

B.TECH. SEM -IV ELECTRONICS 2014 COURSE (CBCS) :

WINTER - 2017

SUBJECT: ANALOG COMMUNICATION

Day : **Thursday**

W-2017-2086

Time : **02.30 PM TO 05.30 PM**

Date : **23/11/2017**

Max Marks.:60

N.B.

- 1) All Questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Neat diagram must be drawn **WHEREVER** necessary.
- 4) Assume suitable data if necessary.

- Q.1**
- a) Draw and discuss the block diagram of communication system. **(06)**
 - b) Define baseband signal and baseband transmission system. **(04)**

OR

- a) Define Modulation and types of Modulation Techniques. **(06)**
- b) Describe how Modulation reduces height of Antenna. **(04)**

- Q.2**
- a) Define Noise. Discuss Natural Noise sources. **(06)**
 - b) An amplifier operating over frequency range from 3MHz to 10MHz has $20K\Omega$ input resistance. What is r.m.s. noise voltage, at input to this amplifier at room temperature? **(04)**

OR

- a) An amplifier has a noise figure of 4 dB. Calculate Noise factor and its equivalent Noise Temperature. **(06)**
- b) Discuss internal Noise sources in short. **(04)**

- Q.3**
- a) Define Modulation Index for AM wave. Derive expression for 'm' **(06)**
 - b) Discuss perfect Modulation and under Modulation with the help of waveforms. **(04)**

OR

- a) For an AM DSB-FC envelop with $V_{max}= 20V$ and $V_{min}= 4V$, determine **(06)**
 - i) Peak amplitude of carrier
 - ii) Modulation Index with % Modulation
 - iii) Peak amplitude of upper and lower sidebands
- b) Draw the block diagram of High level AM Transmitter. **(04)**

- Q.4**
- a) Differentiate between Amplitude Modulation and frequency Modulation with the help of waveforms. **(06)**
 - b) Discuss Narrowband and Wideband FM system. **(04)**

OR

Draw and discuss Indirect method of FM generation in detail. **(10)**

- Q.5**
- a) Draw and discuss super heterodyne receiver. **(06)**
 - b) Describe delayed AGC system. **(04)**

OR

Draw and discuss double conversion communication receiver in detail. **(10)**

- Q.6**
- a) Define Nyquist criteria for sampling process and differentiate between Natural and Flat-Top sampling. **(06)**
 - b) Discuss generation method of PAM signal. **(04)**

OR

Discuss Time Division Multiplexing Technique in detail with diagram. **(10)**