Code No: 55024 **R09**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, HYDERABAD

B. Tech III Year I Semester Examinations, December - 2014

ANALOG COMMUNICATIONS

(Electronics and Communication Engineering)

Time: 3 hours **Max. Marks: 75**

Answer any five questions

All questions carry equal marks

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1.a) A sinusoidal carrier voltage is amplitude modulated as : $V_S = (1000 + 700 \cos 6000 \pi t) \cos 2000 k\pi t$. Find the unmodulated carrier voltage, modulating voltage, modulation index, LSB and USB frequencies and bandwidth of the AM wave.

b) Discuss about the demodulation of AM waves using the square-law detector.

2.a) Explain the function of balanced modulators.

b) Draw the block diagram of high level AM transmitter and explain the function of each block.

3.a) Explain in detail about demodulation of SSB waves.

b) Compare AM, AM-DSB and AM-SSB Techniques and also list out the applications of different AM systems.

4.a) What are the differences between Narrowband FM and wide band FM and explain about narrow band frequency modulation.

b) Explain about Transmission bandwidth of FM wave and comparison between FM and AM.

5.a) Draw the block diagram of Armstrong FM generator and explain each block.

b) Explain about Foster seeley discriminator.

6.a) What is the effect of Filter on thermal noise? Explain the terms noise BW, noise figure and noise temperature of filter and bring all their significance in analysis.

b) Explain Threshold effect in Angle modulation system.

7.a) Draw the block diagram of superhetrodyne receiver and explain the function of each block.

b) What is an Amplitude Limitter? Explain its operation with a neat circuit diagram.

8. Write a short note on:
a) Generation of PWM.
b) Demodulation of PPM.

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