

Code No: R1622044

R16**SET - 1****II B. Tech II Semester Regular Examinations, November - 2018****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**

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**PART -A**

1. a) What is Amplitude modulation? Define modulation index of an AM (2M)
- b) Give the methods of generating SSB-SC-AM and mention some applications of SSBSC. (3M)
- c) Give the comparisons between AM and FM. (2M)
- d) Explain the following terms: i) Sensitivity ii) Selectivity (3M)
- e) Define noise figure and what is its significance (2M)
- f) Draw the waveforms of different PTM signals (2M)

**PART -B**

2. a) Derive an expression for AM wave and sketch its frequency spectrum. (7M)
- b) Explain the square law detection of AM signals. (7M)
3. a) With a neat diagram explain how a SSB wave is generated using Phase Discriminator method with only USB and rejecting the LSB. (7M)
- b) Discuss the coherent detection of DSB-SC modulated wave with a block diagram. (7M)
4. a) For an FM modulator with a modulating signal  $m(t) = V_m \sin 300\omega t$ , the carrier Signal  $c(t) = 8 \sin(6.5 \times 10^6)t$  and the modulation index  $\beta = 2$ . Find out the significant side frequencies and their amplitudes. (8M)
- b) Explain the difference between Narrow band FM and Wide band FM. (6M)
5. a) Draw the block diagram of a superheterodyne receiver and explain its operation What are the advantages of this receiver? (10M)
- b) List out the advantages and disadvantages of TRF receiver. (4M)
6. Discuss in detail the following (i) thermal noise (ii) shot noise (iii) noise figure (iv) equivalent noise temperature (14M)
7. Mention and explain different methods for generation of PWM (14M)