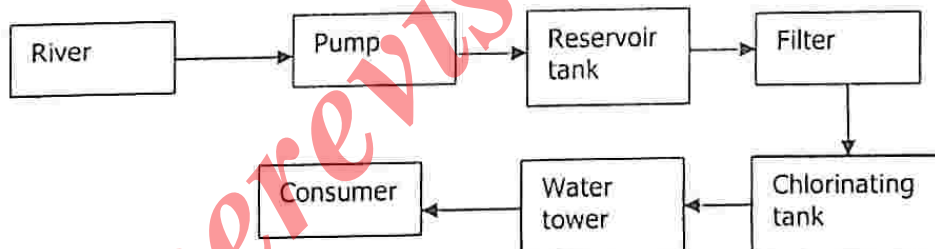
- 24 The diagram below shows the carbon cycle



Identify processes P, Q, R and S.

	P	Q	R	S
A	Combustion	Transpiration	Respiration	Photosynthesis
B	Transpiration	Combustion	Respiration	Transpiration
C	Photosynthesis	Respiration	Combustion	Transpiration
D	Combustion	Respiration	Photosynthesis	Respiration

- 25 Study the flow chart showing purification of water.



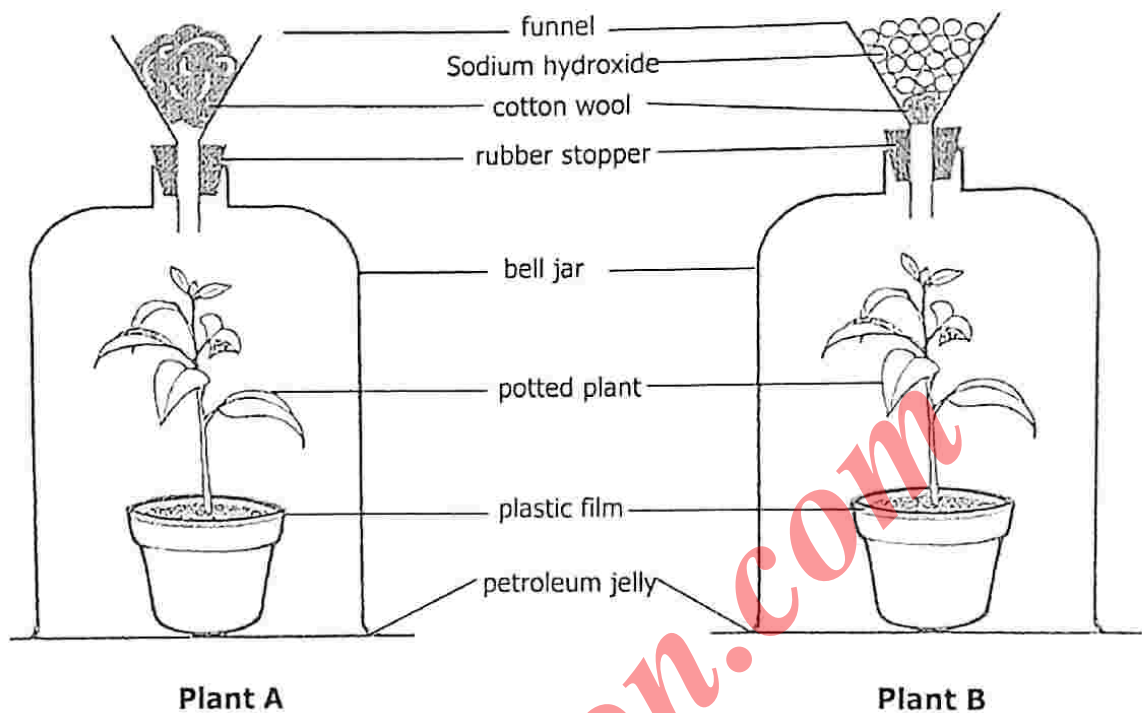
What is the function of the filter and water tower in the process of purification?

	Filter	Water tower
A	To remove solids	To increase water pressure
B	To get rid of germs	To cool the water
C	To settle solids	To increase pressure
D	To pump the water	To decrease the pressure

- 26 Which plant is **not** threatened by extinction in Zambia?

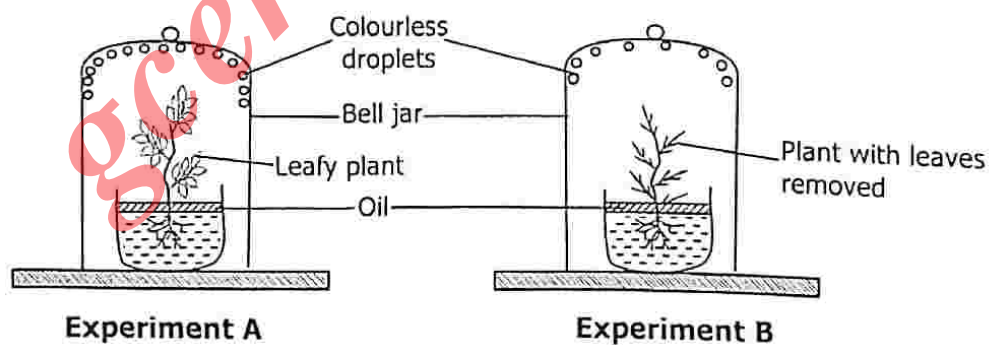
- A Mukwa
- B Mutondo
- C Mukula
- D Musuku

- 27 The diagrams below shows an experiment using two destarched plants, that were exposed to sunlight for 8 hours.



Which statement is true about the experiment? The leaf from plant ...

- A A stained blue-black.
 - B B stained blue-black.
 - C B contained starch.
 - D A stained brown.
- 28 Two experiments were set up to demonstrate transpiration.



What conclusion can be made from the observation in the experiment? Transpiration occurs ...

- A only in the leaves.
- B only in stems.
- C mainly in the leaves.
- D mainly in stems.

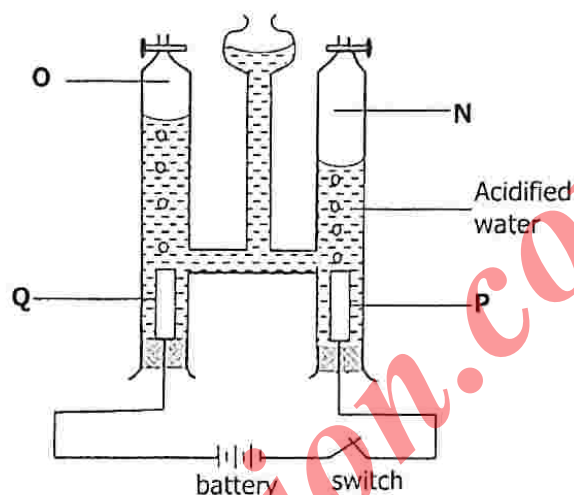
- 29 Study the word equation below.



This is a good example of a chemical reaction called ...

- A decomposition.
- B synthesis.
- C double replacement.
- D single.

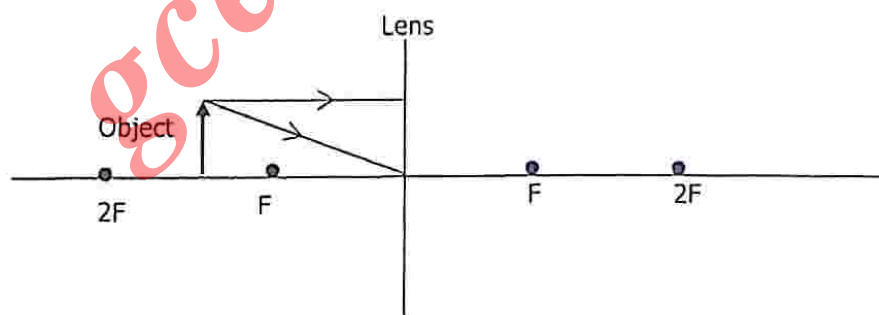
- 30 Study the diagram below.



In the diagram, which of the following will help you identify gas O as hydrogen?

- A Hydrogen is formed at the anode Q
- B Hydrogen is formed twice as much more than oxygen
- C Oxygen is formed at the cathode Q
- D Oxygen is formed twice much more than hydrogen

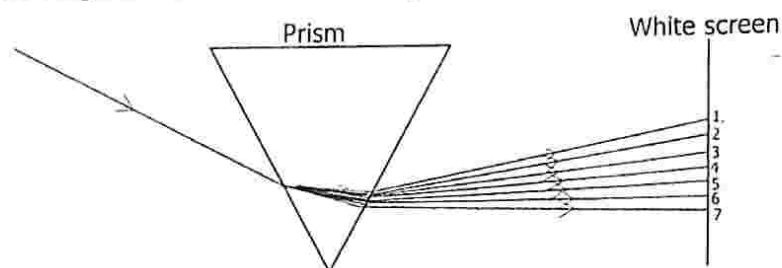
- 31 Study the diagram below carefully.



When the diagram is completed, the image formed will be ...

- A diminished, real and upside down.
- B upright, real and diminished.
- C magnified, real and upside down.
- D magnified, virtual and upright.

- 32 The diagram below shows the dispersion of white light by a glass prism.

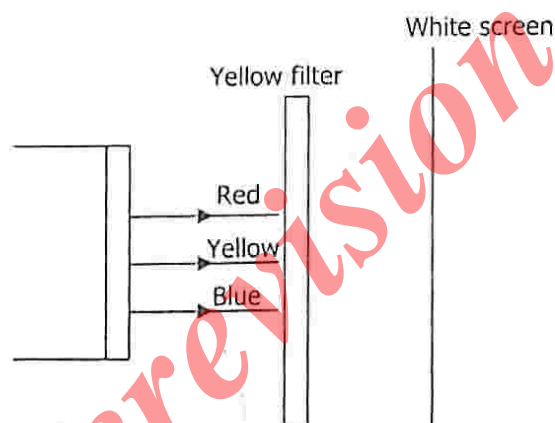


Which colours will appear on numbered parts 4 and 5?

- | | 4 | 5 |
|---|--------|--------|
| A | Green | yellow |
| B | Orange | green |
| C | Blue | yellow |
| D | yellow | green |

V
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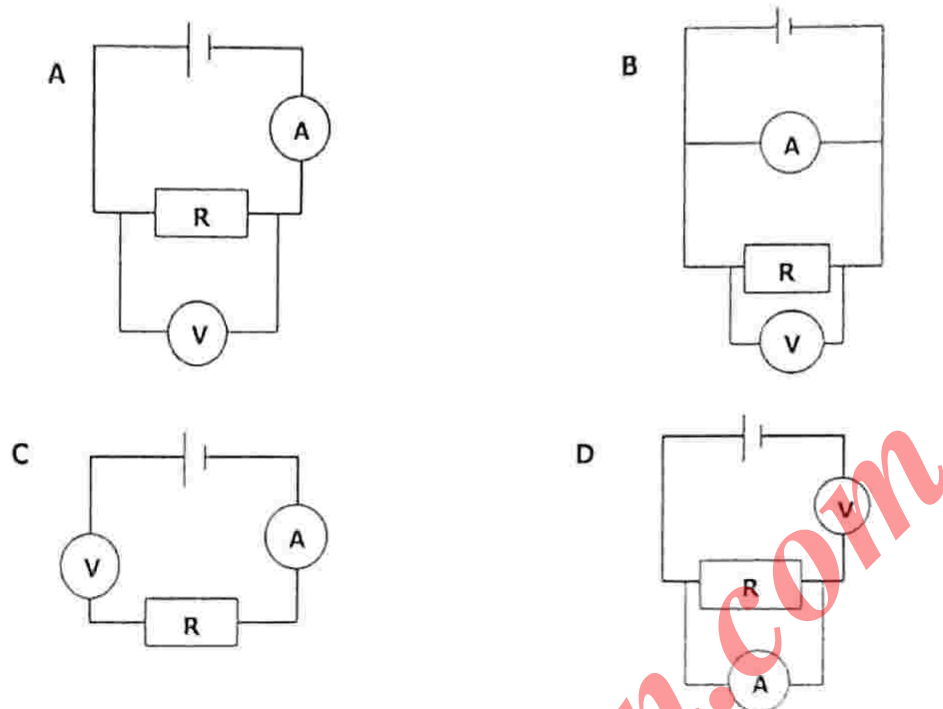
- 33 The diagram below shows red, yellow and green light shone on a yellow filter.



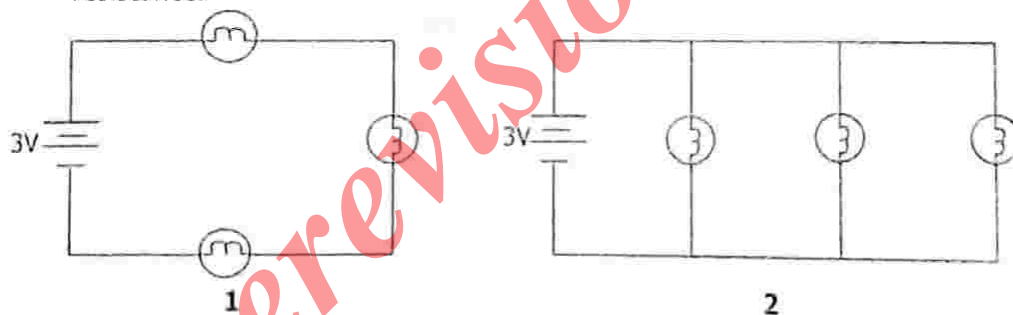
What will be seen on the screen?

- A Red only
- B Yellow only
- C Red and green
- D Red and yellow

- 34 Which of the following diagrams show the correct use of a voltmeter and an ammeter to measure voltage and current respectively through resistor R?



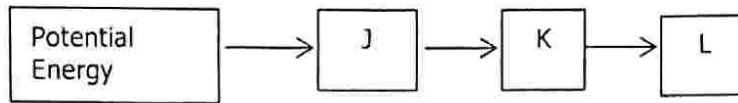
- 35 The diagrams below show circuits with similar cells and bulbs of the same resistance.



Which statement is true about the bulbs? The bulbs in ...

- A both circuits will light with the same brightness.
 B circuit 1 will light brighter than in 2.
 C 2 will light brighter than in 1.
 D both circuits will not light up.
- 36 What pressure is produced when a force of 600N acts on an object of area 6m^2
- A 100 N/m^2
 B 594 N/m^2
 C 606 N/m^2
 D 3600 N/m^2

- 37 The diagram below shows a flow chart of power production from water.



What is represented by **J**, **K** and **L**?

	J	K	L
A	Mechanical energy	Electrical energy	Kinetic energy
B	Electrical Energy	Mechanical energy	Kinetic energy
C	Kinetic Energy	Electrical energy	Mechanical energy
D	Kinetic Energy	Mechanical Energy	Electrical energy

- 38 Which of the following is **not** a way of sending of messages electronically?
By ...
- A** facsimile
 - B** radio message.
 - C** mail through post.
 - D** short message system (SMS)
- 39 Which of the following is correct for both digital and analogue transmission?

	Analogue Transmission	Digital Transmission
A	Generated by frequency modulation (FM)	Generated by amplitude modulation (AM)
B	Signal is conveyed as continuous	Signal is conveyed as discontinuous
C	Transfers data discretely	Transfers data varyingly
D	Conveys information using electromagnetic waves	Conveys information using air

- 40 Which of the following is **not** necessary during transmission of a live COSAFA match relayed from Harare, Zimbabwe to towns in Zambia?
- A** Satellite
 - B** Microphone
 - C** Tape recorder
 - D** Video camera