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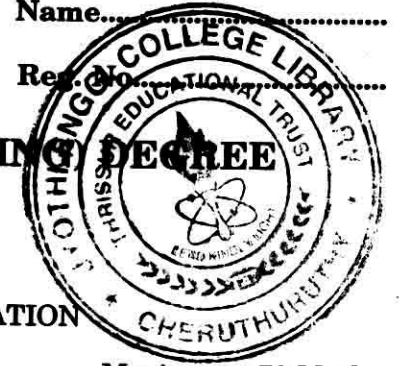
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**FOURTH SEMESTER B.TECH. (ENGINEERING)
EXAMINATION, APRIL 2014**

(2009 Scheme)

EC 09 404/PTEC 09 403 – ANALOG COMMUNICATION

Time : Three Hours



Maximum : 70 Marks

Part A

Answer all questions.

1. Define Probability density function.
2. State the Linear Time Invariance Property.
3. Define Modulation Index of an AM wave.
4. Define Fidelity of a receiver.
5. Define Noise Figure.

(5 × 2 = 10 marks)

Part B

Answer any four questions.

6. What is Probability? State its properties.
7. State and explain a Random Process.
8. Explain the phase shift method of SSB-SC generation.
9. The frequency deviation of an FM wave is 75 kHz and its modulating signal frequency is 7 kHz. Find the bandwidth using Carson's rule.
10. Explain the Capture effect in FM.
11. Explain the steps involved in the Noise Figure Calculation.

(4 × 5 = 20 marks)

Part C

Answer all questions.

12. (a) State and prove Central limit theorem.

Or

Turn over

- (b) Explain in detail about :
- (i) Covariance functions.
 - (ii) Power spectral density.
13. (a) (i) Explain the operation of an Envelope Detector.
(ii) Explain the principle of Coherent Detection.

Or

- (b) Derive an expression for the Wideband Frequency Modulated Wave.
14. (a) Explain the operation of a Superheterodyne receiver and State its advantages over Tuned Radio Frequency receiver.

Or

- (b) (i) Explain the operation of a Foster-Seeley Discriminator.
(ii) What is frequency synthesis? Explain.
15. (a) Derive an expression for the output signal to Noise ratio of a DSB-SC receiver.

Or

- (b) Derive an expression for the output signal-to-noise ratio of an FM receiver.

(4 × 10 = 40 marks)