

B-Tech. sem-IV, (2014 course), E & TC
Winter-2018

B.Tech. SEM-IV E & TC 2014 Course (CBCS) : WINTER - 2018

SUBJECT: ANALOG COMMUNICATION SYSTEM

Day : Friday

W-2018-2373

Time: 02.30 PM TO 05.30 PM

Date : 16/11/2018

Max. Marks: 60

N. B. :

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Draw neat and labeled diagram **WHEREVER** necessary.
- 4) Assume suitable data, if necessary.

Q.1 a) Write a short note on- (06)

- i) Telephone channels
- ii) Co-axial cables

b) Why modulation is necessary in communication system? Explain in detail (04)

OR

a) What are different RF bands used in communication system? State their applications (06)

b) Find Fourier transform of $\cos \omega t$ (04)

Q.2 a) What are different sources of internal noise? Explain in detail (06)

b) What is noise temperature and noise figure? (04)

OR

a) A 800Ω resistor is connected across 800Ω antenna input of radio receiver. The bandwidth of radio receiver is 20KHz and resistor is at room temperature of 30°C . Calculate noise power and noise voltage applied at input of receiver. (05)

b) What are different sources of external noise? Explain in detail (05)

Q.3 a) What is independent side band (ISB)? Explain with neat diagram, working of ISB transmitter (07)

b) What are the advantages of DSB-SC over DSB-FC signal (03)

OR

a) Explain with neat diagram the third method of SSB-SC generation (07)

b) A 10 KW carrier wave is amplitude modulated at 80% depth of modulation by a sinusoidal modulating signal. Calculate sideband power, total power and transmission efficiency of AM wave (03)

P. T. O.

Q. 4 a) What is frequency modulation? Draw and explain varactor diode method of FM generation (06)

b) What is pre-emphasis and de-emphasis? (04)

OR

a) Explain with neat block diagram, Foster Seeley Discriminator (07)

b) What is difference between AM and FM? (03)

Q. 5 a) What is role of limiter stage in FM receiver? Explain with block diagram of FM receiver (07)

b) How to make choice of IF for radio receivers? (03)

OR

a) What do you mean by selectivity, fidelity and image frequency related to radio receivers? (06)

b) What are advantages and disadvantages of super heterodyne receiver over TRF receiver (04)

Q. 6 a) What is pulse amplitude modulation (PAM)? Explain method of generation of PAM with suitable circuit and waveforms (06)

b) What is difference between FDM and TDM (04)

OR

a) What are different sampling techniques? Explain in detail (06)

b) What is difference between PAM and PPM (04)

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