

Lialorany

WS April 08 481

Con. 3158-08.

B. E. Geleet. NTU (OLD) . 26/5/08.
Basic of Analog & Digital communication
(OLD COURSE) CO-3127

(3 Hours)

[Total Marks : 100

MASTER

- N.B. : (1) Question No. 1 is **compulsory**.
(2) Attempt any **four** out of remaining **six** questions.
(3) Assume any **suitable** data wherever is **required** but justify the **same**.

1. Answer any **four** questions :-

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- Show that entropy is maximum when all the message are equiprobable.
- State and prove the sampling theorem.
- Justify that amplitude modulation is waste of power and bandwidth.
- What is TRF receiver ? What are the advantages that the superheterodyne receiver has over the TRF receiver ?
- Why VSB transmission is better suited for T. V. transmission ?

2. (a) With the help of neat diagram explain Balance Modulator and prove that the Balance Modulator produces an output consisting of sidebands only with the carrier removed. 10
(b) Sketch the circuit diagram of a practical diode detector and explain the operation of it. 10
How is AGC obtained from this detector ?

3. (a) What are the different methods of F. M. generation ? Explain the operation of Ratio detector. 10
(b) Explain Noise triangle pre-emphasis and de-emphasis in Frequency Modulation. 10

4. (a) What is Pulse Modulation ? Explain Pulse Amplitude Modulation with the help of ckt. diagram and waveforms. 10
(b) Differentiate between : 10
(i) Amplitude Modulation and Pulse Amplitude Modulation.
(ii) PWM and PPM.

5. (a) What are the advantages of digital communication over analog communication ? How pulse code modulator convert analog signal to digital signal ? 10
(b) What are the drawback of data modulation and how it can overcome in adaptive delta modulation ? Explain. 10

6. (a) Explain the following with respect to Radio Receiver : 10
(i) Image frequency rejection (ii) Tracking and alignment.
(b) Draw and explain block diagram of a F. M. Superheterodyne Radio Receiver with waveforms at output of each block. 10

7. (a) Explain the term Interlaced Scanning in T. V. transmission. 5
(b) What is Composite Video Signal ? With the help of neat block diagram, explain T. V. Transmission system. 10
(c) Explain Frequency Division Multiplexing. 5