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(2123)

1405

B. Tech 5th Semester Examination

Micro Electronics & LIC (O.S.)

EC-5003

Time : 3 Hours

Max. Marks : 100

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : (i) Each question carries 20 Marks. Section E is compulsory.

(ii) Attempt any five questions in all, selecting at least one Question from each section.

SECTION - A

1. Classify integrated circuits. Give flowchart of a BIPOLAR planar process. Give the fabrication steps of an FET and Resistor. How are resistances in Mega Ohms obtained in ICs? **(5×4=20)**
2. What are thick, thin film and hybrid technologies? Discuss ion implantation technology. **(10+10=20)**

SECTION - B

3. Draw a Differential Amplifier and show the balanced and unbalanced outputs. Giving circuit explain the functioning of a current mirror. **(10+10=20)**
4. Give characteristics of a practical OP-Amplifier giving typical values of the various parameters. Also give its equivalent circuit. What is a level translator? **(10+2+8=20)**

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SECTION - C

5. Give advantages of the negative feedback in Amplifiers. What are different negative feedbacks explain with block diagrams?
(10+10=20)
6. Explain the frequency response of an OP-Amp with a diagram. What do you understand by compensated and non-compensated OP-Amps? Give high frequency equivalent circuit of an Op-Amp.
(20)

SECTION - D

7. Draw circuit of a peaking Amplifier and explain its working. Draw integrator circuit using Op-amp & derive relationship for output.
(10+10=20)
8. What are uses of an instrumentation amplifier? Giving circuit diagram, explain the working of a voltage to current converter circuit.
(10+10=20)

SECTION - E (Compulsory. Give short answers)

9. (i) What is the advantage of differential amplifiers and Op-Amps?
(ii) What is slew rate? Give its typical value with units.
(iii) What is CMRR? Should it be high or low and why?
(iv) Give open loop and closed loop frequency response.
(v) What are active filters? What is a linear integrated circuit?
(vi) Draw the circuit diagram of 555 timer giving its utility.
(vii) Draw the circuit of an oscillator using Op-Amp.
(viii) Give an example of a comparator circuit using Op-Amp.
(ix) What is a hybrid technology?
(x) Give a three stage cascaded amplifier configuration.
(10×2=20)