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Question Paper Code : S 4753

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2009.

Fourth Semester

Computer Science and Engineering

EC 250 – ELECTRONIC CIRCUITS

(Regulation 2001)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Give the difference between intrinsic and extrinsic semiconductor.
2. Draw the energy band diagram of semiconductor.
3. What is cascade amplifier?
4. Define Slew rate.
5. Briefly list the advantages of crystal oscillator.
6. List the application of 555 IC timer.
7. What are the types of negative feedback in transistor circuits?
8. Define CMRR.
9. What is need for the sample and hold circuit?
10. What is analog multiplier?

PART B — (5 × 16 = 80 marks)

11. (a) (i) Describe the operation of binary weighted resistor D/A converter mention its drawbacks. (10)

(ii) Draw an simple sample and hold circuit and draw its input and its output waveform. (6)

Or

(b) (i) Explain any one type of A-D converter with a neat diagram. (12)

(ii) Explain any one application of an analog multiplier. (4)

12. (a) Draw a typical common emitter amplifier circuit and explain the function of each component in it. (16)

Or

(b) Draw the circuit diagram of an RC coupled amplifier and explain its frequency response characteristics. Explain the reasons for decrease in gain in the low and high frequency ranges. (16)

13. (a) Explain with a neat sketch, the working of IC 555 as an astable multivibrator. (16)

Or

(b) What are the conditions for oscillations? Draw the circuit diagram and explain the working of Hartley oscillator. (16)

14. (a) (i) Explain the working of inverting and non-inverting amplifier and derive the voltage gain. (12)

(ii) Obtain the gain of inverting and non-inverting amplifier for input and feedback resistance of 100 $K\Omega$ and 10 $K\Omega$ respectively. (4)

Or

(b) (i) Draw the pin diagram of IC-741. (6)

(ii) Draw the block schematic of an op-amp and briefly explain each block. (10)

15. (a) (i) Explain the various steps in the fabrication process of monolithic integrated circuit. (10)

(ii) Discuss the self biasing. (6)

Or

(b) (i) What are different types of biasing technique and explain one type of biasing? (12)

(ii) Explain Thermal runaway. (4)