

CMR ENGINEERING COLLEGE: : HYDERABAD

UGC AUTONOMOUS

III-B.TECH-II-Semester End Examinations (Supply) - December- 2025

PRINCIPLES OF ELECTRONIC COMMUNICATIONS

(Common for CSE, IT, CSD, CSC)

[Time: 3 Hours]

[Max. Marks: 60]

Note: This question paper contains two parts A and B.

Part A is compulsory which carries 10 marks. Answer all questions in Part A.

Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART-A**(10 Marks)**

1. a) Define Modulation? [1M]
- b) What is frequency translation? [1M]
- c) List the applications of PAM. [1M]
- d) List the losses occurred in delta modulation. [1M]
- e) What is Satellite? [1M]
- f) Define orbital period. [1M]
- g) What is the numerical aperture of a fiber? [1M]
- h) Define acceptance angle. [1M]
- i) What is WiMAX, and what are its main applications? [1M]
- j) Give any two differences between CDMA and WCDMA. [1M]

PART-B**(50 Marks)**

- 2.a) Discuss the need for modulation. [7M]
- b) If a signal of frequency 20KHz to transmit through an antenna, calculate the wavelength? [3M]

OR

- 3.a) Explain the Electromagnetic spectrum. [7M]
- b) Define Gain and mention its types. [3M]

4. Explain QPSK modulation and demodulation. [10M]

OR

5. Draw and explain amplitude modulated waveforms for different modulation index, discuss aliasing effect and how to overcome it? [10M]

6. Describe the role of different satellite subsystems. [10M]

OR

7. Explain the satellite communication systems? [10M]

8. Explain the following: [10M]

- (i) Ray theory.
- (ii) Total internal reflection.

OR

- 9.a) Describe wavelength division multiplexing. [6M]
- b) Discuss about different types of optical fibers. [4M]

10. Write short notes on [10M]

- (i) Bluetooth.
- (ii) Zigbee.

OR

- 11.a) Describe the technology of RFID and its applications. [5M]
- b) Calculate the frame efficiency of a GSM time slot for 6 trailing bits, 8.25 guard band, 26 training bits and two traffic bursts of 58 bits of data. [5M]
