higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE

RADIO AND TELEVISION THEORY N2

16 April 2021

This marking guideline consists of 5 pages.

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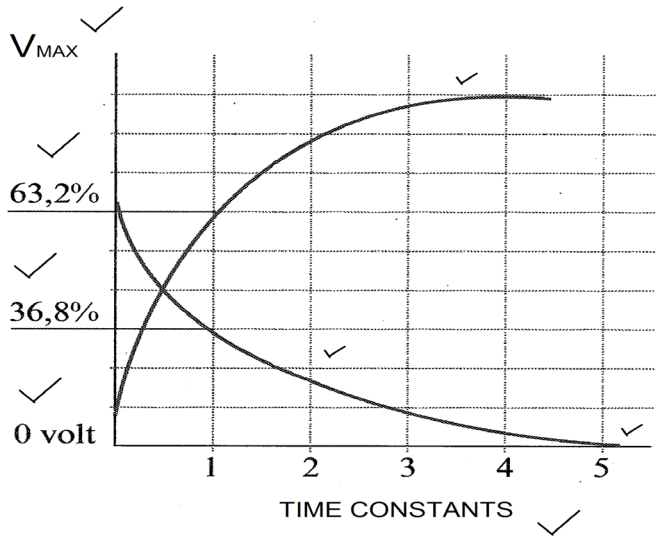
QUESTION 1

1.1 False
1.2 False
1.3 True
1.4 False
1.5 True
1.6 True
1.7 True
1.8 True
1.9 False
1.10 True
1.11 False
1.12 True
1.13 False
1.14 True
1.15 True

(15 × 1) **[15]**

QUESTION 2



[8]

QUESTION 3

3.1
- $X_L = X_C$
- $Z = \max imum$
- $\theta = 0^0$
- $Q = \frac{X_L}{R}$
- $I_T = \min imum$
- $V_L = V_C$

(Any 4 × 1) (4)

3.2 3.2.1

$X_L = 2\pi fL$

$= 2\pi \times 12 \times 10^3 \times 10 \times 10^{-3}$

$= \underline{753,98\Omega}$ ✓

$X_C = \frac{1}{2\pi fc} = \frac{1}{2\pi \times 12 \times 10^3 \times 10 \times 10^{-9}}$

$= \underline{1326,29\Omega}$ ✓✓

$Z = \sqrt{R^2 + (X_L - X_C)^2}$ ✓

$= \sqrt{500^2 + (1326,29 - 753,98)^2}$ ✓

$= \sqrt{250000 + 327538,736}$ ✓

$= \underline{759,96\Omega}$ ✓

$I = \frac{V}{Z} = \frac{20}{759,96} = \underline{26,3mA}$ ✓✓ OR 26,317 mA

(9)

3.2.2

$V_R = I \times R$ $V_L = I \times X_L$ $V_C = I \times X_C$

$= 26,3 \times 10^{-3} \times 500$ $= 26,3 \times 10^{-3} \times 753,98$ $= 26,3 \times 10^{-3} \times 1326,29$

$= \underline{13,158V}$ ✓✓ $= \underline{19,83V}$ ✓✓ $= \underline{34,88V}$ ✓✓

(6)

[19]

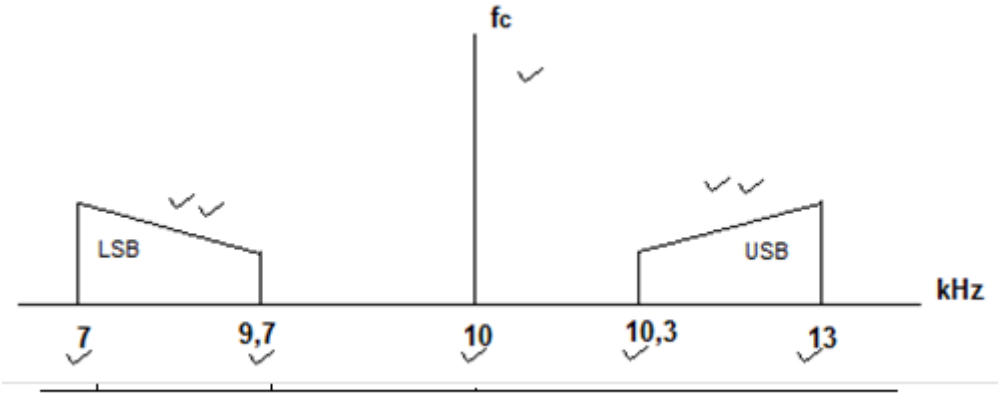
QUESTION 4

A – ∠ unity
B – high
C – high
D – ∠ unity
E – low
F – medium
G – medium
H – high
I – high
J – 180°
K – 0°

[11]

QUESTION 5

5.1

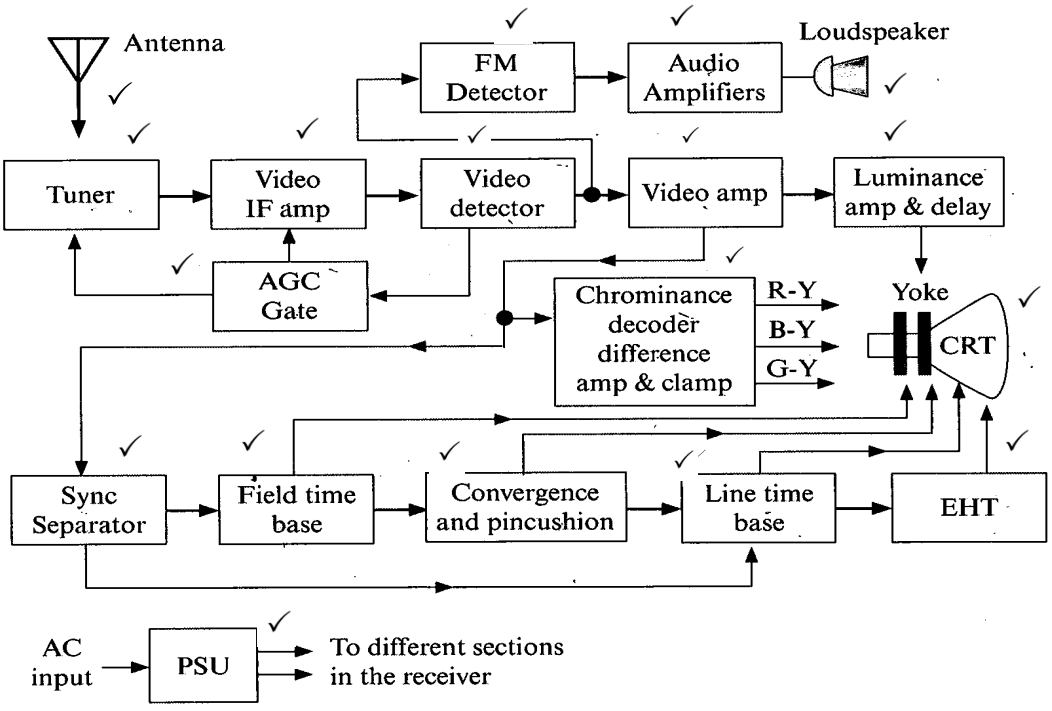


(10)

5.2
- FM = 10,7 MHz
- AM = 455 KHz

(2)
[12]

QUESTION 6



[18]

QUESTION 7

- Cathode ray tube.
- Vertical amplifier.
- Horizontal amplifier.
- Delay line.
- Trigger circuit.
- Time base generator.
- Power supply unit. **[7]**

QUESTION 8

- Familiarise yourself with the normal state of the equipment.✓
- Do not speculate on the problem.✓ Work step by step to find the fault.✓
- Remove dust from the equipment. In television receivers, dust can make your fault- finding procedures difficult.✓
- Inspect the equipment before attempting to find the fault.✓ There are normally three quick checks that can be carried out: smell, look, and listen.✓
- Be patient. The equipment is not going to tell you what is wrong or where the fault is, you must locate and repair it yourself.✓
- If in doubt, ask. You cannot know everything.✓
- Record the located fault.✓ Develop a system of bookkeeping where all faults located✓ in various equipment are recorded. **[10]**

TOTAL: 100

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