EXAMINATION NO.: _____

THE MALAWI NATIONAL EXAMINATIONS BOARD

2026 JUNIOR CERTIFICATE EXAMINATION

PHYSICS

(100 marks)

Subject Number: J164

Wednesday, 3 June

Time Allowed: 2 hours
8:00 – 10:00 am

Instructions

1. **This paper contains 11 printed pages. Please check.**
2. Write your **Examination Number** in the spaces provided on every page of this question paper.
3. This question paper contains Sections **A**, **B** and **C**.
4. Answer **all** the **33** questions.
5. Use of scientific calculators is allowed.
6. In the table provided on this page, **tick** against the question numbers **21** to **33** if answered.
7. Hand in your paper to the invigilator when time is called to stop writing.

Question Number	Tick Qns 21 to 33 if answered	Do not write in these columns	
1 - 4			
5 - 7			
8 - 11			
12 - 16			
17 - 20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			
31			
32			
33			
Total			

Section A (20 marks)

There are **twenty** questions in this section. **Encircle** the letter corresponding to the correct answer.

1. Which of the following is the SI unit of work done?
   A. Newton
   B. Kilogram
   C. Watt
   D. Joule

2. Which of the following are ways of increasing mechanical advantage in levers?
   1. reducing load arm
   2. reducing effort arm
   3. increasing load arm
   4. increasing effort arm
   A. 1 and 2
   B. 2 and 3
   C. 1 and 4
   D. 3 and 4

3. Which of the following terms refers to the part of a shadow that is partially dark?
   A. umbra
   B. penumbra
   C. eclipse
   D. opaque

4. Which of the following is the effect of electric current in an electric kettle?
   A. magnetic
   B. lighting
   C. heating
   D. chemical

Figure 1 is a diagram of a measuring instrument containing water. Use it to answer questions **5** and **6**.

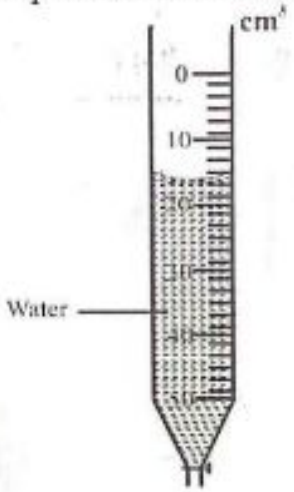

Figure 1

5. Name the measuring instrument.
   A. pipette
   B. cylinder
   C. burette
   D. thermometer

6. Which of the following is the correct volume of water in the instrument?
   A. 15 cm^3
   B. 25 cm^3
   C. 35 cm^3
   D. 50 cm^3

7. Which of the following devices converts kinetic energy to electrical energy?
   A. electric motor
   B. dynamo
   C. thermocouple
   D. microphone

Continued/...

8. Which of the following is the density of a cube of mass 200g and length 5cm?
A. 0.625g/cm^3
B. 1.6g/cm^3
C. 4g/cm^3
D. 40g/cm^3

Figure 2 shows a diagram of a circuit. Use it to answer questions **9** and **10.**

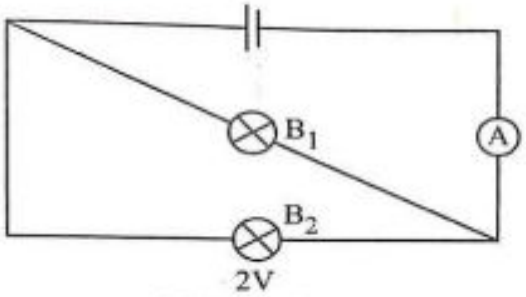

Figure 2

9. Which of the following components are in parallel?
A. cell and ammeter
B. B_1 and cell
C. B_2 and ammeter
D. B_1 and B_2

10. What is the voltage across the cell?
A. 1V
B. 2V
C. 3V
D. 4V

11. Which of the following is the boiling point of water at 1500m above sea level?
A. 0 ^{0}C
B. 5 ^{0}C
C. 95 ^{0}C
D. 100 ^{0}C

Figure 3 is a diagram showing changes of states of matter. Use it to answer questions **12** and **13.**

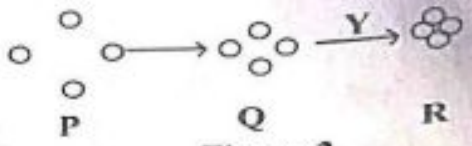

Figure 3

12. Identify the state of matter **Q.**
A. solid
B. gas
C. liquid
D. plasma

13. Which of the following is the process labelled **Y**?
A. melting
B. evaporation
C. condensation
D. freezing

14. Water is used as a coolant in the human body because it has
A. low temperature
B. high heat capacity
C. high specific heat capacity
D. high density

15. What is the amount of charge if a current of 0.02A flows for 5 seconds in a conductor?
A. 0.004C
B. 0.1C
C. 10C
D. 250C

16. Which of the following energy changes occurs in a thermocouple?
A. light to electrical
B. electrical to light
C. heat to electrical
D. electrical to heat

Continued/...

8. Which of the following is the density of a cube of mass 200g and length 5cm?
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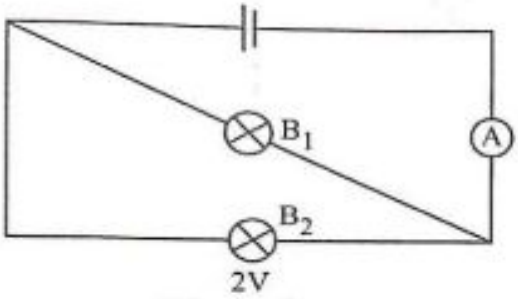

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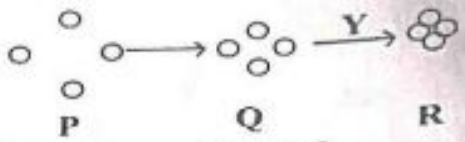

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Continued/...

Figure 4 shows a box being pulled on the floor. Use it to answer questions 17 and 18.

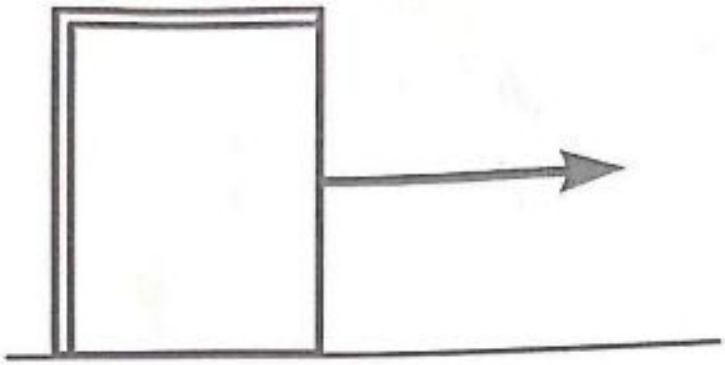


Figure 4

17. What is the direction of the frictional force?
A. right
B. left
C. up
D. down

18. Which of the following would happen to the box if the floor is polished?
A. accelerate
B. remains constant
C. decelerate
D. stop

19. Which of the following is the instrument used to measure electrical resistance?
A. ammeter
B. voltmeter
C. ohmmeter
D. galvanometer

20. Which of the following describes a nucleus which has released a beta radiation?
A. mass number increases
B. atomic number increases
C. mass number decreases
D. atomic number decreases

Continued/...

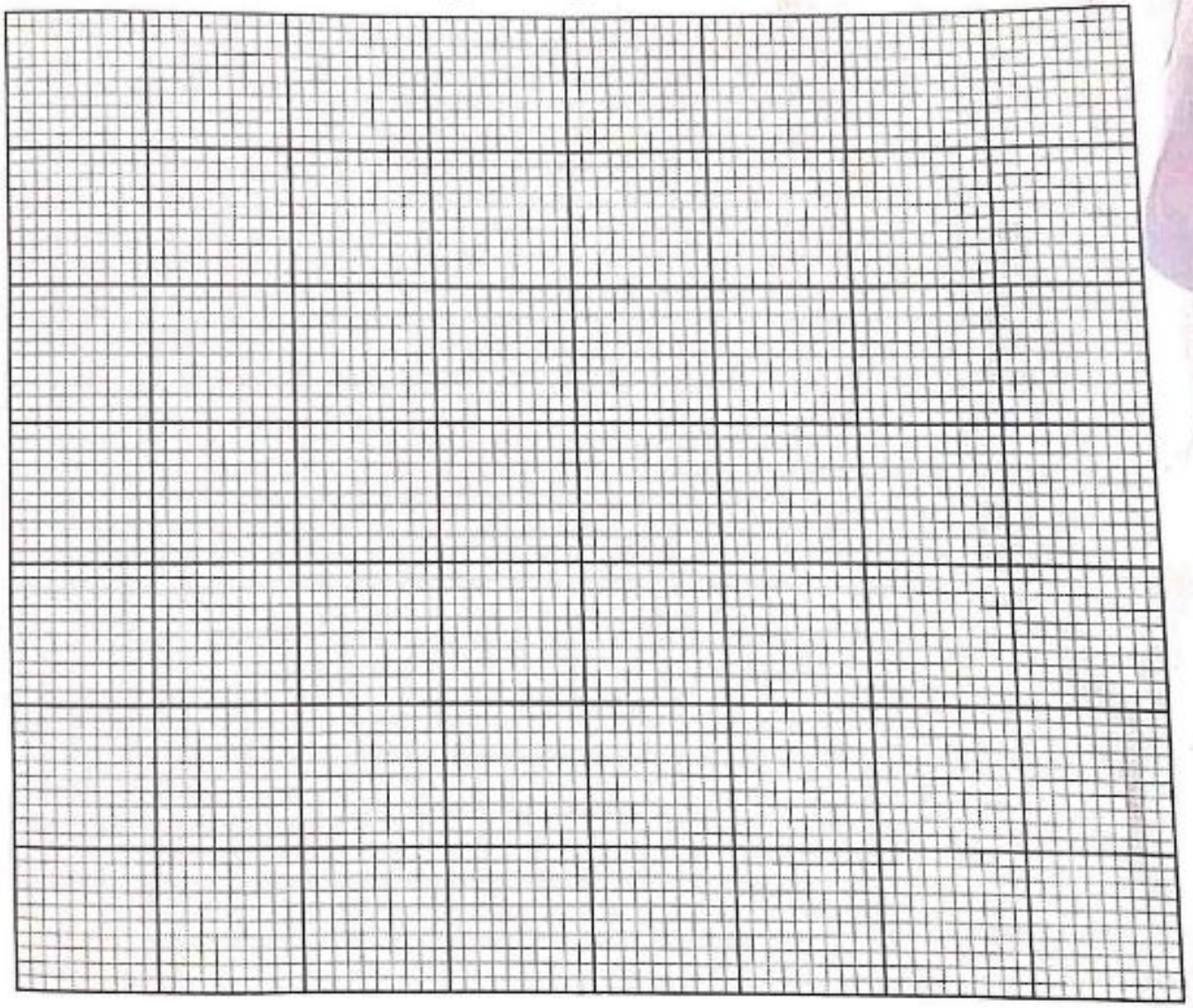
Section B (50 marks)

Answer **all** the questions in this section in the spaces provided.

21. The **table below** shows results obtained during an investigation.

Length (cm)	Current (A)
100	0.2
80	0.4
60	0.6
40	0.8
20	1.0

Plot a graph of current against length.



(4 marks)

Continued/...

22. a. State any **two** methods of heat transfer.

_____

_____

(2 marks)

b. How does increase in temperature affect density of a gas?

_____

_____

_____

_____

(4 marks)

23. a. State the principle of moments in levers.

_____

_____

(1 mark)

b. Give any **two** differences between mass and weight.

_____

_____

(2 marks)

c. State any **one** relationship between force and work.

_____

(1 mark)

24. a. Give any **two** devices that use magnets.

_____

_____

(2 marks)

b. Describe the existence of charges in an atom.

_____

_____

_____

_____

(4 marks)

Continued/...

25. a. State the law of reflection.

_____

_____

(1 mark)

b. Draw diagrams to represent each of the following beams:

(i). Parallel (1 mark)

(ii). Converging (1 mark)

(iii). Divergent (1 mark)

26. a. Give any **three** examples of first order levers.

_____

_____

_____

(3 marks)

b. State any **two** examples of transducers.

_____

_____

(2 marks)

Continued/...

27. a. State any **two** dangers of nuclear radiation.

_____

_____

(2 marks)

b. Describe the effect of magnitude of charges on electrostatic force.

_____

_____

(2 marks)

28. a. State any **one** method of studying Physics.

_____

(1 mark)

b. Why do grass thatched houses feel cooler in hot season and warmer in cold season?

_____

_____

_____

(3 marks)

29. a. What safety measure would you consider when handling hot objects in the laboratory?

_____

(1 mark)

b. Give any **two** factors to consider when carrying out a scientific investigation.

_____

_____

(2 marks)

c. Explain the formation of a rainbow in the air.

_____

_____

_____

(4 marks)

30. a. State the **two** types of charges.

_____

_____

(2 marks)

b. Describe the application of electrostatics in a lightning conductor.

_____

_____

_____

(4 marks)

Continued/...

Section C (30 marks)

Answer **all** the questions in this section in the spaces provided.

31. a. Describe an experiment that could be done to show the effect of sudden expansion and contraction of an egg.

(5 marks)

b. Describe an experiment that could be done to show the effect of length of an inclined plane on the effort required to raise a box.

(5 marks)

Continued/...

32. With the aid of a well labelled diagram, describe how a neutral ball could be charged positively by contact.

(10 marks)

Continued/...

33. a. With the aid of a well labelled diagram, explain the occurrence of a lunar eclipse.

(5 marks)

b. Describe an experiment that could be done to show that frictional force depends on size of the object.

(5 marks)

END OF QUESTION PAPER

NB: This paper contains 11 printed pages.

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