Reg. No. : | | | | | | | | | | |

Question Paper Code: 52223

M.E. DEGREE EXAMINATION, MAY 2017

Second Semester

Communication Systems

15PCM203 – MICROWAVE INTEGRATED CIRCUITS

(Regulation 2015)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (5 x 1 = 5 Marks)

1. The development of intelligent systems for traffic use will include

   (a) radar sensors (b) imaging systems
   (c) collision avoidance (d) all the above

2. The dielectric constant of the substrate must be

   (a) low (b) medium (c) high (d) very high

3. Which of the following is used as liquid source for diffusion of impurities?

   (a) B_2O_3 (b) B Br_3 (c) As_2O_3 (d) AsH_3

4. In which case, the resistor biasing of FET does not cause any problem?

   (a) Gate (b) Drain (c) Collector (d) all the above

5. In a multistage LNA, which of the stage has higher gain?

   (a) Second (b) Third (c) either (a) or (b) (d) both (a) and (b)

PART B - (5 x 3 = 15 Marks)

6. How Autonomous Cruise Control is used for automotive applications?

7. What is LID? Explain about it with geometry.

8. Why dielectric layers are used in MIC technology?

9. What are the advantages of coplanar waveguides?

10. Draw and compare the open and closed loop noise spectrum in oscillators.

PART C - (5 x 16 = 80 Marks)

11. (a) Compare and contrast the advantages and disadvantages of MMIC over hybrid MIC. (16)

Or

(b) Evaluate the performance of MMIC using various design approaches. (16)

12. (a) Describe in detail about the steps involved in the fabrication of thin film MICs with neat block diagram. (16)

Or

(b) Discuss in detail about various techniques used for mounting of active devices with necessary diagrams. (16)

13. (a) Describe in detail about the steps involved in the epitaxial growth of semiconductor layer and brief that process for different materials. (16)

Or

(b) Explain the different techniques used to diffuse the impurities in semiconductor material. (16)

14. (a) (i) Explain about construction and use of various MMIC capacitors. (8)

(ii) Discuss in detail on coplanar waveguide circuits used for millimeter-wave band. (8)

Or

(b) Discuss in detail about the development of digital attenuators and its design approaches. (16)

15. (a) Discuss in detail on different matching techniques for an amplifier. (16)

Or

(b) Explain the operation of voltage controlled oscillator and its design. (16)