Thuto360 Revision Bank

Free practice for every learner in Botswana

MOCK PAPER

JCE Science — Thuto360 mock paper

Science · Form 3 · JCE

QUESTIONS	TOTAL MARKS	TIME ALLOWED
25	**36**	**90 minutes**

Name _____

Class / school _____

Date _____

Score _____ / 36

Instructions

A Thuto360 practice paper in the style of the national examination — not an official BEC paper.

Section A is multiple choice and is marked as soon as you hand in. Section B is written: your teacher marks it, or, if you are practising on your own, you mark it yourself against the marking guide.

Multiple choice: circle the letter of the right answer. Where it says "tick every correct answer", more than one is right. Written questions: answer on the lines given; the marks for each part are in brackets. The answers are on the last page.

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Section A — multiple choice

1. A ray of light hits a plane mirror at an angle of incidence of 30°. What is the angle of reflection?

- (A) 60°
- (B) 90°
- (C) 15°
- (D) 30°

2. Which of these is a chemical change?

- (A) Melting ice
- (B) Boiling water
- (C) Dissolving sugar
- (D) Burning wood

3. What is the chemical symbol for sodium?

- (A) So
- (B) Sd
- (C) Na
- (D) S

4. Water is made of…

- (A) hydrogen and oxygen
- (B) oxygen only
- (C) hydrogen and nitrogen
- (D) carbon and oxygen

5. Heat travels through a vacuum by…

- (A) radiation
- (B) evaporation
- (C) conduction
- (D) convection

6. Three 2 Ω resistors are connected in series. What is the total resistance?

- (A) 6 Ω
- (B) 2 Ω
- (C) 2/3 Ω
- (D) 8 Ω

7. A current of 2 A flows through a 6 Ω resistor. What is the voltage across it?

- (A) 12 V
- (B) 8 V
- (C) 3 V
- (D) 4 V

8. Which disease is caused by a bacterium?

- (A) Influenza
- (B) Malaria
- (C) Tuberculosis
- (D) HIV/AIDS

9. Which gas is mainly responsible for the greenhouse effect caused by burning fuels?

- (A) Nitrogen
- (B) Carbon dioxide
- (C) Oxygen
- (D) Helium

10. Water loss from the leaves of a plant is called…

- (A) transpiration
- (B) translocation
- (C) respiration
- (D) osmosis

11. Which planet is closest to the Sun?

- (A) Venus
- (B) Mercury
- (C) Earth
- (D) Mars

12. A box of mass 10 kg is on Earth (g = 10 N/kg). What is its weight?

- (A) 10 N
- (B) 100 N
- (C) 1 000 N
- (D) 1 N

13. What is the pH of a neutral solution?

- (A) 14
- (B) 0
- (C) 1
- (D) 7

14. What colour does blue litmus paper turn in an acid?

- (A) Green
- (B) It stays blue
- (C) Red
- (D) Purple

15. An acid reacts with a base to form…

- (A) salt and water
- (B) oxygen and water
- (C) a stronger acid
- (D) hydrogen only

16. What is the unit of force?

- (A) Kilogram
- (B) Joule
- (C) Newton
- (D) Watt

17. A car travels 120 km in 2 hours. What is its average speed?

- (A) 60 km/h
- (B) 30 km/h
- (C) 240 km/h
- (D) 122 km/h

18. What is the unit of electric current?

- (A) Ohm
- (B) Watt
- (C) Volt
- (D) Ampere

19. Like magnetic poles...

- (A) repel
- (B) attract
- (C) become stronger
- (D) do nothing

20. Where is most digested food absorbed?

- (A) Small intestine
- (B) Large intestine
- (C) Mouth
- (D) Stomach

21. Fertilisation is the joining of…

- (A) two sperm
- (B) a male and a female gamete
- (C) two eggs
- (D) a cell and a virus

22. Light travels…

- (A) slower than sound
- (B) only round corners
- (C) in straight lines
- (D) only in air

Section B — structured questions

23. Dilute hydrochloric acid is added slowly to sodium hydroxide solution containing universal indicator.

(a) What colour is the indicator in the sodium hydroxide at the start? [1]

(b) Name the type of reaction taking place. [1]

(c) Name the salt formed. [1]

(d) What colour will the indicator be when exactly neutral? [1]

24. A torch has two 1.5 V cells in series and a bulb with a resistance of 6 Ω.

(a) What is the total voltage? [1]

(b) Calculate the current through the bulb. [2]

(c) Draw a circuit diagram using the correct symbols, including a switch. [3]

25. Many people in Botswana are affected by diabetes and high blood pressure.

(a) Give two lifestyle habits that increase the risk of these diseases. [2]

(b) Suggest two ways a school could promote healthy living. [2]

Answers

Check your work after you finish. Multiple-choice questions score only when every right answer is chosen.

1	D	**2**	D	**3**	C	**4**	A	**5**	A
6	A	**7**	A	**8**	C	**9**	B	**10**	A
11	B	**12**	B	**13**	D	**14**	C	**15**	A
16	C	**17**	A	**18**	D	**19**	A	**20**	A
21	B	**22**	C	**23**	See below	**24**	See below	**25**	See below

Marking guide for written questions

Question 23

(a) [1] Purple / blue (1)

(b) [1] Neutralisation (1)

(c) [1] Sodium chloride (1)

(d) [1] Green (1)

Question 24

(a) [1] 3 V (1)

(b) [2] I = V/R = 3 ÷ 6 (1) = 0.5 A (1)

(c) [3] Two cells in series (1), bulb (1), switch, all in one loop (1)

Question 25

(a) [2] Any two: too much sugar or salt, fatty food, lack of exercise, smoking, alcohol, obesity (1 each)

(b) [2] Any two: healthy tuck-shop food, sport and exercise, health education, clean water (1 each)