C 61583

(Pages : 2)

Name.....

Reg. No.....

FOURTH SEMESTER B.TECH. (ENGINEERING) DEGREE 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

(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)