



higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE DIGITAL ELECTRONICS N5

(8080365)

**24 November 2022 (X-paper)
09:00–12:00**

Drawing instruments and nonprogrammable calculators may be used.

This question paper consists of 8 pages.

195Q1E2224

DEPARTMENT OF HIGHER EDUCATION AND TRAINING
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TIME: 3 HOURS
MARKS: 100

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. Start each section on a new page.
 5. Calculation processes and calculated answers must be given in THREE fractional radix spaces, for example: $10, 101_2$.
 6. Use only a blue or black pen.
 7. Write neatly and legibly.
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QUESTION 1

Various options are given as possible answers to the following questions. Choose the correct answer and write only the letter (A–D) next to the question number (1.1–1.10) in the ANSWER BOOK.



- 1.1 The Excess-3 BCD equivalent of the decimal number 729 is ...
- A 0111 0010 1001.
 - B 0111 0101 1100.
 - C 1010 0101 1100.
 - D 1010 0010 1001.
- 1.2 When the output of a counter using SR flip-flops changes from 1 to 0, the input must be ...
- A $S = X, R = 0.$
 - B $S = 0, R = 1.$
 - C $S = 0, R = X.$
 - D $S = 1, R = 0.$
- 1.3 The simplification of the Boolean expression $F_{ABC} = ABC + ABC + 1$ is ...
- A $ABC.$
 - B $ABC + ABC.$
 - C $ABC + 1.$
 - D $1.$
- 1.4 Which of the following is not part of the bipolar family?
- A I²L
 - B ECL
 - C NMOS
 - D TTL
- 1.5 *Fan out* is defined as ...
- A the maximum number of gate outputs that can be connected to a single gate input.
 - B the minimum number of gate outputs that can be connected to a single gate input.
 - C the maximum number of gate inputs that can be connected to a single gate output.
 - D the minimum number of gate inputs that can be connected to a single gate output.