EDUCATOR EXAM SERIES

PHYSICS EXAM

FORM 1

TIME: 2HRS.

NAME:…….……ADM. NO:.……..…CLASS……

TIME: 2HRS.

INSTRUCTIONS TO CANDIDATES:

- Write your name, admission number and class in the spaces provided above.

- Mathematical tables may be used.

FOR EXAMINER'S USE ONLY:

QUESTION	MAXIMUM SCORE	CANDIDATE'S SCORE
1-33	**100**	

- *Earth's gravitational intensity=10N/kg*
- *Density of water= 1000kg/m^3*

1. Mention any two courses a student studying physics may undertake at college level. (2marks)

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2. State two items contained in a first aid kit found in the school laboratory (1mark)

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3. Wanja and Mwangi both students in form one measured the length of top cover of the teacher's locker using a meter rule and gave their answers as 33.25cm and 33.2cm respectively.

   i) Who got the correct answer between the two? (1mark)

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   ii) Give a reason for your answer in (i) above. (1mark)

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4. a) Distinguish between basic and derived quantities. (2mark)

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   b) Complete the table below (3marks)

	Fundamental quality	SI UNIT	SYMBOL
1		meter	m
2	Mass		kg
3	Time		
5		kelvin	

5. The mass of 25cm 3 of ivory was found to be 0.045kg. Calculate the density of ivory in SI units (3 marks)

6. Explain the following phenomena.

   a) Petrol road tankers usually have a metal chain hanging down to touch the ground?

(3marks)

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   b) The meniscus of water in a narrow tube curves downwards while that of Mercury curves upwards? (2 marks)

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7. A man has a mass of 70kg. Calculate

   i) His weight on earth where the gravitational strength is 10 N/kg (3 marks)

   ii) His weight on moon where the gravitational strength is 1.7 N/kg (2 marks)

8. Explain why the metal blades of a panga feels colder than the wooden handle when touched with a finger after exposure to low temperatures (2mks)

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9. The water level in a burette is 40.6cm³. 50 drops of water each of volume 0.2cm³are added to the water in the burette. What is the final reading of the burette? (3marks)

10. Explain the meaning of the following terms.

i) Diffusion. (1mark)

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ii) Sublimation (1mark)

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iii) Freezing. (1mark)

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11. a) Mention two applications of expansion and contraction in solids. (2marks)

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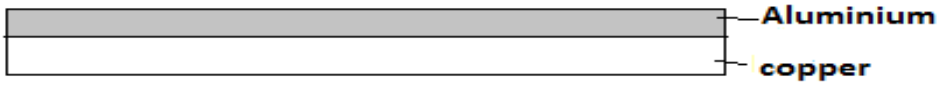
b} The figure below shows a bimetallic strip at a room temperature (25^0C)



Given the linear expansivity of Aluminium and copper are $0.000026K^{-1}$ and $0.0000168K^{-1}$,Draw the same bimetallic strip when at 90^0C (2marks)

12. Distinguish between luminous and non-luminous sources of light. (2marks)

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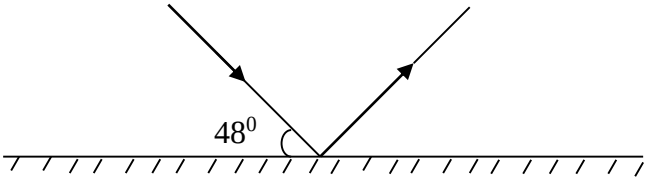
13. The figure below shows a ray of light being incident on a mirror



What is the angle of reflection (2maks)

14. Give three reasons why water is not a good thermometric liquid. (3marks)

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15. Explain briefly why a razor blade floats in water and when soap solution is carefully added to the water it sinks (2 marks)

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16. State two uses of a charged gold Leaf electroscope. (2marks)

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17. a) Define pressure and state its SI units. (2marks)

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b) A metal block of 5.5m long 3m wide and 0.5m thick has a mass of 60kg. Determine the

i) .Greatest pressure that can be exerted by the brick on the flat surface. (3marks)

i) Least pressure exerted by the brick. (3marks)

ii) The volume of the block in SI units (3marks)

iii) The density of the block. (3marks)

18. A)Describe a simple experiment to show that pressure in liquid increases as depth increases (3marks

19. Define the term magnification as used in mirrors (1marks)

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20. An object of height 5m is placed 10m away from a pinhole camera. Calculate:

a) The size of the image if its magnification is 0.01. (2marks)

b) The length of the pinhole camera (2marks)

21. State two laws of reflection (2marks)

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22. A student counted the number of images formed by two mirrors inclined at an angle in a local barber shop and found them to be 5 images. Determine the angle between the two mirrors. (3marks)

23. State two applications of plane mirrors. (2marks)

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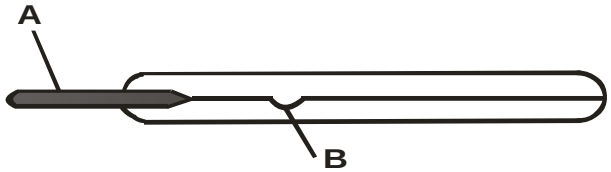
24. The figure below shows a clinical thermometer which is not graduated.



a) Name the parts indicated with letters A and B. (2 marks)

A …….

B……..

b) Explain the function of the part labelled B (1 mark)

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25. In a vacuum flask, the walls enclosing the vacuum are silvered. State the reason for this. (1mark)

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26. . State two factors that affect thermal conductivity. (2 marks)

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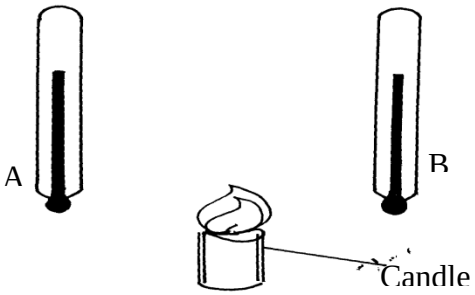
27. The Figure 2 shows two identical thermometers. Thermometer **A** has a blackened bulb while thermometer **B** has a silvery bulb. A candle is placed equidistant between the two thermometers



State with a reason the observations made after sometime (2 marks)

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28. The figure below shows a flask fitted with a glass tube into a beaker containing water at room temperature. The cork fixing the glass tube to the flask is air- tight.

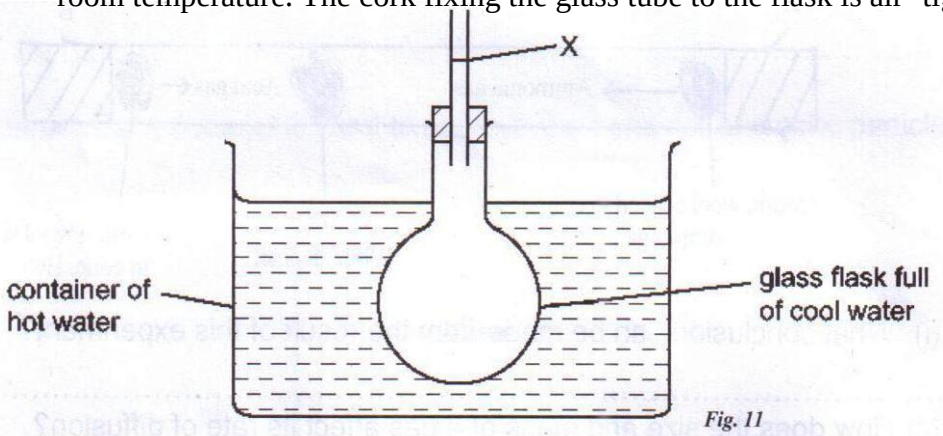

Fig. 11

i) State what is observed when the flask is heated. (1mark)

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ii) Explain the observation above (1mark)

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iii) Explain why the flask is heated using hot water and not a flame. (2marks)

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29. 100cm 3 of fresh water density 1000kg/m 3 is mixed with 100cm 3 of sea water of density 1030kg/m 3 . Calculate:-

i) Mass of fresh water. (2mark)

ii) Mass of sea water. (2mark)

iii) Mass of the mixture. (2mark)

iv) Volume of the mixture (2 mark)

v) The density of the mixture. (3mark)

30. Name a device used to measure current in the school laboratory,. 1mark

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31. A charge of 120 coulombs flow through a wire in every 1 minute. Calculate the current flowing through the lamp. (3marks)

32. Give two Differences between a primary cell and secondary cell in the table below (2marks)

Primary cells	Secondary cells
1.	
2.	

33. Draw an electric circuit symbol for each of the following devices. (2marks)

i) Cell

ii) Bulb filament.