

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Course Code & Name : **23ECB203 LINEAR INTEGRATED CIRCUITS**

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Question Bank

UNIT – IV : ANALOG TO DIGITAL AND DIGITAL TO ANALOG CONVERTERS

Part A – 2 Mark Questions

S.No	Question	Bloom's Level	Industry Reference/GATE QP	CO
1	Define digital-to-analog converter (DAC).	BL1 – Remember	Analog Devices	CO4
2	Define analog-to-digital converter (ADC).	BL1 – Remember	Texas Instruments	CO4
3	List the specifications of a DAC.	BL1 – Remember	Data Converter Datasheets	CO4
4	What is resolution of a DAC?	BL1 – Remember	Precision Measurement	CO4
5	Define accuracy of a DAC.	BL1 – Remember	Instrumentation Systems	CO4
6	What is settling time of a DAC?	BL1 – Remember	High-Speed Converters	CO4
7	What is weighted resistor DAC?	BL1 – Remember	DAC Design	CO4
8	What is R–2R ladder DAC?	BL1 – Remember	Analog IC Design	CO4
9	Define monotonicity of a DAC.	BL1 – Remember	Industrial Control	CO4
10	What is glitch in DAC?	BL1 – Remember	High-Speed DACs	CO4
11	List the specifications of an ADC.	BL1 – Remember	ADC Datasheets	CO4
12	What is conversion time of an ADC?	BL1 – Remember	Data Acquisition	CO4
13	What is sample-and-hold circuit?	BL1 – Remember	Signal Processing	CO4
14	Define quantization error.	BL1 – Remember	Digital Signal Processing	CO4
15	What is flash ADC?	BL1 – Remember	High-Speed ADCs	CO4
16	What is successive approximation ADC?	BL1 – Remember	Microprocessor Interfaces	CO4
17	Define single-slope ADC.	BL1 – Remember	Measurement Systems	CO4
18	Define dual-slope ADC.	BL1 – Remember	Digital Multimeters	CO4
19	What is over-sampling ADC?	BL1 – Remember	Sigma-Delta ADCs	CO4
20	What is voltage-to-time conversion ADC?	BL1 – Remember	ADC Architectures	CO4

Part B Questions

S.No	Question	Bloom's Level	Industry Reference/GATE QP	CO
1	Explain the specifications of a digital-to-analog converter.	BL2 – Understand	Data Converter Design	CO4
2	Explain weighted resistor type DAC with neat diagram.	BL2 – Understand	DAC ICs	CO4
3	Explain R–2R ladder DAC with voltage-mode and current-mode operation.	BL2 – Understand	Analog IC Design	CO4
4	Compare weighted resistor DAC and R–2R ladder DAC.	BL4 – Analyze	DAC Design	CO4
5	Explain the need for sample-and-hold circuits in ADCs.	BL2 – Understand	Data Acquisition Systems	CO4
6	Explain the specifications of an analog-to-digital converter.	BL2 – Understand	ADC Datasheets	CO4
7	Explain the working of flash type ADC.	BL2 – Understand	High-Speed ADCs	CO4
8	Explain the working of successive approximation ADC.	BL2 – Understand	Embedded Systems	CO4
9	Explain single-slope ADC with suitable diagram.	BL2 – Understand	Measurement Systems	CO4
10	Explain dual-slope ADC with suitable diagram.	BL2 – Understand	Digital Multimeters	CO4
11	Explain ADC using voltage-to-time conversion.	BL2 – Understand	ADC Architectures	CO4
12	Explain over-sampling ADCs with advantages.	BL2 – Understand	Sigma-Delta Converters	CO4
13	Compare flash ADC and successive approximation ADC.	BL4 – Analyze	ADC Design	CO4
14	Compare single-slope and dual-slope ADCs.	BL4 – Analyze	Measurement Electronics	CO4
15	Explain high-speed sample-and-hold circuits.	BL2 – Understand	High-Speed Data Converters	CO4
16	Derive the expression for output voltage of an R–2R ladder DAC.	BL3 – Apply	GATE EC	CO4
17	Calculate the resolution of an 8-bit DAC.	BL3 – Apply	GATE EC	CO4
18	Compare flash ADC and SAR ADC in terms of speed and complexity.	BL4 – Analyze	GATE EC	CO4
19	Explain quantization error in ADCs.	BL2 – Understand	GATE EC	CO4