UNIVERSITY OF ESWATINI

RE-SIT EXAMINATION PAPER

Semeter 2 2021

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TITLE OF PAPER: Curriculum Studies in Physics II

Course Code: CTE334

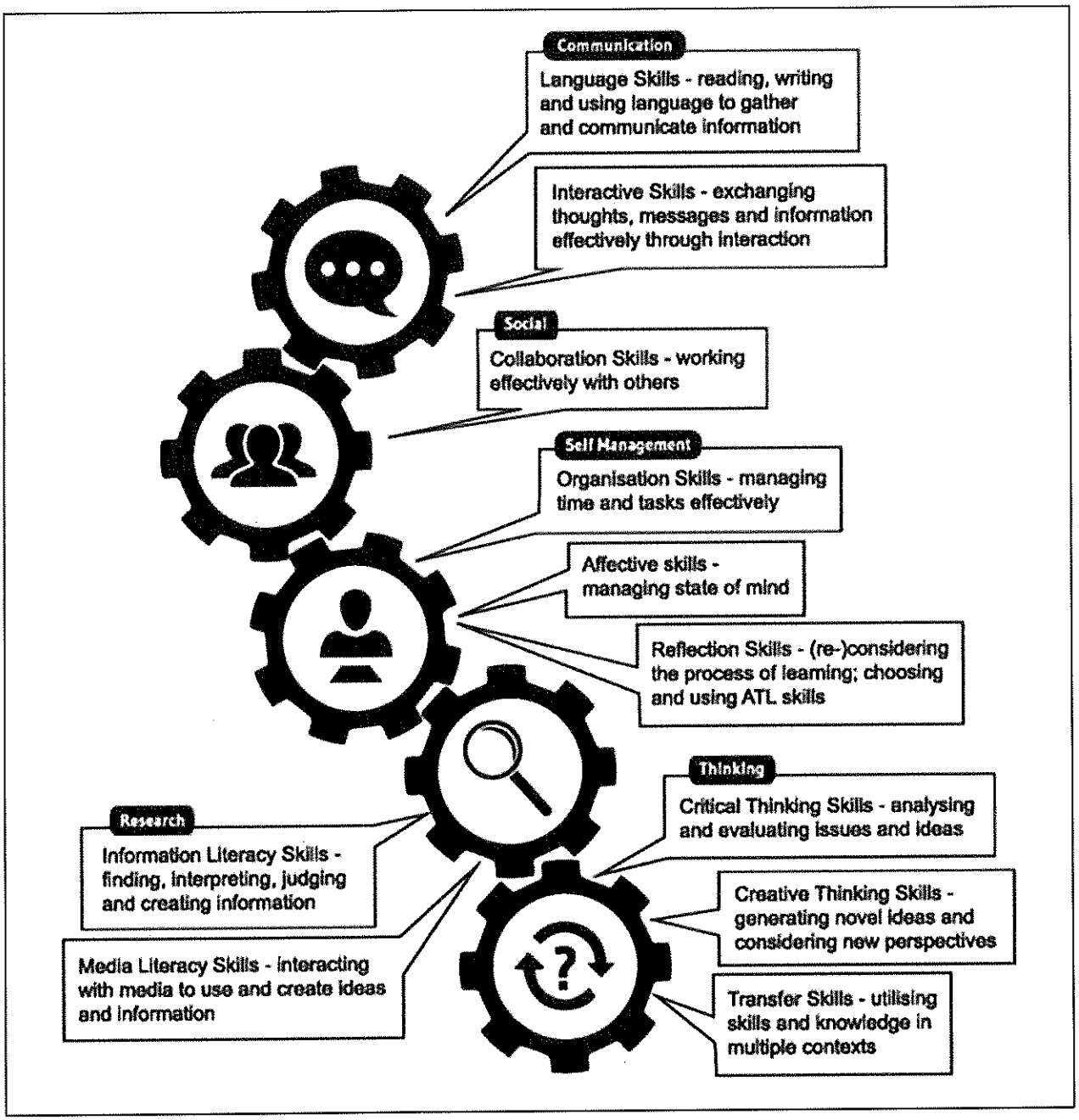
Time allowed: Three Hours

INSTRUCTIONS:

1. This paper contains five questions.
2. Answer ANY FOUR questions. Each question carries 25 marks.
3. Any piece of material not intended for marking purposes should be clearly CROSSED OUT.
4. Each question must be answered on a fresh page and numbered fully.
5. Graph paper is provided.

THIS PAPER SHOULD NOT BE OPENED UNTIL PERMISSION HAS BEEN GRANTED BY THE INVIGILATOR

Question 1 **COMPULSORY**



The diagram shows Approaches to Learning (ATL), a model that compares to Bloom's Taxonomy.

a. For each skill (Communication, Social, Self-management, Thinking, Research), **outline** activities you plan to achieve in one school term [5x2]

b. Briefly **compare and contrast** the ATL model and Blooms Cognitive objectives which are mainly used to develop subject curricula. [15]

[25 marks]

Question 2

You teach the topic 'What is Science' to a Form One class. Design five activities that a class of 20 can rotate in groups in a double period of 80 minutes. The activities should be such that the end they can show that:

a. Human sense of taste is not reliable [5]

b. Measurements must be repeated to reduce errors [5]

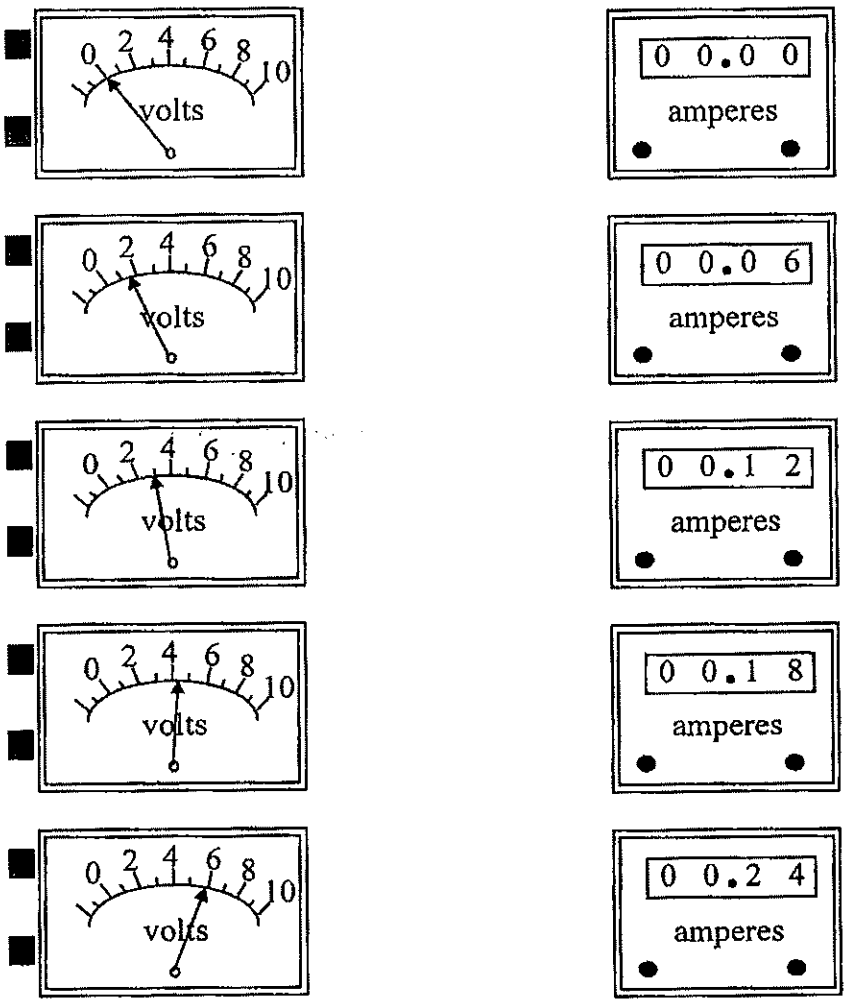
c. Science has limitations [5]

d. Scientific knowledge is tentative [5]

e. Indices and logarithms are essential in Physics. [5]

Question 3

For a class of 70 learners, a teacher photocopied diagrams of electrical meters measuring the current through a wire kept at a constant temperature and the potential difference across the wire. The diameter of the wire is $46\mu m$ and length 53.3cm



i. Outline three pedagogical benefits and weaknesses of this approach to a class of 70 at an underfunded school? [12]

ii. Draw an appropriate graph and determine the resistivity of the wire, given that $V = IR$ [8]

iii. Determine the resistivity ρ of tungsten given that $R = \frac{\rho l}{A}$ [5]

[25 marks]

Question 4

Sample situations from the practices of Teacher A and Teacher B are outlined in the following table:

Situation	Teacher A	Teacher B
1. Using Form 1 textbook, 'Water, water everywhere.'	Pupils read paragraphs aloud, in turn.	Pupils discuss water conservation ideas, water bill reading and costing.
2. Pupil asks, "sir, does water in a dam boil before evaporation	?" 'Eh eh, heat from the sun and moon causes evaporation to happen at all times'	'Evaporation takes place at all temperatures at all times of the day.'
3. Perfume sprayed in one corner of the classroom	'Soon, you will see the effect of diffusion of the smell.'	'In what ways does perfume travel to our noses?'
4. Is Pluto a planet in the solar system?	'Yes, Pluto is the farthest planet; it is very small.'	According to new developments, let's find out on the internet.

a. For each situation, make a critical comparison of the practices of teachers A and B. [20]

b. How would you have tackled such a lesson in your Form 1 class? [5]

[25 marks]

Question 5

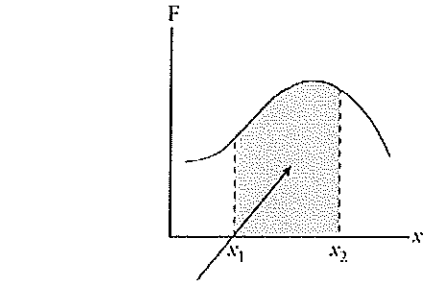
Explain the following situations of Newton's Second law to Secondary school students debating different conditions of the law.

a. constant mass, variable velocity as in a bullet shot from a gun, constant mass but experiences friction with the matter. [5]

b. Constant velocity, variable mass as in a hovering helicopter [5]

c. Variable mass and variable velocity as in a rocket thrust [5]

d. Explain to a class, how to calculate the work done by a variable force as shown in the graph below.



[5]

e. How could you demonstrate work done using the following equipment?
Force meter, 50-gram mass, chalk, chalkboard, stand and clamp. [5]

END