

Scheme G
Sample Test Paper-I

Course Name : Diploma in Electronics & Video Engineering Group

Course Code : EV

Semester : Fourth

17437

Subject Title : Radio Reception

Marks : 25

Time: 1 Hour

Instructions:

1. All questions are compulsory.
2. Illustrate your answers with neat sketches wherever necessary.
3. Figures to the right indicate full marks.
4. Assume suitable data if necessary.
5. Preferably, write the answers in sequential order.

Q1. Attempt any THREE of the following.

(9 Marks)

- a. Draw Frequency Spectrum of Electromagnetic waves.
- b. Define VSWR and reflection coefficient related to transmission line
- c. Distinguish Resonant and Non resonant Antenna. (Any three points)
- d. Draw a sketch showing tropospheric scatter propagation and write it's working principle.
- e. Define terms attenuation and absorption.

Q2. Attempt any TWO of the following.

(8 Marks)

- a. Define the terms critical Frequency and maximum usable frequency.
- b. Draw Equivalent circuit of Transmission line at low frequency and Radio frequency.
- c. Draw constructional Sketch of Half wave dipole antenna and draw its radiation pattern.

Q3. Attempt any two of the following.

(8 Marks)

- a. Define characteristics of transmission line. when is the input impedance of transmission line becomes equal to characteristics of transmission line.
- b. Describe radiation and conduction losses in transmission lines.
- c. Define the term standing wave ratio. Why is a high value of SWR often undesirable?

Scheme G
Sample Test Paper-II

Course Name : Diploma in Electronics & Video Engineering Group

Course Code : EV

Semester : Fourth

17437

Subject : Radio Reception

Marks : 25

Time : 1 Hour

Instructions:

1. All questions are compulsory.
2. Illustrate your answers with neat sketches wherever necessary.
3. Figures to the right indicate full marks.
4. Assume suitable data if necessary.
5. Preferably, write the answers in sequential order.

Q1. Attempt any THREE of the following. (9 Marks)

- a. Define the terms Directivity, Bandwidth and Beam width related to antennas
- b. Define the terms Sensitivity and selectivity for radio receiver.
- c. Draw simple AGC circuit for radio receiver.
- d. State the concept of AFC.
- e. Draw block diagram of tuned radio receiver.

Q2. Attempt any TWO of the following. (8 Marks)

- a. Draw constructional sketch of Yagi Uda Antenna and state the role of Reflector and Director
- b. Draw circuit of Practical Diode Detector and write it's working principle with waveforms
- c. Draw the circuit diagram of PLL based FM Demodulator and write it's working

Q3. Attempt any two of the following. (8 Marks)

- a. Describe the working principle of Parabolic reflector antenna with casse grain feed
- b. Draw block diagram of Super heterodyne receiver and describe in brief function of any 2 block.
- c. Draw circuit diagram of Ratio detector and state the advantages of Ratio detector over other types of FM Demodulators.

Scheme G
Sample Question Paper

Course Name : Diploma in Electronics & Video Engineering Group

Course Code : EV

Semester : Fourth

17437

Subject : Radio Reception

Marks : 100

Time: 3Hrs.

Instructions:

1. All questions are compulsory
2. Illustrate your answers with neat sketches wherever necessary
3. Figures to the right indicate full marks
4. Assume suitable data if necessary
5. Preferably, write the answers in sequential order

Q1 A. Attempt any SIX

(12 Marks)

- a. State different types of radio wave propagation
- b. What are the effects of different ionospheric layers on sky waves.
- c. A lossless transmission line has a shunt capacitance of 100pF/m and series inductance of 4mH/m. What is its characteristics impedance?
- d. Define beamwidth for antenna
- e. Draw the constructional sketch of Yagi Uda Antenna.
- f. Define Intermediate frequency in AM Receiver.
- g. Draw the input and output waveforms of Practical diode detector.
- h. Justify how to increase the sensitivity FM Receiver.

Q1 B. Attempt any TWO

(08 Marks)

- a. Define angle of tilt in ground wave propagation and draw corresponding diagram.
- b. Describe the term reflection co-efficient and VSWR in standing wave.
- c. Can PLL be used as a demodulator? Justify your answer.

Q2. Attempt any FOUR**(16 Marks)**

- a. Describe the space wave propagation with the help of diagram
- b. Draw the equivalent circuit of transmission line at low frequency and radio frequency.
- c. Compare resonant and non resonant Antenna on bases of
 - i) Basic Concept
 - ii) Applications
- d. Draw constructional sketch of loop Antenna and draw its radiation pattern.
- e. With the block diagram, describe the function of tuned radio receiver.
- f. Describe the operation of Amplitude limiter with the help of circuit diagram.

Q3. Attempt any FOUR**(16 Marks)**

- a. What is fading? List it's major causes.
- b. Describe the purpose of short length transmission line for open and short circuit.
- c. Write the concept of Hertzian dipole and draw its radiation pattern
- d. With the help of diagram, write the working principle of Horn type Antenna.
- e. Describe the importance of AGC in AM receiver with the help of simple circuit.
- f. Draw the circuit diagram of balance slope detector and write its working principle.

Q4. Attempt any FOUR**(16 Marks)**

- a. Define the terms Attenuation and absorption.
- b. Describe the radiation and dielectric losses in transmission line.
- c. Draw the constructional sketch of broad side array antenna and describe its working with radiation pattern.
- d. Describe the effects of image signal on radio receiver. Describe the methods of rejecting the image signal frequency.
- e. State the various factors influencing the choice of intermediate frequency for radio receiver.
- f. Draw the block diagram of FM radio receiver. State the various frequencies or frequency ranges used in FM radio receiver.

Q5. Attempt any FOUR**(16 Marks)**

- a. Describe the virtual and actual height in sky wave propagation.
- b. Define the standing wave ratio. State the formula for it if the load is purely resistive.
- c. Compare focal feed and cassegrain grain feed parabolic reflector on the basis of diagram and feed mechanism.
- d. Describe the frequency tracking in AM radio receiver.
- e. The RF alignment in AM radio receiver is absent. What is the effect on the output of AM radio receiver?
- f. Describe the term AFC and its necessity for FM radio receiver.

Q6. Attempt any FOUR**(16 Marks)**

- a. Describe working principle of transmission line and describe the balance line with diagram.
- b. With the help of mathematical expression, describe the term directive gain and directivity of the antenna.
- c. Draw the constructional sketch of phased array and describe its working with radiation pattern.
- d. Describe the importance of frequency tracking in AM receiver.
- e. Define the term fidelity and dynamic range of AM receiver.
- f. Compare Foster- Seelay discriminator detector and Ratio detector on the bases of their circuit diagram and working principle.