

**DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/
MANAGEMENT/COMMERCIAL PRACTICE, NOVEMBER – 2020**

COMMUNICATION ENGINEERING

[Maximum Marks: 75]

[Time: 2.15 Hours]

PART-A

(Answer *any three* questions in one or two sentences. Each question carries 2 marks)

- I. 1. List the different layers of ionosphere.
2. Define frequency modulation.
3. State the Sampling theorem.
4. Define signal to noise ratio.
5. State the need of limiter in FM receiver. (3 x 2 = 6)

PART-B

(Answer any *four* of the following questions. Each question carries 6 marks)

- II 1. Define critical frequency, MUF and skip distance.
2. Explain ground wave propagation with suitable figure.
3. Illustrate the frequency spectrum of AM.
4. Describe pre-emphasis and de-emphasis in radio transmitter.
5. Explain AFC in FM generation with necessary block diagram.
6. Explain the demodulation of AM using diode detector with necessary circuit diagram.
7. Compare AM receiver and FM receiver. (4 x 6 = 24)

PART-C

(Answer *any of the three units* from the following. Each full question carries 15 marks)

UNIT – I

- III (a) Explain half wave dipole with suitable figure. (9)
(b) With necessary diagram, explain space wave propagation. (6)

OR

- IV (a) Describe the working of parabolic antenna with suitable diagram. (9)
(b) Explain reflection and refraction of waves with necessary figures. (6)

UNIT – II

- V (a) With necessary circuit diagram, explain the working of Balanced modulator. (9)
(b) Illustrate PAM and PWM waveforms. (6)

OR

- VI (a) Derive the expression for AM wave. (9)
(b) Explain the need for modulation. (6)

UNIT- III

- VII (a) With necessary block diagram, explain indirect FM transmitter. (9)
(b) State the different measures adopted to improve signal to noise ratio. (6)

OR

- VIII (a) Describe the function of each block in AM transmitter block diagram. (9)
(b) Explain the different types of external noise in communication system. (6)

UNIT - IV

- IX (a) Explain the operation of FM radio receiver with necessary block diagram. (9)
(b) Explain the criteria for choosing IF in super heterodyne receiver. (6)

OR

- X (a) Explain super heterodyne AM receiver with the help of a block diagram. (9)
(b) Explain any three characteristics of a radio receiver. (6)
