

ANALOG AND DIGITAL CIRCUIT DESIGN

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	An ideal op-amp has input impedance a) Zero b) Infinite c) Very low d) Medium	K1	CO1
	2	CMRR stands for a) Common Mode Resistance Ratio b) Common Mode Rejection Ratio c) Current Mode Rejection Ratio d) Current Mode Resistance Ratio	K1	CO1
2	3	A summing amplifier is used to a) Subtract signals b) Divide signals c) Multiply signals d) Add multiple input signals	K2	CO2
	4	LDO regulator stands for a) Low Data Output b) Low Dropout Regulator c) Low Drain Output d) Linear Data Output	K1	CO2
3	5	Comparator compares a) Frequency b) Resistance c) Current d) Voltage levels	K1	CO3
	6	Schmitt trigger is used for a) Amplification b) Noise removal c) Oscillation d) Filtering	K2	CO3
4	7	Multiplexer is a a) Many to one device b) One to many device c) Storage device d) Arithmetic device	K1	CO4
	8	Decoder converts a) Binary to decimal b) Decimal to binary c) Analog to digital d) Digital to analog	K2	CO4
5	9	Flip-flops are used in a) Combinational circuits b) Sequential circuits c) Analog circuits d) Power circuits	K2	CO5
	10	A counter is used to a) Store data b) Count pulses c) Amplify signals d) Filter signals	K2	CO5

Cont...

SECTION - B (35 Marks)Answer **ALL** questions**ALL** questions carry **EQUAL** Marks

(5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Describe working of an op-amp and its equivalent circuit.	K2	CO1
	(OR)			
	11.b.	Analyze op-amp parameters: offset voltage, bias current, CMRR.	K3	
2	12.a.	Explain summing and averaging amplifiers.	K2	CO2
	(OR)			
	12.b.	Discuss fixed and variable voltage regulators.	K3	
3	13.a.	Draw and explain comparator schmitt trigger circuit.	K4	CO3
	(OR)			
	13.b.	Draw and explain precision rectifier and clipper circuit diagram.	K3	
4	14.a.	Explain 4x1 multiplexer with truth table and diagram.	K3	CO4
	(OR)			
	14.b.	Describe encoder with a circuit diagram.	K4	
5	15.a.	Explain state table and state diagram with an example.	K3	CO5
	(OR)			
	15.b.	Describe synchronous counters with a circuit diagram.	K2	

SECTION -C (30 Marks)Answer **ANY THREE** questions**ALL** questions carry **EQUAL** Marks

(3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Explain op-amp working, equivalent circuit, and parameters in detail.	K4	CO1
2	17	Discuss instrumentation amplifier and active filters.	K4	CO2
3	18	Describe waveform generators square and triangular wave is generated with op-amp.	K4	CO3
4	19	Design and explain arithmetic circuits and comparators.	K4	CO4
5	20	Explain design procedure of sequential logic circuits.	K5	CO5

Z-Z-Z

END