

RAMAKRISHNA MISSION VIDYAMANDIRA

(Residential Autonomous College under University of Calcutta)

B.A./B.SC. SECOND SEMESTER EXAMINATION, MAY-JUNE 2013

SECOND YEAR

Electronic (General)

Date : 23/05/2013

Time : 11am – 1pm

Paper : IV

Full Marks : 50

1. Answer **any two** questions: 2½ x 2
- a) What do you mean by energy signal & Power signal?
 - b) Prove that the total power of a modulated signal is $P = P_c \left(1 + \frac{ma^2}{2}\right)$ (symbols have usual meanings)
 - c) What are the meanings of the terms DSB signal and SSB signal?
 - d) Compare AM and FM.

Answer **any two** questions from **Question No. 2-4**:

2. a) What are the different sources of noise in a communication system?
b) Define noise figure, noise bandwidth and noise temperature.
c) Briefly discuss thermal noise. 3+3+4
3. a) What is PCM?
b) Explain with necessary diagrams the working principle of a PCM transmission system.
c) What is PAM? 2+6+2
4. a) Give an expression for an AM modulated signal. Show that it consists of a carrier and two sidebands.
b) Draw and explain the diode detector circuit for AM demodulation. (5+1)+(1+3)
5. Answer **any two** questions: 2½ x 2
- a) Briefly discuss the time base circuit of a CRO.
 - b) How can the phase difference between two AC voltages be measured with a CRO?
 - c) What is the function of Zener diode in a regulated power supply?
 - d) What is post acceleration and why is it used in CRO?

Answer **any two** questions **Question No. 6-8**:

6. Draw the block diagram of a CRO with explanation of each block. 10
7. a) What is a Regulated Power supply?
b) Draw the circuit diagram of a series voltage regulator and explain its principle of operation. 2+8
8. Write short Notes on **any two**: 5+5
- i) SMPS
 - ii) On-Line UPS
 - iii) Frequency Measurement using CRO.
 - iv) IC voltage regulator