Discrete. Spring '20 Quiz 7. Name _____ Time_____

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26=0

1. Consider the sequence $a_n = (n^2 + 3) \mod 5$; starting at $n = 1$. Use it to encrypt the word ZIPPY. Your answer will be the new word.

i	*letter*	std. number	a_i			
1	Z					
2	I					
3	P					
4	P					
5	Y					

2. Consider the sequence $a_n = 2n$; starting at $n = 1$. It has been used to encrypt a message, and the encrypted message is REYA. Use the same sequence to decrypt and find the original word.

i	*letter*	std. number	a_i			
1	R					
2	E					
3	Y					
4	A					

3. Consider the BBS (Blum Blum Shub) sequence $a_n = (a_{n-1})^2 \mod pq$; with $a_0 = 3$ (that is, $k = 3$) and with $p = 5, q = 5$. Starting at $n = 1$, use this sequence to encrypt the binary number 110011. Your answer will be the new binary number. You may use either method from class.

i	*bit*	a_i		
1	1			
2	1			
3	0			
4	0			
5	1			
6	1			