AF-3510

M.Sc. (Final)
Term End Examination, 2017-18

PHYSICS

Paper - III

Electronics-I

Time : Three Hours] [*Maximum Marks* : 100
[*Minimum Pass Marks* : 36

Note : Answer any **five** questions. All questions carry equal marks.

1. (*a*) What is noise in communication process ? Explain the source of noise. Explain shot noise, partition noise and resistor noise.

(*b*) Define signal to noise ratio and available power gain for noise.

2. Write and prove Sampling theorem. Explain signal recovery from its sampled version.

3. Write the expression for energy signal. Discuss Parseval's theorem for energy signals and find energy spectral density.

4. Write the expression for average power. Derive Parseval's power theorem and explain power density spectrum.

5. Explain single sideband modulation (SSB). What is SSB-SC with single-tone modulating signal ? Explain it for general modulating signal.

6. What is pulse amplitude modulation ? Explain natural smapling and flat-top sampling.

7. Discuss PCM system. Explain bandwidth and noise in PCM system.

8. Discuss frequency shift keying (FSK) and phase shift keying (PSK) in data transmission.

9. Explain baseband signal receiver and hence discuss probability of error.

10. Explain optimum filter and matched filter.

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