

(3 Hours)

[Total Marks :80

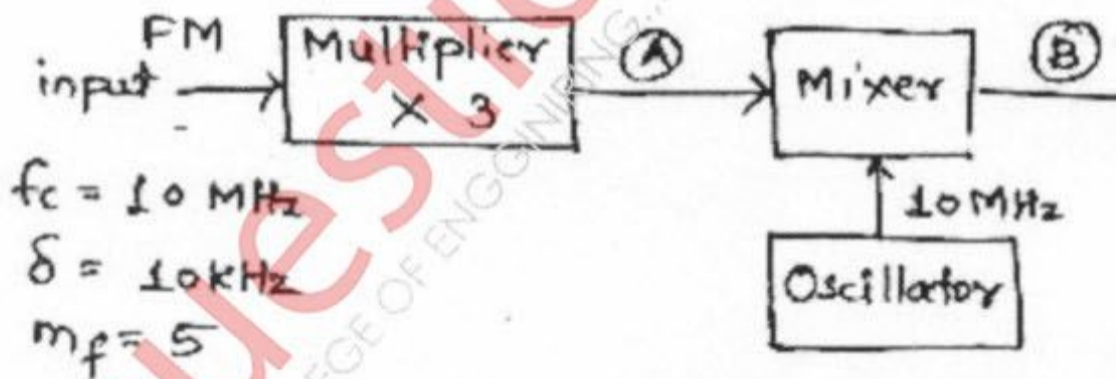
- N.B. : (1) Question No. 1 is compulsory.
 (2) Attempt any three out of remaining.
 (3) Assume data wherever necessary.



1. Attempt any four :-

- (a) Explain slope overload distortion and Granular noise in case of Delta Modulation. 20
 (b) Why modulation is needed in communication systems?
 (c) Explain effect of noise in FM modulation.
 (d) Explain need of quantization in PCM. Also highlight method to reduce quantization noise.
 (e) Compare PAM, PWM and PPM.

2. (a) List down the methods for SSB generation. Explain any one of them. 10
 (b) Explain any one method of FM generation with the help of neat diagram and wave forms. 10
3. (a) Derive an expression for an AM signal. Also derive the power relationship. 10
 (b) In the block diagram shown in fig. Find out the carrier frequency, frequency deviation and modulation index at the points A and B. Assume that at the output of the mixer, the additive frequency component is being selected. 10



4. (a) What is Telemetry? Explain voltage telemetry and current telemetry with the help of a neat diagram? 10
 (b) An AM transmitter has antenna current of 2 A with modulation index of 60 percent. What will be the total antenna current if one more identical antenna is connected in parallel with the previous one, keeping the transistor output same? Will it affect modulation index. 10

5. (a) Classify and explain various noise sources that affect communication, and derive friss formula for total noise factor. 10
(b) Explain Differential pulse-code modulation (DPCM) in detail. 10
6. Write short note on any four :- 20
(a) TDM and FDM
(b) Communication modes
(c) Frequency shift keying
(d) OSI reference model
(e) Pulse Width Modulation
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