

IE1204 Digital Design Answer Form 2023-2024

Full Name		Personal Number	Program
Practice Exam Fall 2023		YYYYMMDD-XXXX	NN
#	Answer with	Answer	Points
1	Decimal number	116	1
2	8 bit two's complement hexadecimal number	0xF4	1
3	8 bit two's complement hexadecimal number	0x13	1
4	Boolean expression, Y =	$Y = B + A \cdot C$	1
5	Circuit number	#2	1
6	Boolean expression, Y =	$\overline{B} + \overline{A}CD + A\overline{C}D = (\overline{B} + D)(A + \overline{B} + C)(\overline{A} + \overline{B} + \overline{C})$	1
7	MUX connections, Boolean expression or Gate	$A + \overline{B}$	1
	Row CD = 00	$\overline{A \oplus B}$	
	Row CD = 01	$\overline{A + B}$	
	Row CD = 10	$A \oplus B$	
Row CD = 11	$A \oplus B$		
8	Timing diagram		1
9	Flip-Flop or Latch #	#4	1
10	Maximum clock frequency = Is the Hold time constraint ok?	5 GHz [] Yes [X] No	1
11	Number of states = Final state $Q_3Q_2Q_1Q_0 =$	10 1 1 0 1	1
12	Boolean expression Y = Input $D_3D_2D_1D_0 =$	$Y = Q_3 \cdot Q_0$ 0 1 0 1	1
13	16 bit two's complement hexadecimal Product A x B	P 0x2783	1
14	8 bit two's complement hexadecimal Quotient (A / B) and Remainder	Q 0x07 R 0x08	1
15	8 result bits ($S_7 S_6 S_5 S_4 S_3 S_2 S_1 S_0$)	1 0 0 0 0 1 1 1	1
16	Memory contents, 8 decimal digits	0 1 3 4 5 6 8 9	1
TOTAL POINTS		Examiner sign	16