

**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]
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**OR**

5.	Draw and explain amplitude modulated waveforms for different modulation index, discuss aliasing effect and how to overcome it?	[10M]
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6.	Describe the role of different satellite subsystems.	[10M]
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**OR**

7.	Explain the satellite communication systems?	[10M]
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8.	Explain the following:	[10M]
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- (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]
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- (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]

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