G 529 (Pages : 2) Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, MAY 2014

Fourth Semester

Branch : Electronics and Communication Engineering

EC 010 405—ANALOG COMMUNICATION (EC)

(New Scheme—2010 Admission onwards)

[Regular/Improvement/Supplementary]

Time : Three Hours Maximum : 100 Marks

Part A

Answer **all** *questions.*
Each question carries 3 *marks.*

1. Define modulation index for AM.
2. Define synchronous detection.
3. What are the advantages of super heterodyne receiver ?
4. Explain Gaussian distribution.
5. What is meant by noise figure ? Give the expression of noise figure.

(5 × 3 = 15 marks)

Part B

Answer **all** *questions.*
Each question carries 5 *marks.*

6. Define with relevant equations CDF, PDF and conditional PDF of a random process.
7. Write a short note on balanced modulator.
8. With neat block diagram, explain the operation of super heterodyne receiver.
9. Discuss any *two* properties of Gaussian process.
10. Write short notes on sources of noise.

(5 × 5 = 25 marks)

Part C

Answer **all** *questions.*
Each question carries 12 *marks.*

11. Define amplitude modulation and explain mathematical derivation of AM.

Or

12. Explain with neat block diagram of communication system in detail.

Turn over

13. Explain in detail how balanced modulator can be used to generate DSB-SC modulation.

Or

14. Explain in detail about diode and transistor modulator.

15. Write short notes on different nonlinear FM detection methods.

Or

16. Explain direct and indirect FM generation methods.

17. Explain about :

    (a) Binomial distribution ;

    (b) Gaussian distribution ;

    (c) Rayleigh distribution.

Or

18. Write short notes on :

    (a) Conditional probabilities ; (b) Random variable ;

    (c) Mean ; (d) Moment.

19. The noise figure of the individual stages of a two stage amplifier is 2.03 and 1.54 respectively. The available power gain of the first stage is 62. Evaluate the overall noise figure ? Derive the relation used.

Or

20. Write short notes on :

    (a) Noise bandwidth ; (b) Noise temperature ;

    (c) Noise figure ; (d) Signal to noise ratio.

(5 × 12 = 60 marks)