

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2026
(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	Any signed negative binary number is recognised by its _____ a) MSB b) LSB c) Byte d) Nibble	K1	CO1
	2	The parameter through which 16 distinct values can be represented is known as _____ a) Bit b) Byte c) Word d) Nibble	K2	CO2
2	3	How many AND gates are required to realize $Y = CD + EF + G$? a) 4 b) 5 c) 3 d) 2	K1	CO1
	4	How many two-input AND and OR gates are required to realize $Y = CD + EF + G$? a) 2, 2 b) 2, 3 c) 3, 3 d) 3, 2	K2	CO2
3	5	Total number of inputs in a half adder is _____ a) 2 b) 3 c) 4 d) 1	K1	CO1
	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	CO2
4	7	UP-DOWN counter is a combination of _____ a) Latches b) Flip-flops c) UP counter d) Up counter & down counter	K1	CO1
	8	In 4-bit up-down counter, how many flip-flops are required? a) 2 b) 3 c) 4 d) 5	K2	CO2
5	9	In parts of the processor, adders are used to calculate _____ a) Addresses b) Table indices c) Increment and decrement operators d) All of the Mentioned	K1	CO1
	10	Which DAC type uses only two different values of resistors? a) Weighted Resistor DAC b) R-2R Ladder DAC c) Flash DAC d) Successive Approximation DAC	K2	CO2

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 Binary number system.	K1	CO1
		(OR)		
	11.b.	Explain the ASCII with examples.		
2	12.a.	Elaborate the Implementation of logic circuits using gates.	K2	CO2
		(OR)		
	12.b.	Define the Demorgan's theorem with example.		
3	13.a.	Justify the Full Subtractor Logic Circuits.	K3	CO3
		(OR)		
	13.b.	Evaluate the 8051 Multiplexer with neat diagram.		
4	14.a.	Write short note on function of the UP/Down Counter.	K4	CO3
		(OR)		
	14.b.	Simplify the Ring counter.		
5	15.a.	Explain about Weighted Resistors.	K4	CO3
		(OR)		
	15.b.	Write a brief note on the Successive Approximation ADC.		

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 the binary and octal number systems.	K1	CO1
2	17	Explain the EX-OR and EX-NOR logic gates with its truth table.	K2	CO2
3	18	Compare with Multiplexer and Demultiplexer.	K3	CO3
4	19	Justify the Synchronous and Asynchronous counters.	K4	CO3
5	20	What is DAC? Explain with its types.	K4	CO3

Z-Z-Z

END