

II B. Tech II Semester Supplementary Examinations, November - 2019**ANALOG COMMUNICATION**

(Electronics & Communication Engineering)

Time: 3 hours

Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)2. Answer **ALL** the question in **Part-A**3. Answer any **FOUR** Questions from **Part-B****PART -A**

1. a) As related to AM, what is over modulation, under modulation and 100% modulation? And determine the depth of the modulation for AM transmitter which radiates 9kW without modulation and 10.125kW after modulation. (2M)
- b) Compare AM with DSB-SC and SSB-SC. (3M)
- c) Give the main advantage as well as main tradeoff in FM. (2M)
- d) Define Image frequency and Image frequency rejection ratio. (3M)
- e) Define pre-emphasis and de-emphasis. (2M)
- f) Write short notes on Double polarity PAM. (2M)

PART -B

2. a) Draw the Envelope detector and illustrate the process of detection of AM wave? (7M)
- b) An amplitude modulated signal represented in time domain as $4\cos(1800\pi t) + 10\cos(2000\pi t) + 4\cos(2200\pi t)$. Sketch the spectrum and calculate the band width and total power? (7M)
3. a) Derive an expression for SSB Modulated wave for which upper sideband is retained. (7M)
- b) Draw the block diagram for the generation and demodulation of a VSB signal and explain the principle of operation. (7M)
4. Derive the expression for the frequency modulated signal. Explain what is meant by narrowband FM and wideband FM using the expression. (14M)
5. What is AGC? Draw and explain a simple AGC circuit and also explain different types of AGC. (14M)
6. a) Write a short note on threshold FM effect. (6M)
- b) A cable has a power loss of 3 dB is connected to the input of an amplifier, which has a noise temperature of 100K. Calculate the overall noise temperature referred to the cable input. (8M)
7. a) Explain the methods for demodulation of PAM signals. (7M)
- b) Compare PAM, PWM and PPM. (7M)

