



# higher education & training

Department:  
Higher Education and Training  
**REPUBLIC OF SOUTH AFRICA**

## **NATIONAL CERTIFICATE CHEMICAL PLANT OPERATION N5**

(8050015)

**11 February 2022 (X-paper)  
09:00–12:00**

**Drawing instruments and nonprogrammable calculators may be used.**

**This question paper consists of 4 pages, a periodic table,  
a steam table and 2 information sheets**

185Q1E2211

**DEPARTMENT OF HIGHER EDUCATION AND TRAINING**  
**REPUBLIC OF SOUTH AFRICA**  
NATIONAL CERTIFICATE  
CHEMICAL PLANT OPERATION N5  
TIME: 3 HOURS  
MARKS: 100



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**INSTRUCTIONS AND INFORMATION**

1. Answer all the questions.
  2. Read all the questions carefully.
  3. Number the answers according to the numbering system used in this question paper.
  4. Diagram should be large, neat and fully labelled and may be done in pencil.
  5. Use only a blue or black pen.
  6. Write neatly and legibly.
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**QUESTION 1**



Give ONE word/term to correct the FALSE statements for each of the following descriptions. Write only the correct word/term next to the question number (1.1–1.5) in the ANSWER BOOK.

- 1.1 Potential energy is the energy of an object due to its state of movement or velocity. 
- 1.2 Kopp's rule refers to the amount of heat needed to raise the temperature of one gram of water from 14,5 °C to 15,5 °C.
- 1.3 The nozzle discharge centrifuge has a cylindrical bowl with a conical end section rotating about the horizontal axis. 
- 1.4 Bernoulli's principle states that the heat of any reaction is equal to the sum of the heat of formation of the products minus the sum of the heat of formation of the reactants.
- 1.5 A Banbury mixer is used for fine light powders such as insecticides.

(5 × 2)

**[10]****QUESTION 2**

Choose a description from COLUMN B that matches an item in COLUMN A. Write only the letter (A–F) next to the question number (2.1–2.5) in the ANSWER BOOK.

COLUMN A		COLUMN B	
2.1	Sensible heat	A	causes a change in state
2.2	Latent heat	B	burning with a blue flame
2.3	Incomplete combustion	C	cut diameter 
2.4	Complete combustion	D	cigarette lighters
2.5	Cyclone 	E	causes an immediate rise in temperature
		F	burning with a yellow flame

(5 × 1)

**[5]**