

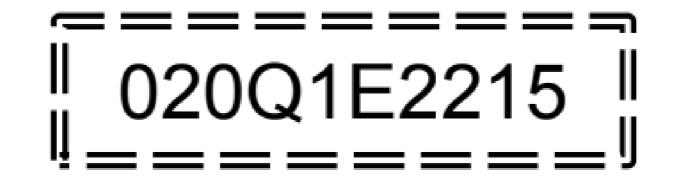
NATIONAL CERTIFICATE COMMUNICATION-ELECTRONICS N5

(8080235)

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

Drawing instruments and nonprogrammable calculators may be used.

This question paper consists of 5 pages and a formula sheet of 5 pages.



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DEPARTMENT OF HIGHER EDUCATION AND TRAINING REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE
COMMUNICATION-ELECTRONICS N5
TIME: 3 HOURS
MARKS: 100

INSTRUCTIONS AND INFORMATION

- Answer all the questions.
- 2. Read all the questions carefully.
- Number the answers according to the numbering system used in this question paper.
- 4. Start each section on a new page.
- 5. Use only a blue or black pen.
- 6. Write neatly and legibly.

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QUESTION 1: AC NETWORKS

1.1	A parallel LC-circuit consists of a variable capacitor in parallel with a 100 μH inductor. The inductor has an internal resistance of 12 Ω .		
	Calculate the following:		
	1.1.1	The capacitor value at resonance of 45 MHz	(3)
	1.1.2	The dynamic impedance	(2)
	1.1.3	How much capacitance must be added/subtracted to obtain resonance at 48 MHz	(4)
	1.1.4	The Q-factor of the circuit at both resonating frequencies	(4)
1.2	Derive th	ne equation for the Q-factor for the capacitor from first principles.	(10) [23]
QUESTION 2: GENERAL			
Choose the correct word or words from those given in brackets. Write only the answer next to the question number (2.1–2.8) in the ANSWER BOOK.			
2.1	At parall	el resonance circuit, the current is (maximum/minimum).	(1)
2.2		ibel is fundamentally a (a) (current/power) ratio that can be expressed of (b) (voltage/current) ratio when the resistances are equal.	(2)
2.3	An asymmetrical network is correctly terminated when it is terminated by its (image/iterative) impedances.		(1)
2.4	The prim	nary function of the RF amplifier is to provide (demodulation/selectivity).	(1)
2.5		waves are used in (a) (telecommunications/modulation) to convey (b) audio) signals.	(2)
2.6	***************************************	lation is the act of returning (modulated/unmodulated) data signals to ginal form.	(1)
2.7	AGC is o	of most importance in (AM/PM) receivers.	(1)
2.8	One dB	is the equivalent of (0,115/8,686) neper.	(1) [10]

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