

BACHELOR OF TECHNOLOGY (C.B.C.S.) (2020 COURSE)
B.Tech.Sem - IV E &TC :SUMMER- 2022
SUBJECT : ANALOG COMMUNICATION

Day : Wednesday
Date : 22-06-2022

S-24663-2022

Time : 10:00 AM-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 labelled diagram **WHEREVER** necessary.
- 4) Assume suitable data, if necessary.

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- Q.1** a) Explain telephone channels in detail. (05)
b) Find fourier transform of $\cos \omega t$. (05)
- OR**
- Q.1** What is noise? Explain different types of noise in detail. (10)
- Q.2** a) A 1000 kHz carrier is simultaneously modulated with 300 Hz, 800 Hz and 2kHz audio sine waves. What will be frequencies present in the output? Draw output frequency spectrum. (05)
b) Explain envelope detector in detail. (05)
- OR**
- Q.2** What is Amplitude Modulation? Explain low level modulator using operational amplifier in detail. (10)
- Q.3** a) Explain synchronous detection of DSB-SC signal in detail. (05)
b) Explain balanced modulator using AM modulator. (05)
- OR**
- Q.3** With neat block diagram, explain Independent Sideband (ISB) transmitter in detail. (10)
- Q.4** a) Explain varactor diode method of FM generation. (05)
b) A carrier is frequency modulated by a sinusoidal signal of 20 V peak and frequency of 5 kHz. Frequency sensitivity is 1 kHz/volt. Calculate peak frequency deviation and modulation index. (05)
- OR**
- Q.4** What is Pre-emphasis and De-emphasis? Explain with suitable diagrams and frequency response. (10)
- Q.5** a) What do you mean by selectivity and fidelity of radio receivers? (05)
b) Draw and explain FM receivers. (05)
- OR**
- Q.5** What is Automatic Gain Control (AGC)? Explain types of AGC in detail. (10)
- Q.6** a) Explain generation of flat top sampled signal. (05)
b) State Sampling theorem and Nyquist interval. (05)
- OR**
- Q.6** What is PPM? Explain method of generation and detection of PPM with suitable circuits and waveforms. (10)