Register No.: [ ]

707

April 2023

Time – Three hours
(Maximum Marks: 100)

N.B. 1. Answer all questions under Part-A. Each question carries 3 marks.
2. Answer all the questions either (A) or (B) in Part-B. Each question carries 14 marks.

PART – A

1. Draw the circuit diagram of constant – K band pass filter and give the expression for its circuit elements.
2. Define antenna array. Mention its types.
3. What is the need for modulation?
4. Draw the waveform representation of amplitude modulation and indicate its various values on it.
5. Represent FM in Time domain.
6. Write the expression for the modulated carrier voltage and instantaneous frequency of FM wave.
7. State sampling theorem.
8. Define PCM. State the applications of it.
9. In what principle Moving coil microphone is working?
10. What do you mean by Composite video signal? What are the contents of it in Monochrome TV?

PART – B

11 A) (i) Draw the structure of Monopole antenna and dipole antenna. Explain its working. (8)
(ii) Define (a) Critical frequency (b) MUF (c) Skip distance (6)

(OR)

B) (i) What are the various types of Wave Propagation? State their frequency range of operation, advantages and applications. (9)
(ii) Differentiate between directional antenna and Omni directional antenna. (5)

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12 A) (i) What do you mean by Modulation index in AM? What will be its range for faithful reproduction? (4)
(ii) Draw the block diagram of SSB AM Transmitter. Explain the working of each block. (10)

(OR)

B) (i) What do you mean by VSB Modulation? Why we need it? What are its merits and limitations? (8)
(ii) Compare Low level AM modulation and High level AM modulation. (6)

13 A) (i) Draw the frequency spectrum of FM. Explain how modulation index affects it. (8)
(ii) Define modulation index in FM. Compare the modulation index of AM and modulation index of FM (6)

(OR)

B) (i) Define Frequency modulation. Draw the structure of FM wave and write the expression for the Frequency modulated carrier. (10)
(ii) List out advantages and disadvantages of FM modulation (4)

14 A) (i) Define Pulse modulation. What are the advantages of Pulse modulation? (4)
(ii) Explain the generation of PAM. Draw its input and output waveforms. (10)

(OR)

B) (i) Explain the generation of PPM. Draw its input and output waveforms. (10)
(ii) Differentiate between PWM and PPM. (4)

15 A) (i) What do you mean by Microphone? What are the various types of it? (4)
(ii) Explain the construction, principle and working of Carbon microphone. (10)

(OR)

B) (i) List out the various TV standards. State the value of Horizontal and Vertical scanning frequency according to CCIR B TV standard. (8)
(ii) What is the drawback of Progressive scanning? What is the remedy for it? (6)
