B.Tech. SEM -IV E & TC 2014 Course (CBCS) : SUMMER - 2019
SUBJECT: ANALOG COMMUNICATION SYSTEM

Day : Thursday
Date : 30/05/2019

S-2019-2638

Time: 10.00 AM TO 01.00 PM
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)** What is communication? Explain in detail block schematic of basic communication system **(06)**

b) Find Fourier transform of sin wt **(04)**

OR

a) What are different types of communication channels? Explain in detail **(07)**
b) Why baseband signals are not used for broadcasting? **(03)**

Q. 2 **a)** What is noise figure? Derive expression for noise figure **(07)**

b) What is thermal noise? Explain in detail **(03)**

OR

a) Three resistors have values R1= 12 kΩ, R2= 15 kΩ and R3= 28 kΩ. The thermal noise voltage generated by R1 IS 0.3μv.Calculate thermal noise voltage generated by: **(06)**

i) Three resistors connected in series

ii) Three resistors connected in parallel

b) What are the different types of extraterrestrial noise? Explain in detail **(04)**

Q. 3 **a)** What is amplitude modulation? Derive power relations in AM wave **(07)**

b) What is vestigial sideband transmission (VSB) **(03)**

OR

a) Explain phase shift method for SSB-SC generation **(07)**

b) A 1000 KHz carrier is simultaneously modulated with 300 Hz, 800 Hz and 1 KHz audio sine waves. What will be the frequencies present at output? Draw output frequency spectrum **(03)**

P. T. O.

Q. 4 a) What is frequency modulation (FM)? Draw and explain reactance modulator method of FM generation **(06)**

b) What is difference between wideband FM and narrowband FM **(04)**

OR

a) What do you mean by ratio detector? Explain in detail **(06)**

b) A carrier is frequency modulated by a sinusoidal signal of 15V peak and frequency of 3 KHz, the frequency deviation constant is 1 KHz/volt. Calculate peak frequency deviation and modulation index **(04)**

Q. 5 a) Explain with neat block diagram super heterodyne radio receiver **(06)**

b) What is image frequency? How does it arises? **(04)**

OR

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

b) What is tracking? Explain three point tracking in detail **(04)**

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

b) What is aliasing effect? How it is removed? **(04)**

OR

a) What is sampling theorem? Explain sampling theorem for low pass signal **(08)**

b) What is aperture effect? **(02)**

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