



higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE COMMUNICATION-ELECTRONICS N5

15 NOVEMBER 2019

This marking guideline consists of 6 pages.

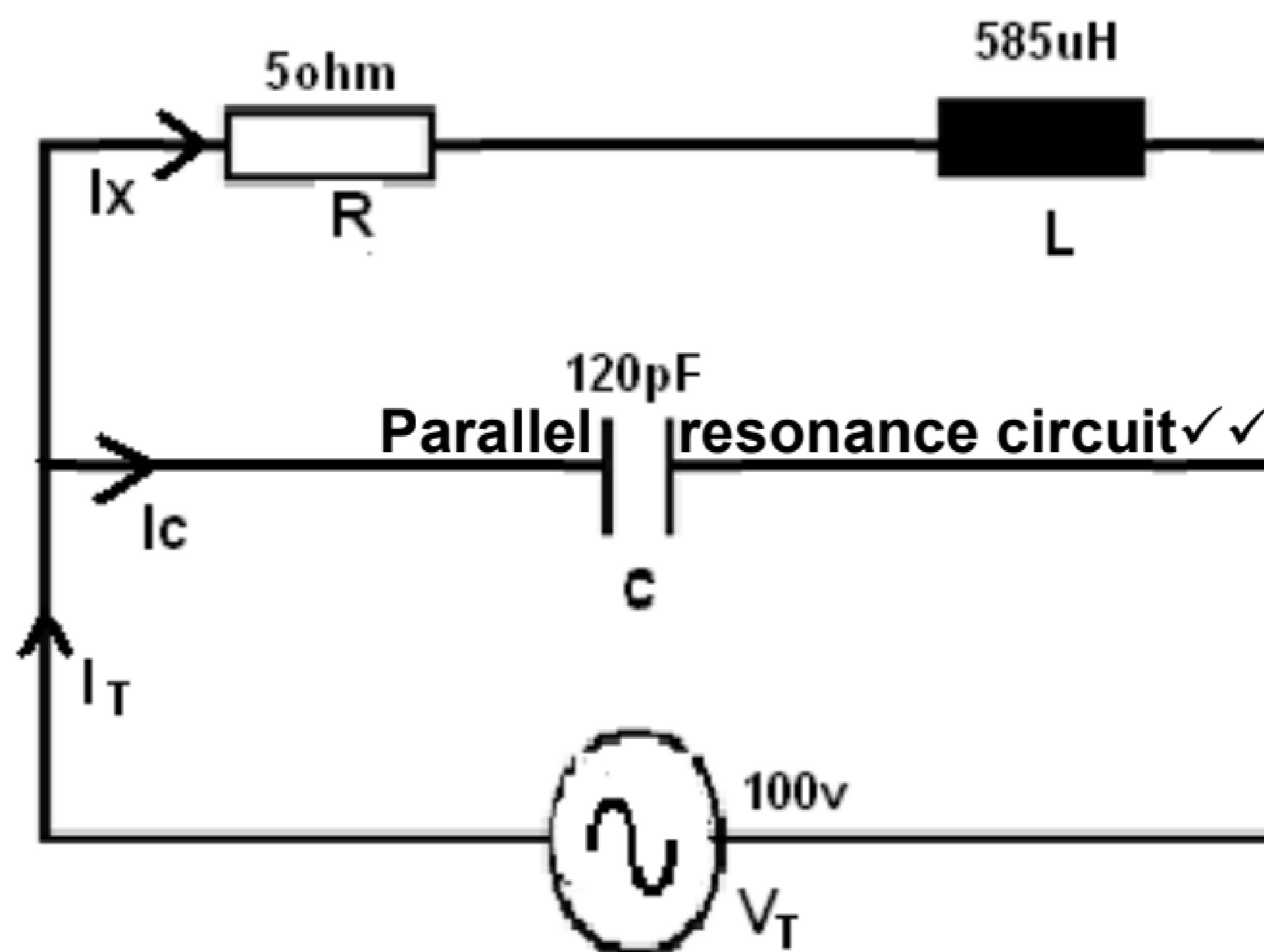
QUESTION 1

- 1.1 D
- 1.2 F
- 1.3 E
- 1.4 B
- 1.5 K
- 1.6 H
- 1.7 G
- 1.8 C
- 1.9 I
- 1.10 A

(10 × 1) [10]

QUESTION 2: AC NETWORKS

2.1 2.1.1



(2)

2.1.2

$$Z_d = \frac{L}{CR}$$

$$= \frac{585 \times 10^{-6}}{120 \times 10^{-12} \times 5} \checkmark$$

$$= 975 \text{ K}\Omega \checkmark$$

(2)

2.1.3

$$Q = \frac{1}{R} \sqrt{\frac{L}{C}}$$

$$= \frac{1}{5} \sqrt{\frac{585 \times 10^{-6}}{120 \times 10^{-12}}} \checkmark$$

$$= 442 \checkmark$$

(2)

2.1.4 $I_c = IQ$
 But $I = \frac{V}{Z_d}$
 $= \frac{100}{975 \times 10^3} \checkmark$
 $= 102,56 \mu A \checkmark$
 $\therefore I_c = 102,56 \times 10^{-6} \times 442 \checkmark$
 $= 45 \text{ mA} \checkmark$ (4)

2.1.5 $f_r = \frac{1}{2\pi\sqrt{LC}}$
 $= \frac{1}{2\pi\sqrt{585 \times 10^{-6} \times 120 \times 10^{-12}}} \checkmark$
 $= 601 \text{ kHz} \checkmark$ (2)

2.2 $Q = \frac{XL}{R}$
 And $XL = 2\pi fL$
 $= 2\pi \times 601 \times 10^3 \times 585 \times 10^{-6} \checkmark$
 $= 2209,36 \Omega \checkmark$ (2)

$\therefore Q = \frac{XL}{R}$
 $= \frac{2209,36}{5} \checkmark$
 $= 441,81 = 442 \checkmark$ (2)

2.3 The co-efficient of coupling is defined as the degree of coupling between the primary and secondary windings and also it is the ratio of mutual inductance to maximum inductance. (4)

2.1 2.4.1 (a) Primary
 (b) Impedance
 (c) Coupled
 (d) Reflected (4)

2.4.2 (a) Voltage
 (b) Current
 (c) Lags (3)

2.4.3 (a) Secondary
 (b) Induced
 (c) Winding (3)

[30]