THE UNITED REPUBLIC OF TANZANIA
NATIONAL EXAMINATIONS COUNCIL
DIPLOMA IN EDUCATION EXAMINATION

731 PHYSICS TEACHING METHODS

Time: 3 Hours ***Friday 15th February 2008 a.m.***

Instructions

1. This paper consists of sections A, B and C.
2. Answer **all** questions in sections A and B and **two (2)** questions from section C.
3. Cellular phones are **not** allowed in the examination room.
4. Write your **Examination Number** on every page of your answer booklet(s).

This paper consists of 3 printed pages.

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SECTION A (36 marks)

Answer **all** questions in this section.

1. Outline **four (4)** criteria for selecting teaching methods in Physics.

2. State **four (4)** procedures you would follow in teaching density and pressure by using the discussion strategy.

3. Differentiate between demonstration and experimentation in the Physics teaching process.

4. State **four (4)** characteristics that must be possessed by a good Physics teacher.

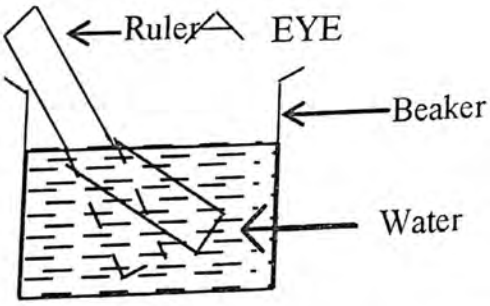
5. (a) Laboratory benches fall into **three (3)** main types. Mention them.

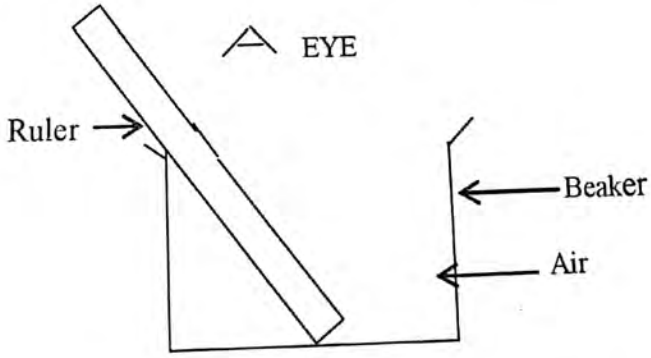
   (b) Among the benches mentioned in 5 (a) above state the type which is commonly used in schools.

6. Write **four (4)** features that must be possessed by good Physics reference materials.

7. State **four (4)** difficulties likely to be experienced by a teacher teaching without a lesson plan in the Physics classroom.

8. Study the following demonstration experiment done by a teacher in a school and then write the hypothesis of the given observations. Comment on the depth of water in the beaker as seen from above.





OBSERVATION	HYPOTHESIS
(a) Seen from above, the ruler appears to be bent/broken at the surface of water	(a) _____
(b) The bending of the ruler in water is upwards	(b) _____
(c) Seen from a certain angle, the far side of the ruler appears bigger	(c) _____

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9. Outline an experiment to determine acceleration due to gravity using a simple pendulum and comment on the speed of the pendulum.

SECTION B (40 marks)

Answer **both** questions in this section.

10. Write a lesson plan of 80 minutes that you would use to teach the topic Atmospheric Pressure to form I pupils using the activity method. Assume that you have a class of 45 pupils and you are provided with five sets of magdenburg hemispheres, a collapsible tin, a heater, enough water, two empty tins with covers and two syringes.

11. In Physics exercises and problems, the following terms/concepts are used: Find, calculate, state the law of and demonstrate. To each of the **four (4)** terms:

    (a) show clearly what the intended learner should be able to do as per given instruction.

    (b) provide a specific example for the usage of the term.

SECTION C (24 marks)

Answer **two (2)** questions from this section.

12. Account on how each of the following teaching/learning aids affect the teaching/learning of Physic in the classroom.

    (a) Textual references.

    (b) Chalkboard.

    (c) Models.

    (d) Graphs and illustrations.

13. (a) Explain briefly why an atom is electrically neutral.

    (b) All processes in static electricity can best be explained in terms of loss or gain of electrons. Explain.

    (c) When is a body said to be charged?

14. Prepare lesson notes for form I students on the topic Pressure in Liquids for a single period of 40 minutes.

15. Prepare a marking scheme of a maximum of 10 marks for the following question. A current of 3 A flows for 2 minutes through a wire of resistance 20 Ω. If the wire is totally immersed in a 0.1 kg of water in a can of heat capacity 40 J/K, calculate the temperature rise of the water. (c = 4200J/kg K for water).

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