



PAPER ID-310332

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Subject Code: BEE058

Roll No:

BTECH
(SEM V) THEORY EXAMINATION 2024-25
ANALOG & DIGITAL COMMUNICATION

TIME: 3 HRS

M.MARKS: 70

Note: Attempt all Sections. In case of any missing data, choose suitably.

SECTION A

1. Attempt all questions in brief.

2 x 07 = 14

Q no.	Question	CO	Level
a.	Define modulation, Amplitude modulation and angle modulation.	1	K1
b.	Draw the basic block diagram of analog communication system.	1	K1
c.	Explain frequency deviation of FM signal?	2	K2
d.	Explain Nyquist criteria for sampling.	3	K2
e.	Why FSK is preferred over ASK?	4	K3
f.	What do you understand by Shannon Hartley Theorem?	5	K3
g.	What is Electronic Commutator in TDM System?	5	K3

SECTION B

2. Attempt any three of the following:

07 x 3 = 07

Q no.	Question	CO	Level
a.	Differentiate between Narrowband FM and wideband FM with their frequency spectrum and suitable mathematical expressions.	1	K1
b.	Explain coherent method of generation and detection of PAM signal with suitable mathematical expressions.	2	K2
c.	What is quantization? How is quantization and coding done? Explain with suitable diagram.	3	K3
d.	Give brief introduction about time division multiplexing? Explain synchronous and asynchronous TDM.	4	K4
e.	Draw the block diagram of BPSK transmitter. Explain balanced ring modulator of BPSK.	5	K5

SECTION C

3. Attempt any one part of the following:

07 x 1 = 07

Q no.	Question	CO	Level
a.	Why Super heterodyne receiver is better than the TRF receiver? What are the functions of receivers?	1	K1
b.	With the help of diagram explain generation and detection of SSB-SC wave.	1	K1

4. Attempt any one part of the following:

07 x 1 = 07

Q no.	Question	CO	Level
a.	What is noise? Noise is difficult to eliminate but its effect can be minimizing justify.	2	K2
b.	An FM modulator operates at carrier-signal frequency of 500 KHz having peak amplitude of 10V. A modulating frequency (f_m) of 10 KHz modulates it with a peak frequency deviation (δ) of 10 KHz. From the Bessel function table, it is observed that a frequency modulation index of one yield three sets of significant of sidebands. Compare actual minimum bandwidth as obtained using Bessel function and the approximate minimum bandwidth using Carson's rule.	2	K2

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