DD–755

M. Sc. (Fourth Semester)
EXAMINATION, 2020

PHYSICS

Paper Fourth (B)

[Electronics—II (Communication)]

Time : Three Hours

Maximum Marks : 80

Note : Attempt all the *five* questions. *One* question from each Units is compulsory. All questions carry equal marks.

Unit—I

1. (a) What is Pulse Amplitude Modulation (PAM) ? Explain PAM channel BE for PAM signal.   8

   (b) State and prove sampling theorem for low pass signal.   8

Or

   (a) Describe the sample and hold circuit for signal recovery and explain the signal recovery through holding.   8

   (b) Explain natural sampling.   8

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Unit—II

2. Discuss Pulse Code Modulation (PCM). Explain the differential Pulse Code Modulation technique. 16

Or

Explain the Coherent Binary Frequency Shift Keying (BFSK). 16

Unit—III

3. (a) What do you mean by noise in communication system ? Explain frequency domain representation of noise. 8

(b) What is the effect of using R-C low pass filter before a demodulator in linear filtering ? Explain it. 8

Or

(a) Explain the quadrature component of noise. 8

(b) Explain the power spectral density of $n_c(t)$, $n_s(t)$ and their time derivatives. 8

Unit—IV

4. (a) Calculate the error probability for BPSK. 8

(b) What is coherent reception co-relation ? 8

Or

(a) Explain Non-coherent detection on FSK. 8

(b) Explain the matched filter and calculate the probability of error of matched filter. 8

Unit—V

5. (a) Discuss the PCM transmission with suitable block diagram. 8

(b) Calculate the quantization noise and output signal power in PCM transmission. 8

Or

(a) Explain the working of Delta Modulation System. 8

(b) Discuss the DM output signal to quantization noise ratio and describe the output signal to noise ratio in delta modulation. 8