

**B.TECH. SEM -IV E & TC 2014 COURSE (CBCS) : WINTER
- 2017**

SUBJECT: ANALOG COMMUNICATION SYSTEM

Day: **Thursday**
Date: **23/11/2017**

Time: **02.30 PM TO 05.30 PM**
Max Marks : 60

W-2017-2110

N.B.:

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Use of non programmable **CALCULATOR** is allowed.
- 4) Assume suitable data if necessary.

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- Q1. a)** With the help of block diagram explain general communication system. (07)
- b)** What are the types of communication channels? (03)

OR

- a)** What is need of modulation? (05)
- b)** Find the Fourier transform of $\cos \omega_0 t$ (05)

- Q.2 a)** An amplifier operating on frequency range from 18 to 20 MHz has $10\text{ K}\Omega$ input resistance. Find rms noise voltage at the input to this amplifier if the ambient temperature is 17°C . (05)
- b)** What is Signal to Noise Ratio (SNR) & Noise figure? (05)

OR

- a)** What are the sources of noise? Explain in detail. (06)
- b)** What is Noise temperature? (04)

- Q.3 a)** With the help of neat diagram explain envelope detector. (06)
- b)** When a broadcast AM transmitter is 60 percent modulated, its antenna current is 10 A. what will be the current when modulation depth is increased to 0.9? (04)

OR

- a)** Determine the percentage power saving when the carrier wave & one of the sidebands are suppressed in AM wave modulated to a depth of
a) 100% & b) 50% (05)
- b)** Explain generation of DSB-SC with Ring modulator. (05)

- Q.4 a)** What is Pre-emphasis & de-emphasis? Why is it used? (06)
- b)** Write equation of FM wave? What determines Bandwidth used in FM Communication system? (04)

OR

- a)** Explain with diagram Balanced Slope detector for FM detection. (06)
- b)** Compare narrowband FM & wideband FM. (04)

P.T.O.

Q.5 a) Explain how the use of RF amplifier improves the signal to noise ratio of super heterodyne receiver. **(06)**

b) What is image Frequency? How does it arise? **(04)**

OR

a) Explain the function of each block of super heterodyne receiver. **(07)**

b) What is three point tracking? **(03)**

Q.6 a) Find the Nyquist rate & the Nyquist interval for the Signal **(05)**

$$x(t) = \frac{1}{2\pi} \cos(4000 \pi t) \cos(1000 \pi t)$$

b) What is Aperture effect? **(05)**

OR

a) What is PAM? Explain generation & detection of PAM. **(06)**

b) Compare FDM & TDM. **(04)**

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