A **Reg. No. :** | | | | | | | | | | |

Question Paper Code: 54305

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2022

Fourth Semester

Electrical and Electronics Engineering

15UEE405- ANALOG INTEGRATED CIRCUITS

(Regulation 2015)

Duration: Three hours Maximum: 100 Marks

PART A - (10 x 1 = 10 Marks)

1. Which among the following is/are the feature/s characteristic/s of an integrated op-amp? CO1-R

   (a) Small size (b) High reliability

   (c) Low cost & less power consumption (d) All of the above

2. In a typical op-amp, which stage is supposed to be a dual-input unbalanced output or single-ended output differential amplifier? CO1-R

   (a) Input stage (b) Intermediate stage

   (c) Output stage (d) Level shifting stage

3. In absence of any applied AC input signal, what would be the gain of an ideal integrator? CO2-R

   (a) Zero (b) Unity (c) Infinity (d) Unpredictable

4. As the frequency increases, input impedance of differentiator _____. CO2-R

   (a) Increases (b) Decreases (c) Remains constant (d)None of the above

5. In DACs, gain error occurs due to _____ CO3-R

   (a) offset voltages of op-amps

   (b) leakage current in the switches

   (c) error in feedback resistor value

   (d) error in current source resistance values

6. In ADCs, it is possible to reduce the quantization error by _____the number of bits. CO3-R

(a) Increasing (b) Decreasing

(c) Maintaining consistency in (d) All of the above

7. In PLL, the capture range is always _____the lock range. CO4-R

(a) Greater than (b) Equal to (c) Less than (d) None of the above

8. In VCO IC 566, the value of charging & discharging is dependent on the voltage applied at _____. CO4-R

(a) Triangular wave output (b) Square wave output

(c) Modulating input (d) All of the above

9. Which among the following are regarded as three-pin voltage regulator ICs? CO5-R

(a) Fixed voltage regulators (b) Adjustable voltage regulators

(c) Both a and b (d) None of the above

10. In LM317 voltage regulator, what is the minimum value of voltage required between its input & output in order to supply power to an internal circuit? CO5-R

(a) 1V (b) 3V (c) 5V (d) 10V

PART – B (5 x 2= 10Marks)

11. Define an Integrated circuit. CO1-R

12. Mention some of the linear applications of op – amps. CO2-R

13. List the basic building blocks of PLL: CO3- R

14. Define conversion time. CO4-R

15. What is switching regulators? CO5-R

PART – C (5 x 16= 80Marks)

16. (a) Explain in detail about fabrication technics involved in monolithic IC. CO1-App (16)

Or

(b) Explain process involved in fabrication of ICs in detail. CO1-App (16)

17. (a) Draw and explain about the equivalent circuit of OP-AMP CO2-Ana (16)

Or

	(b)	Draw Transfer characteristics of OP-AMP and explain the linear and nonlinear operation.	CO2-Ana	(16)
18.	(a)	For performing differentiation in an op-Amp, integrator is preferred to differentiator- Explain	CO3-Ana	(16)
		Or		
	(b)	What is an instrument amplifier? Draw a system whose gain is controlled by variable resistance.	CO3-Ana	(16)
19.	(a)	With neat diagram explain the operating principles of PLL and Expain the process of FSK demodulation using PLL.	CO4-U	(16)
		Or		
	(b)	Drive the expression for free running frequency of voltage controlled oscillator.	CO4-U	(16)
20.	(a)	Draw the functional and connection diagram of low voltage regulator and Explain.	CO5-U	(16)
		Or		
	(b)	Draw and explain the typical block diagram of power amplifier and switching regulator.	CO5-U	(16)

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