	Saroj Dahal 191725					
Unit-II. Number System and Codes.						
1.	Subtract using 2's complement method:					
	1111101)2 - (100101)2.					
a	$(1111101)_2 - (100101)_2$. Taking 2's complement of $(100101)_2 = (011010) + 1$					
ANJ.	= 011011.					
	Adding: (1111101)2 with 2's complent of (100101)2.					
	1 1 1 1 1 0 1					
	0 0 1 1 0 1 1					
	final -> (1) 0 0 1 1 0 0 0					
	$\therefore (1111101)_2 - (100101)_2 = 11000_2$					
	(1311101)2 - (100103)1 - 110002					
þ.	(10011000)2 - (1001100)2.					
ANS.	(10011000)2 - (1001100/2. Taking 2's complement of (1001100)2 = 0110011 +1					
	5 5 5 5 F					
	Adding (10011000)2 with 2's complement of (1001100)2.					
7.						
130	2 1 6 2 1 0 0 1 1 1 0 0					
	+ 0 0 1 1 0					
	1. 1. 0. 0 1 1 0.0					
	11:07: = 11001100					
	$(10011000)_2 - (1001100)_2 = 11001100$					
	William Color Colo					

	Const and water a series of the series of th
	2. Use 1's complement method to subtract the following.
	$a. (100)_2 - (110000)_2$
A	Taking 2's complement of $(110000)_2 = 001111+1$ = $(01000)_2$
	Adding (100)2 with 2's complement of (110000)2
	000100
	010000
	since, there is no carry so the result is -ve and the 15
	Complement of 0.10100 is $101011+1 = 101100$: $(100)_2 - (110000)_2 = 001100_2$
b.	(7850)10 - (7650)10
N.D.	tous, tomplement of 7650 is,
<u>.</u>	9999
	2349
	2350 10's complement of 7650 is 2350.
	Vow adding 7850 with 10's complement of 7650.
	myanded + 4 3 5 0
	(1) B B O O : (7850)10 - (401)

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e. (1010)2 - (1000)2

Ans. Taking 2's complement of (1000)2 = 0111+1
= 1000

Adding (1010)2 with 2's complement of (1000)2.

1 0 1 0 + 1 0 0 0 (a)19 + (1) 0 0 1 0

 $(1010)_2 - (1000)_2 = 10_2.$

d. $(1000)_2 - (1010)_2$ Ans. Taking 2's complement of $(1010)_2 = 0101+1 = 0110$.

Adding (1000)2 with 2's complement of (1010)2.

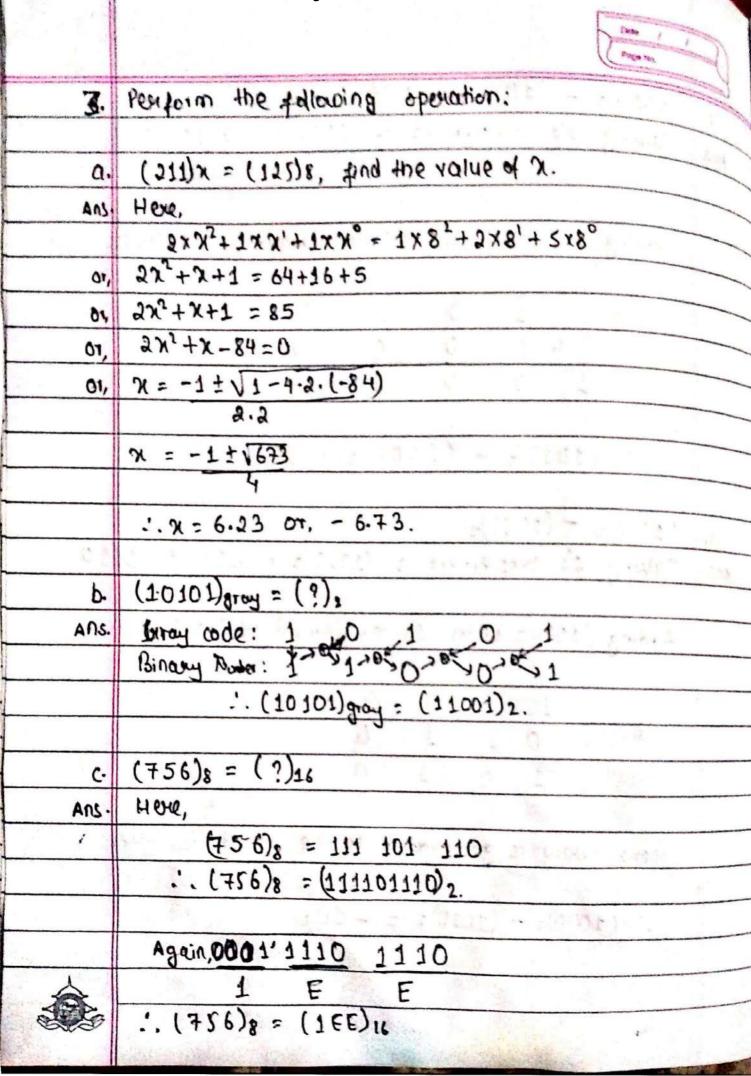
1 0 0 0 + 0 1 1 0

(200) [2] (1) (1)

Here covery is generated so the result is -ue.

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 $(1000)_2 - (1010)_2 = -10_2$



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AN

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Hove,

$$(11011 \cdot 11)_1 = 1 \times 2^4 + 1 \times 2^3 + 0 \times 2^4 + 1 \times 2^4 + 1 \times 2^6$$
.

and the we

Ans. 14040,

9's complement of sugg is,

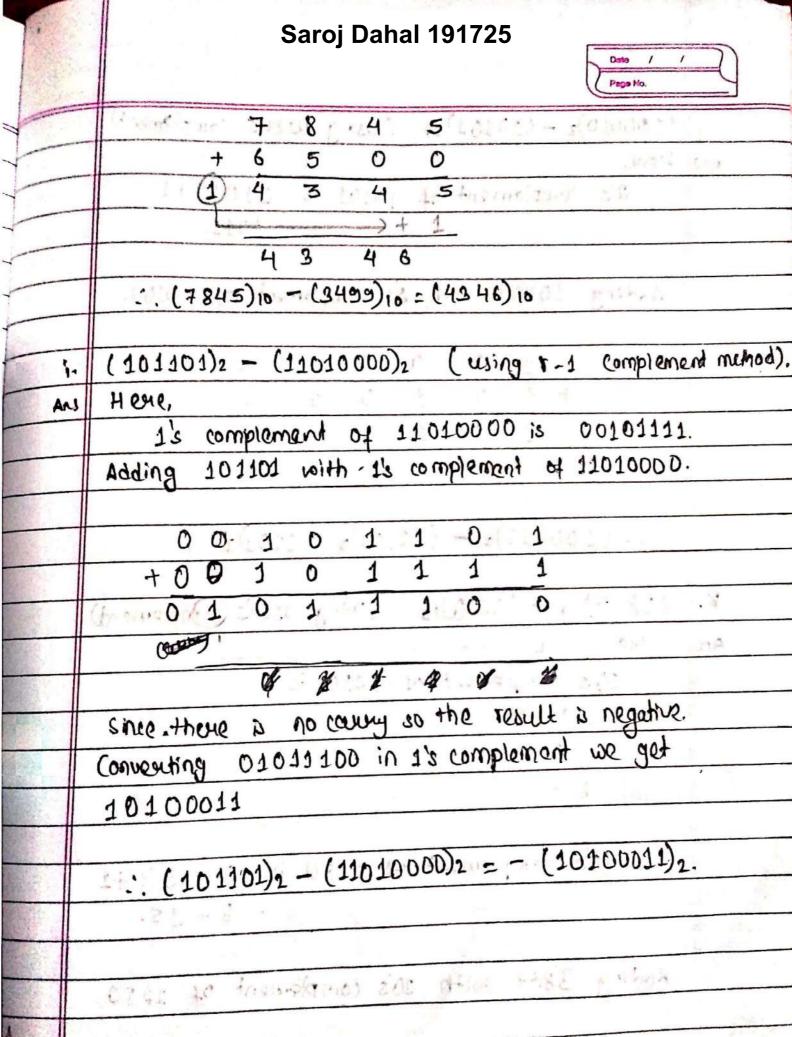
9999

- 3499

6500



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j (100010)2 - (10101)2. (Using usex's company);
Ans Hera,

24 complement of 10101 is 01010+1 = 1011.

Adding 100010 with is complement of 10001

 $(100010)_2 - (10101)_2 = (1101)_2$

K. (3857) 10 - (1250)10 (wing user's complement)

AN HONE,

10's complement of 1250 is
9999
-1250

: 10's Complement of 1250 is, 8794+1 = 8795.

Adding 3857 with 10's complement of 1250.

A STATE OF THE PARTY OF THE PAR	0	5	T	44	E E.	1	1	100	1
+ 8	7	19	5	131		1200	(1")	41110	- 1
(1) 2	6	5	2				-		
Draward . sha	2100	19×* + y . 4	14	lşđ	111	T No	17. 1	- 4	1.7.

-. (3857) no - (1250) 10 = (2652) 10

4 Explain gray code and its application.

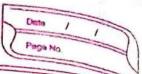
Gray code: 5 the contract of the Ans

- . The gray code is non-weighted code:
- . It is not suitable for authimetic operations.

He minimum, the professions that it is be in

. It is a cyclic code became su messive code words in this code differ in one bit position only ie unit distance code.

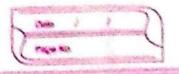
17.54 41.	901 1	Wast washing 2016	on the source of the trib		
		Binory	Groy code.		
- 51.00°	d 550	1 Sin 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	esties has a militial		
2 1/1	e 1-		51 20 OO O	11	
		001	1000 1 10 Tag	4	
y 1		010	011	11 100	
		011	010		
X 70	1 kg . 4		110		
		101	1111	112	
	-	110	101		
		111	100		
1	-	-		1	



Application of graycode is generally in the system that requires fast switching of the stignals.

- 5. What do you mean by alphanumeric code. excens 3 code one called self complementing code. Explain it.
- Ano. Alphanomeric code:
 - · Alphanymeric todes are also called character code, and bytany codes to represent alphanymeric data. The codes notice alphanymeric data, including letters of the alphabet, numbers, mathematical symbols and pronotration marks, in a form that is understanable and pronos able by a computer.
 - · Using these code we can interpare, input output devices such as keyboard, monitors, printers. etc. with computer.
- Excess 3 code one called self complementing code became in Excess 3 code we get the g's complement of a number by just complementing each bit thou means by replacing '0' by '1' and '1' by '0'.
- 6. Describe 1's complement and 2's complement method of subtraction of binary numbers.

Ans.



Subtraction using 1's complement

- In 1's complement subtraction, add the 1's complement of subtrahend to the minuend.
- . It there is causey out, being the carry around and add 4 to LSB.
- . If cavery is present, the answer is positive and it is true binary form.
- If there is no carry, the answer is negative and it is in its

Subtraction using 2's compliment.

- In 2's complement subtraction, add the 2's complement of subtractioned to the minuend
- · It carry is generated then the nexult is positive and in the true binary form.
 - in it's 2's complement form.
- 7. Explain pounty method for error detection for four bit binary number with even and add paraty.
- Ans. Parrity bit! an extra bit inalyded with menage to Make total number of 13 either odd or even.

the second second by the second secon	P(oold)	P (2000)
Menage	Cours	0
0000	1	1
0001	O	

	Saroj Dahal 191725					
			C. Marin			
	0010	0 22 20	1 .			
ie ka	00011	the 1 to a second	0			
	0100	. 0.	1,000			
10 mm la 2/	0 101	+ parts or a great	0 1 1			
	0 110	1	0			
1.7603 4	0111	0	12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			
	1000	0	1 . mers			
1 1	1001	some of the second	d 0 1 1 1 1			
	1010	1	F. Oscia ber			
	1011	O	1			
	1100	contint on error	0 .			
	1101		one A will be a second			
	1110	0. 100 0.00	1			
		4	D			