Code No: RT22045 **R13** SET - 1

II B. Tech II Semester Supplementary Examinations, April/May – 2019
ANALOG COMMUNICATIONS
(Electronics and 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 **THREE** Questions from **Part-B**

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PART –A

1. a) What is the need for modulation? (3M)
   b) Draw the coherent detector for detecting DSBSC waves. (4M)
   c) How do you generate FM waves directly? (4M)
   d) What do you understand by threshold effect? (3M)
   e) Draw the block diagram of FM receiver. (4M)
   f) Give the expressions for noise power in AM, PM and FM. (4M)

PART –B

2. a) A collector modulated class-C power amplifier is giving an amplitude modulated signal of 100 Watts average power at the output, while operating with a collector circuit efficiency of 80%. Assuming the modulation index to be 0.8, find i) Power to be supplied by the modulating amplifier ii) Power dissipation in the transistor. (8M)
   b) Give the Time domain and frequency domain descriptions of single tone Amplitude modulated waves? How much Band width is required? (8M)

3. a) Explain the process of generation of VSB waves. (8M)
   b) Draw the ring modulator and explain the generation of DSB-SC waves. (8M)

4. a) Distinguish PM and FM. (8M)
   b) Discuss the process of Detection of FM Waves by Phase locked loop. (8M)

5. a) Derive expression for the amount of noise in a DSB-SC modulation system. (8M)
   b) Prove that the figure of merit of an AM system for single tone modulation with 100% modulation is 1/3. (8M)

6. a) An AM superhet receiver is tuned to 600 kHz, if the 'Q' of the RF amplifier tank circuit is 60 and the IF is 455 kHz. Find image frequency and its rejection ratio. (8M)
   b) Discuss about tracking and alignment in radio receivers. (8M)

7. Write a short note on the following
   (i) PWM vs PPM (ii) Pulse Modulation vs Carrier Modulation (continuous) (16M)
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