B 2201

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2007.

Fifth Semester

Electrical and Electronics Engineering

EE 334 — INTEGRATED CIRCUITS

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Give reasons for selecting SiO_2 for oxidation process in IC fabrication.

2. Name the techniques available for fabricating resistors in ICs.

3. Define slew rate. What is its importance?

4. Write any one application for PLL IC.

5. What are the advantages of CMOS logic?

6. What are the limitations of ripple carry adder?

7. Differentiate between p–well, n–well and twin–tub process of CMOS fabrication.

8. Compare BJT with CMOS technology.

9. Name two filter ICs.

10. List the various blocks of any one function generator IC.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Classify the defects present in real silicon crystals and briefly discuss. (10)

(ii) Explain the process of photo lithography. (6)

Or

(b) (i) Compare Ion implantation with diffusion. (6)

(ii) With diagrams, explain the different methods of fabricating transistors in IC's. (10)

12. (a) Discuss the various DC characteristics of OP AMP. (16)

Or

(b) Explain the following applications of OP AMP with circuit schematic and waveforms.

(i) Sine wave generator. (4)

(ii) 555 timer in astable mode. (6)

(iii) 723 low voltage regulator. (6)

13. (a) Draw the structure of any two multiplier circuits and discuss the operation. (16)

Or

(b) How are memories classified? Briefly discuss each type with relevant diagrams. (16)

14. (a) (i) Briefly discuss the special considerations involved in the fabrication of Bipolar ICs. (8)

(ii) What are the various issues involved in the packaging design of VLSI devices? (8)

Or

(b) (i) Discuss the factors involved in the minimizing VLSI circuits. (6)

(ii) Explain the CMOS fabrication process. (10)

15. (a)

(b)

15. (a) (i) Explain the schematic of any one ADC IC working on successive approximation type. (10)

(ii) Write the factors involved in the selection of A/D converters. (6)

Or

(b) (i) With schematic explain the features of function generator IC. (10)

(ii) Compare the performance of different types of DACs. (6)

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