higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE

APRIL EXAMINATION

RADIO AND TELEVISION THEORY N1

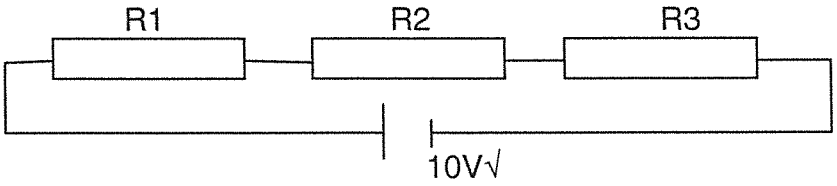
24 MARCH 2013

This marking guideline consists of 7 pages.

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QUESTION 1

1.1



√

(2)

1.2 1.2.1 $R_T = R_1 + R_2 + R_3$

$= 10 + 20 + 60\surd$

$= 90\ \Omega\surd$

1.2.2 $I_T = \frac{V_T}{R_T}$

$= \frac{10}{90}\surd$

$= 0{,}111\ A\surd$

1.2.3 $V_{R_1} = I_T \times R_1$

$= 0{,}111 \times 10\surd$

$= 1{,}11\ V\surd$

1.2.4 $V_{R_2} = I_T \times R_2$

$= 0{,}111 \times 20\surd$

$= 2{,}22\ V\surd$

1.2.5 $P = VI$

$= 10 \times 0{,}111\surd$

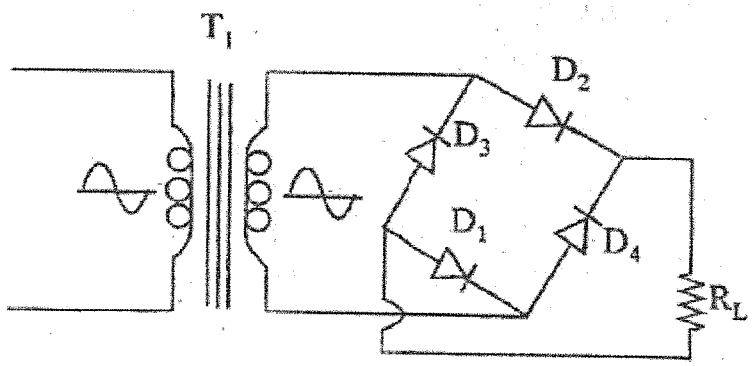
$= 1{,}11\ W\surd$

(5 × 2) (10)
[12]

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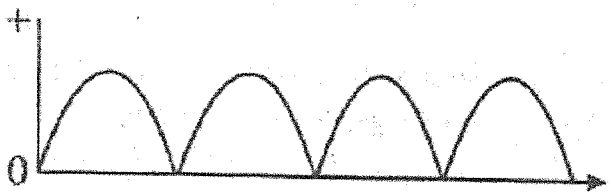
QUESTION 2

2.1



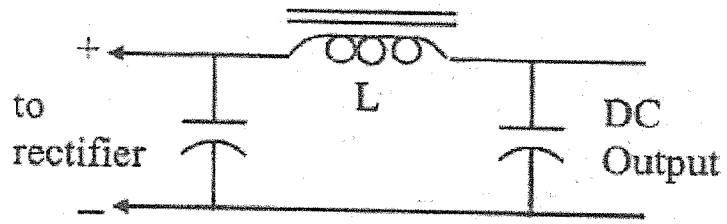
(5)

2.2



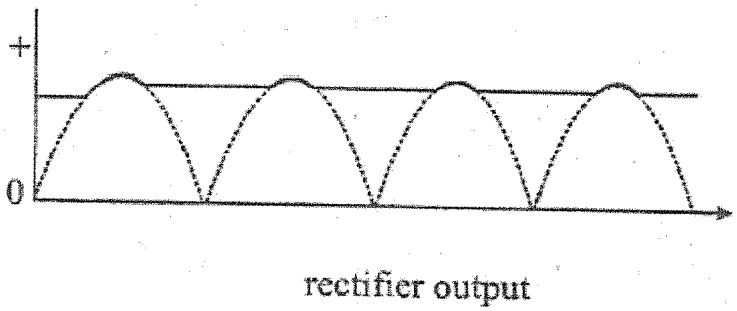
(4)

2.3



(5)

2.4



(2)

2.5
- The filter circuits smooth out the pulsation in amlitude (AC ripple) of the rectfier output voltage. √ √
- Filter capacitors oppose any change in the voltage applied across them by storing up energy in an electric field√ √ (4)

[20]

QUESTION 3

3.1 RF stage – its main purpose to select the required frequency and amplification.√ √

3.2 Modulation – process of heterodyning the modulation frequency and the carrier wave for transmission purpose.√ √

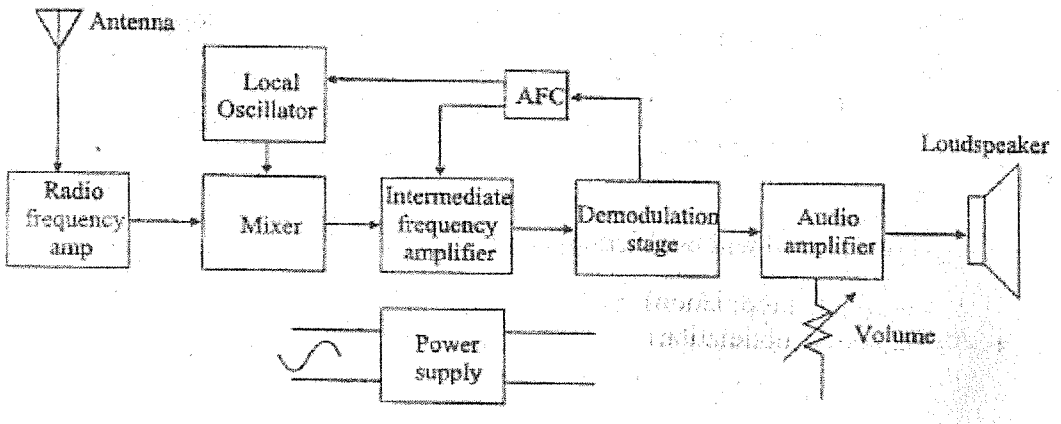
3.3 Mixer – a process used to produce the intermediate frequency (IF).√√

3.4 AM – the amplitude of a radio-frequency carrier wave vary in accordance with the instantaneous value of modulating frequency.√ √

3.5 FM – the frequency of a radio-frequency carrier wave vary in accordance with the instantaneous value of modulating frequency.√√

(5 × 2) **[10]**

QUESTION 4



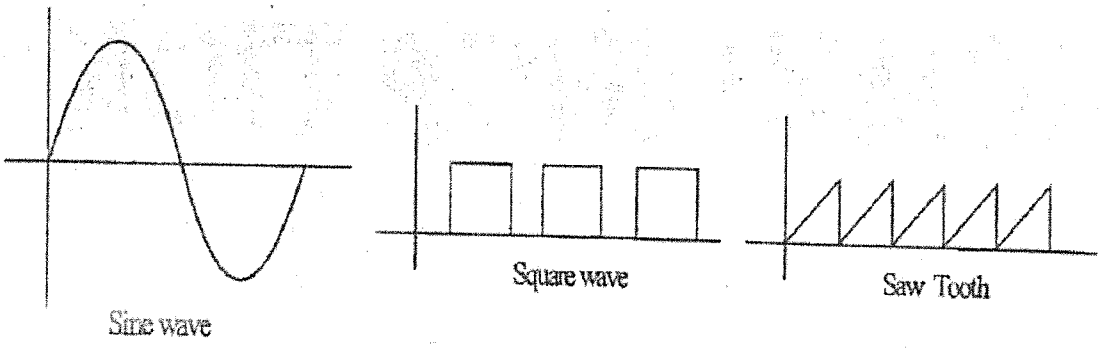
BLOCK DIAGRAM OF FM RECEIVER

[10]

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QUESTION 5

5.1

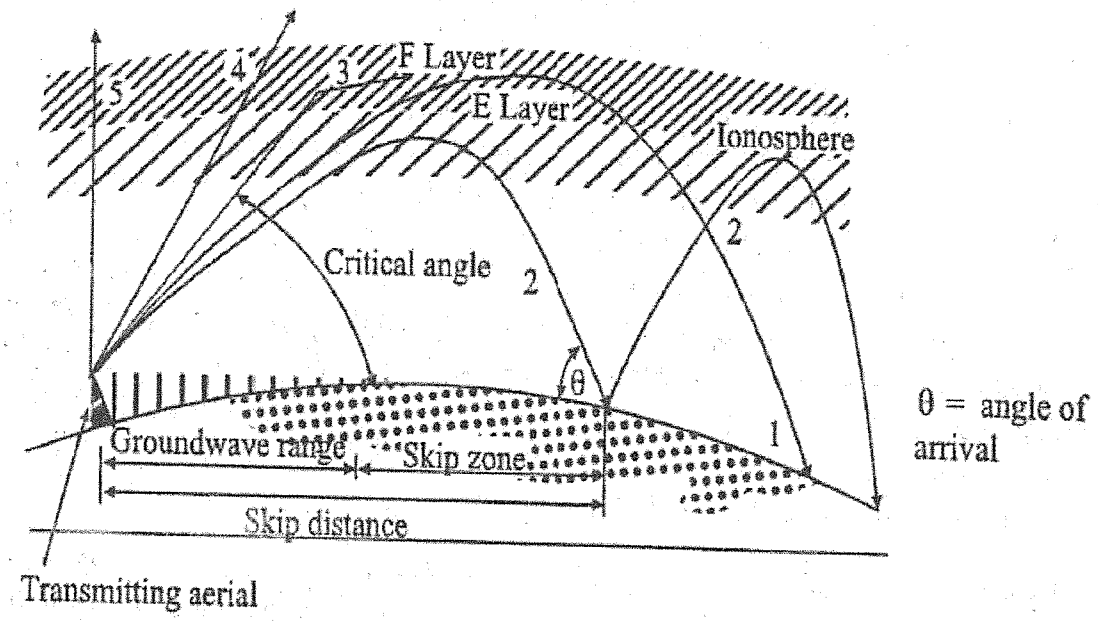


(6)

5.2
- Sine waves are used for transmission of radio on various transmitting bands √√ or testing of electronics.
- Square waves are used in digital electronic switching pulses to switch circuits in computers √√
- Saw tooth waveform is used for scanning cathode ray tubes and timing circuits. √√

(6)
[12]

QUESTION 6



Various sky-wave transmission paths

[10]

QUESTION 7

7.1 EHT supplies with extra high tension voltage of kilovolts in the CRT to accelerate the electron beams√√

7.2 Power supply supplies voltage and with electrical current to different circuits in the TV.√√

7.3 Antenna changes electromagnetic wave to electrical current signal√√

7.4 IF amplifier is used to amplify the output IF from the mixer√√

7.5 Video amp is used to magnify the output video IF to drive the cathodes of the CRT√√

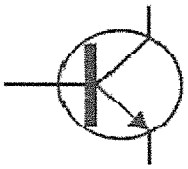
(5 × 2) **[10]**

QUESTION 8

8.1 

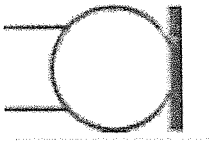
8.2 

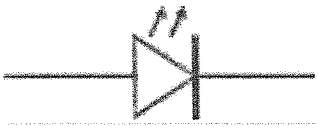
8.3 

8.4 

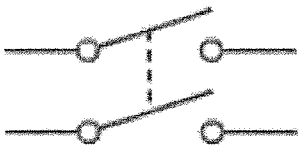
8.5 

8.6 

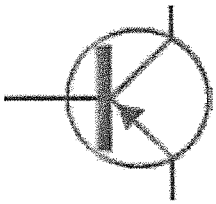
8.7 

8.8 

8.9 

8.10 

8.11 

8.12 

(12 × 1) **[12]**

QUESTION 9

9.1 False

9.2 True

9.3 True

9.4 True

(4 × 1) **[4]**

TOTAL: 100

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