SS

Code: 13A04404

B.Tech III Year II Semester (R13) Regular & Supplementary Examinations May/June 2017
ANALOG COMMUNICATION SYSTEMS
(Electronics and Communication Engineering)

Time: 3 hours   Max. Marks: 70

PART – A
(Compulsory Question)
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1   Answer the following: (10 X 02 = 20 Marks)
   (a)   What is the need for modulation?
   (b)   Define amplitude modulation.
   (c)   Compare WBFM and NBFM.
   (d)   Define phase modulation.
   (e)   What is white noise?
   (f)   Define noise equivalent bandwidth.
   (g)   State sampling theorem.
   (h)   Draw the PPM waveforms.
   (i)   Define Shannon's channel coding theorem.
   (j)   Summarize the properties of entropy.

PART – B
(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

2   Explain envelope detector with neat block diagram. Analyze when negative peak clipping takes place in envelope detector.

OR

3   Explain super heterodyne AM receiver with a neat block diagram.

UNIT – II

4   Draw and explain block diagram of Armstrong indirect FM transmitter.

OR

5   Describe the concept of Preemphasis and Deemphasis in FM broadcasting.

UNIT – III

6   Explain noise in DSB and SSB systems.

OR

7   Write short notes on:
   (a)   Signal to noise ratio.
   (b)   Probability of error.
   (c)   Noise equivalent bandwidth.
   (d)   Noise figure.

UNIT – IV

8   Explain Pulse amplitude modulation in detail.

OR

9   Write short notes on:
   (a)   Natural and flat top sampling.
   (b)   Radio receiver measurements.

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<div style="text-align:center;">UNIT – V</div>

10 (a) A source emits an independent sequence of symbols from a alphabet consists of five symbols A, B, C, D and E with symbol probabilities $\frac{1}{4}, \frac{1}{8}, \frac{1}{8}, \frac{3}{16}$ and $\frac{5}{16}$ respectively .Find the entropy of the source.

     (b) The output of an information source consists of 128 symbols, 16 of which occur with a probability of 1/32 and the remaining 112 occur with a probability of 1/224. The source emits 1000 symbols/sec. Assuming that the symbols are chosen independently. Find the average information rate of this source.

<div style="text-align:center;">**OR**</div>

11   Discuss about:

     (a) Rate of information over a discrete channels

     (b) Capacity of discrete memory less channels.

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