

RAMAKRISHNA MISSION VIDYAMANDIRA
(Residential Autonomous College affiliated to University of Calcutta)

SECOND YEAR [2018-21]
B.A./B.Sc. THIRD SEMESTER (July – December) 2019
Mid-Semester Examination, September 2019

Date : 19/09/19

Time : 11 am – 12 noon

Electronics (General)

Paper: III

Full Marks : 25

Answer **any five** questions of the following:

[5 × 5]

1. a) What do you mean by power signal and energy signal ? (2)
b) Explain the need of modulation and demodulation. Estimate the size of an antenna if voice signals are transmitted through air without modulation. (2+1)
2. a) Differentiate between DSB SC , SSB and SSB SC (3)
b) What do you mean by carrier wave, modulating wave and modulated wave ? (2)
3. a) What is amplitude modulation ? (1)
b) Obtain an expression for an AM wave with single tone modulation. (4)
4. a) Draw the waveform of an AM signal when the carrier and the modulating signals are sinusoidal. (2)
b) Show how you can obtain modulation index from this waveform. Explain overmodulation graphically. (2+1)
5. a) What is phase modulation ? (1)
b) Obtain an expression for a phase modulated wave when the modulating signal is sinusoidal. (4)
6. a) Distinguish between FM and PM techniques. (2)
b) Sketch the circuit of an AM wave generator. (3)
7. a) Define noise power and noise voltage associated with a resistive load. Give a relation between them. (2+1)
b) Define noise figure. What should be its value for an ideal and practical amplifier. (2)
8. Write short notes on **any two** of the following : (2×2.5)
 - (a) SNR, (b) Noise temperature,
 - (c) Frequency modulation. (d) AM Diode Detector.
 - (e) Conversion of FM to PM and vice-versa.

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