higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE

RADIO AND TELEVISION THEORY N1

14 April 2021

This marking guideline consists of 6 pages.

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QUESTION 1

1.1 A
1.2 D
1.3 C
1.4 B
1.5 A

(5 × 1) **[5]**

QUESTION 2

2.1 True
2.2 True
2.3 True
2.4 False
2.5 True

(5 × 1) **[5]**

QUESTION 3

3.1 K
3.2 L
3.3 J
3.4 I
3.5 H
3.6 D
3.7 F
3.8 A
3.9 B
3.10 C

(10 × 1) **[10]**

QUESTION 4

4.1 $R_T = \frac{R_1 \times R_2}{R_1 + R_2} + R_3$ ✓

$= \frac{200}{30} + 5$ ✓

= 11,667 Ω✓✓ (4)

4.2 $I_T = \frac{V_T}{R_T}$ ✓

$= \frac{20}{11,667}$ ✓

= 1,714 A✓ (3)

4.3 $V_5 = I_T \times R_5$✓

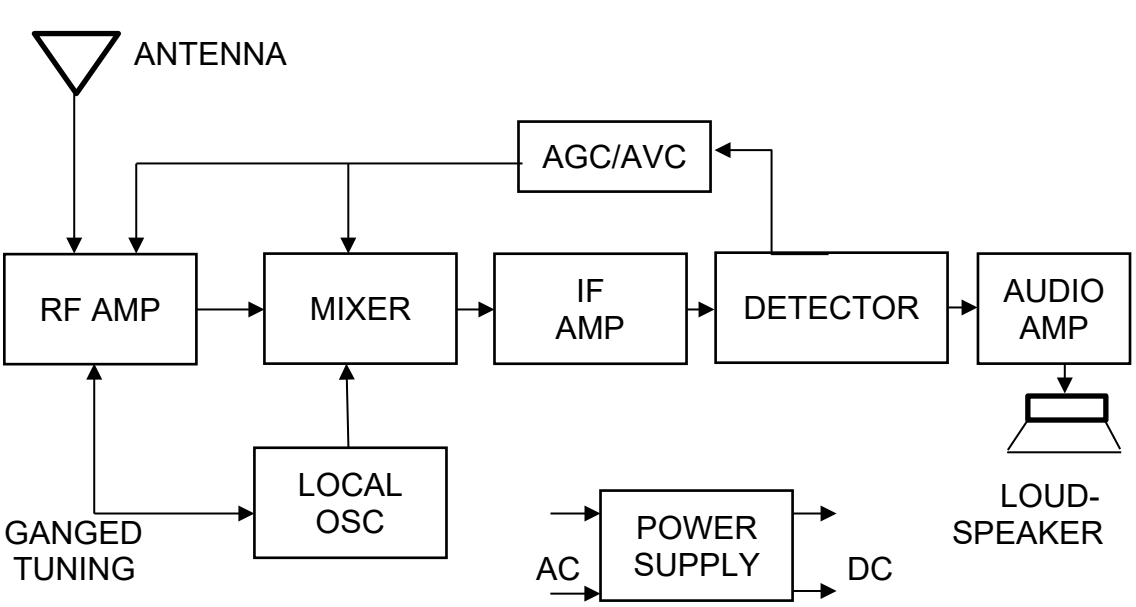
= 1,714 × 5 ✓

= 8,57 V✓ (3)

[10]

QUESTION 5

5.1



(10)

5.2 5.2.1 Mixer

5.2.2 Detector

5.2.3 Loudspeaker

(3 × 2) (6)

[16]

QUESTION 6

6.1 The brightness of information or light intensity

6.2 A black and white TV consisting of one single cathode driver

6.3 The transmission in a straight or direct line between the transmitter and receiver

6.4 The beat frequency between the vision and sound IF signal produce a 6 MHz sound signal at an intercarrier frequency.

6.5 The largest angle at which frequency is refracted back to earth

(5 × 2) **[10]**

QUESTION 7

7.1
- Electromagnetic deflection uses coils around the tube neck.
- Electrostatic deflection uses plates to deflect the beam. (2 × 2) (4)

7.2
- Probes are used for attenuation (X1 or X10)
- and as leads to measure voltages and signals. (2 × 1) (2)

[6]

QUESTION 8

8.1 The frequency of a wave is the number of cycles completed per second.

8.2 A period is the time taken to complete one cycle.

8.3 Frequencies that fall between two cut-off half-power points, and the amplitude of the signal falls to a value below 0,707 of the peak amplitude.

8.4 Cycle is that part of a wave between two successive points having the same value and at which the wave is varying in the same direction.

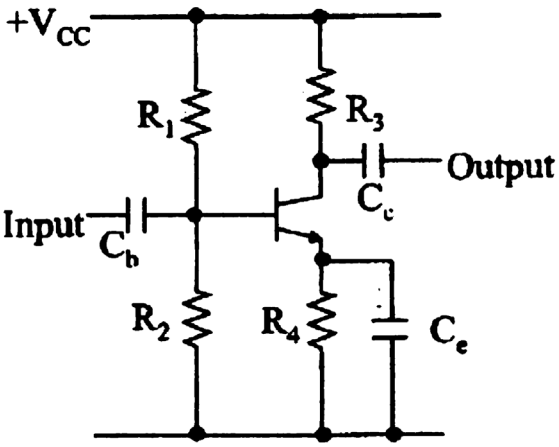
8.5 The length of the path travelled by the wave during one cycle.

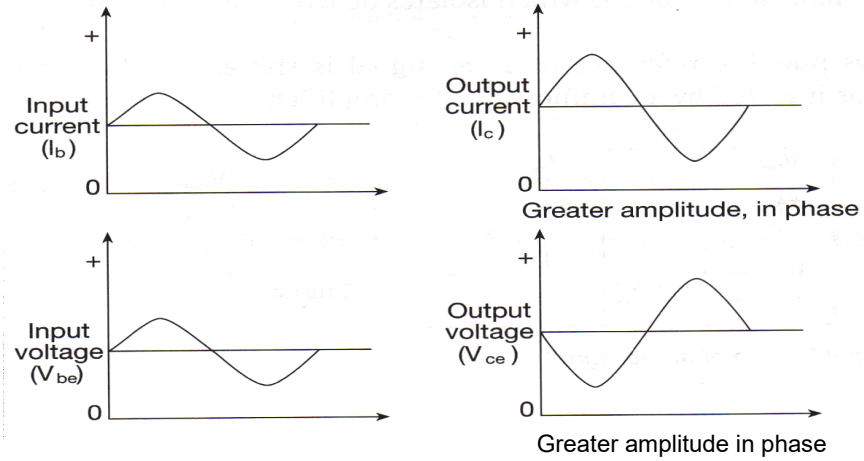
(5 × 2) **[10]**

QUESTION 9

- Volts/division
- Time/division
- Brightness
- Focus
- Y-shift
- X-shift
- Mode
- AC-DC ground (Any 5 × 1) **[5]**

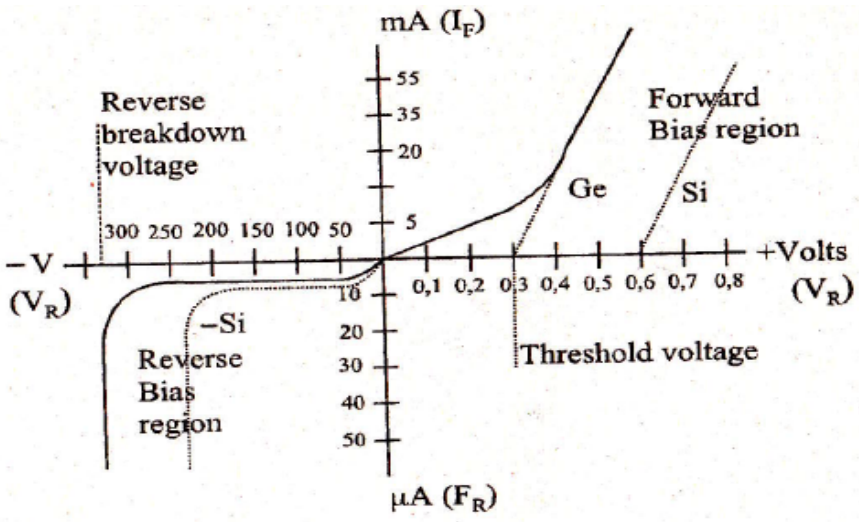
QUESTION 10





(5 marks for amp and 2 for waveforms) **[7]**

QUESTION 11



Characteristic curve of germanium and silicon diodes

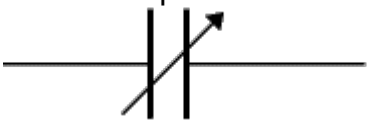
[10]

QUESTION 12

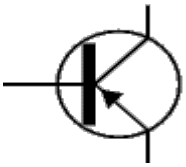
12.1 Zener diode



12.2 Variable capacitor



12.3 PNP transistor



(3 × 2) **[6]**

TOTAL: 100

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