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Question Paper Code: 1064457

B.E. / B.Tech. DEGREE EXAMINATIONS, NOV / DEC 2024
Fourth Semester
Electronics and Communication Engineering
U20EC401 – ANALOG INTEGRATED CIRCUITS
(Regulation 2020)

Time: Three Hours Maximum: 100 Marks

Answer ALL questions

PART – A (10 x 2 = 20 Marks)

1. Mention the advantages of integrated circuits over discrete components.

2. List the ideal characteristics of an operational amplifier.

3. Compare the performance of inverting and non inverting operational amplifier configurations.

4. List the characteristics of comparator.

5. Why VCO is also called as V to F converter?

6. Compare astable and monostable multivibrator.

7. Distinguish between conversion time and settling time of ADC.

8. Obtain the number of comparators required for realizing a 4-bit flash ADC.

9. Compare Linear regulator and Switched mode regulator.

10. List the applications of Opto coupler.

PART – B (5 x 16 = 80 Marks)

11. (a) Explain the step by step process of manufacturing of monolithic ICs. (16)

(OR)

(b) Draw the functional block diagram of Operational Amplifier and explain the function of each block. Also draw the schematic symbol of Op Amp and list its DC characteristics. (16)

12. (a) With a suitable circuit diagram, explain the operating principle of an instrumentation amplifier and derive its gain. (16)

(OR)

(b) Define Schmitt Trigger and explain about the working of OP AMP based inverting and non inverting Schmitt trigger in detail. (16)

13. (a) List the applications of PLL and explain any two applications. (16)

(OR)

(b) Using IC 555 timer, write the design steps for Astable Multivibrator and explain the operation of Astable multivibrator with circuit diagram and waveform. (16)

14. (a) Describe in detail about the dual slope type ADC with neat sketch. (16)

(OR)

(b) Describe the specifications of ADC and DAC. (16)

15. (a) Explain the operation of square wave generator using Op Amp with neat diagram. (16)

(OR)

(b) List the features of IC 723 voltage regulator and explain its operation with the internal block diagram. (16)

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