

Con. 3518-10.

(REVISED COURSE)

P ADC

May '10

AN-4252

(3 Hours)

[Total Marks : 100

- N.B. : (1) Question No. 1 is compulsory.
 (2) Attempt any four questions out of remaining six questions.
 (3) Assume suitable data if required.

1. Answer the following any four :- 20
- (a) Explain Noise triangle
 - (b) Compare AM with FM
 - (c) Delayed AGC and simple AGC
 - (d) Sampling theorem and aliasing effect
 - (e) List advantage of digital modulation.

2. (a) Explain balance modulator using JFET with mathematical analysis. 10
 (b) Explain adaptive delta modulation technique compare it with delta modulator. 10

3. (a) Explain indirect method of FM generation with phasor diagram. 10
 (b) Explain filter method of SSB generation. 10

4. (a) An AM transmitter supplies a 10 kW of carrier power to a 50Ω load. 10
 It operates on carrier frequency of 1.2 MHz and it is 80% modulated by a 3 KHz sinewave. 10

- (i) Sketch the signal in frequency domain with frequency and power scale. Show the power in dBW.
- (ii) Calculate total average power in the signal in watt and dBW.
- (iii) Calculate RMS voltage of the signal
- (iv) Calculate peak voltage of the signal.

- (b) Explain working of superhetrodyne receiver with waveform at each stage. 10

- (a) Explain PWM demodulation using ramp and pedestal generator with proper waveform. 10

- (b) When modulating frequency in FM system is 400 Hz and the modulating voltage is 2.4 V the modulation index is 60. Calculate maximum deviation. What is modulation index when modulating frequency is reduced to 250 Hz and modulating voltage is increases to 3.2 V ? 10

- (a) Explain block diagram of PCM and explain quantization process in detail. 10

- (b) What is Pre-emphasis and De-emphasis circuit in detail ? 10

Write short notes on any four :-

- (a) Different Sources of Noise 10
- (b) Compare TDM and FDM 10
- (c) VSB 20
- (d) Compare BASK, BFSK and BPSK
- (e) Companding Technique.