23ELU309N

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2025
(Third Semester)

Branch – **ELECTRONICS**

DIGITAL ELECTRONICS

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	The binary equivalent of the decimal number 10 is _____ a) 0010 b) 10 c) 1010 d) 010	K1	CO1
	2	The octal equivalent of 1100101.001010 is _____ a) 624.12 b) 145.12 c) 154.12 d) 145.21	K2	CO1
2	3	The NOR gate output will be high if the two inputs are _____ a) 00 b) 01 c) 10 d) 11	K1	CO2
	4	There are _____ cells in a 4-variable K-map. a) 12 b) 16 c) 18 d) 8	K2	CO2
3	5	Perform binary addition: 101101 + 011011 = ? a) 011010 b) 1010100 c) 101110 d) 1001000	K1	CO3
	6	How many select lines would be required for an 8-line-to-1-line multiplexer? a) 2 b) 4 c) 8 d) 3	K2	CO3
4	7	The truth table for an S-R flip-flop has how many VALID entries? a) 1 b) 2 c) 3 d) 4	K1	CO4
	8	BCD counter is also known as _____counter a) Parallel b) Decade c) Synchronous d) VLSI	K2	CO4
5	9	How many clock pulses do a successive approximation converter requires for obtaining a digital output. a) Twelve b) Six c) Eight d) None	K1	CO5
	10	D/A converters are often used to convert finite-precision time series data to a continually varying _____ signal. a) physical b) electrical c) electronic d) none	K2	CO5

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.	Show the differences between digital vs analog.	K2	CO1
		(OR)		
	11.b.	Explain about the ASCII code with an example.		

Cont...

2	12.a.	Construct the Boolean identity of commutative and associative laws.	K3	CO2
		(OR)		
	12.b.	Develop a concept for implementation for logic circuits using logic gates.		
3	13.a.	Add the following binary numbers: (i) 11110000 + 1000011001 (ii) 10101000 + 010001001	K3	CO3
		(OR)		
	13.b.	Subtract the following using the 2's complement: (i) 1100001 from 111100001 (ii) 1100 from 11111		
4	14.a.	Distinguish the differences between RS and D flip-flops.	K4	CO4
		(OR)		
	14.b.	Discover the operation of mod 3 counter with an example.		
5	15.a.	Analyze the working of binary ladder D/A converter.	K4	CO5
		(OR)		
	15.b.	Examine the operation of dual slope type A/D converter.		

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	Compare BCD code and Gray code and list its differences.	K4	CO1
2	17	Infer about the basics and working of Karnaugh map and explain with an example.	K4	CO2
3	18	Distinguish between the working of multiplexer and demultiplexer with diagrams.	K4	CO3
4	19	Discover the types of synchronous counters and explain any one type with neat diagram.	K4	CO4
5	20	Take a problems of simultaneous conversion and simplify it.	K4	CO5

Z-Z-Z END