23ELU309N

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION DECEMBER 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	A three digit decimal number requires _____ for representation in the conventional BCD format. a) 3 bits b) 6 bits c) 12 bits d) 24 bits	K1	CO1
	2	Code is a symbolic representation of _____ information. a) Continuous b) Discrete c) Analog d) Both continuous and discrete	K2	CO1
2	3	The code where all successive numbers differ from their preceding number by single bit is _____ a) Alphanumeric Code b) BCD c) Excess 3 d) Gray	K1	CO1
	4	The NOR gate output will be high if the two inputs are _____ a) 00 b) 01 c) 10 d) 11	K2	CO1
3	5	What is a multiplexer? a) It is a type of decoder which decodes several inputs and gives one output b) A multiplexer is a device which converts many signals into one c) It takes one input and results into many output d) It is a type of encoder which decodes several inputs and gives one output	K1	CO2
	6	Which combinational circuit is renowned for selecting a single input from multiple inputs & directing the binary information to output line? a) Data Selector b) Data distributor c) Both data selector and data distributor d) DeMultiplexer	K2	CO2
4	7	UP-DOWN counter is a combination of _____ a) Latches b) Flip-flops c) UP counter d) Up counter & down counter	K1	CO3
	8	In 4-bit up-down counter, how many flip-flops are required? a) 2 b) 3 c) 4 d) 5	K2	CO3
5	9	What is the primary function of a D/A converter? a) To convert analog signals to digital signals b) To convert digital signals to analog signals c) To amplify digital signals d) To filter analog signals	K1	CO3
	10	The successive approximation method is commonly used in _____. a) Digital to analog converters b) Analog to digital converters c) Digital filters d) Microcontrollers	K2	CO3

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.	Determine the BCD Code with example.	K1	CO1
		(OR)		
	11.b.	Explain the Parity code.		
2	12.a.	Elaborate the Associative and Distributive Laws.	K2	CO2
		(OR)		
	12.b.	Build a Duality Theorem.		
3	13.a.	Justify the Binary addition and Subtraction.	K3	CO3
		(OR)		
	13.b.	Evaluate the Encoder and Decoder Circuits.		
4	14.a.	Explain the functions of JK Flip flop.	K3	CO3
		(OR)		
	14.b.	Design a Mod 3 Counter.		
5	15.a.	Explain about Dual Slope type A/D Converter.	K4	CO3
		(OR)		
	15.b.	Elaborate the functions of Simultaneous Conversion.		

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	Discover the advantages of ASCII over other codes.	K2	CO1
2	17	Explain the De-Morgans Theorem.	K2	CO1
3	18	Compare with Half subtractor and Full subtractor.	K3	CO2
4	19	Explain the synchronous and Asynchronous counters.	K3	CO3
5	20	Describe about Binary Ladder type D/A converter.	K4	CO3

Z-Z-Z END