Pote.
Sheet 5 Digdarshan Kunwar. Computer Science
Combular Computer
Sheet 5
Problem 5.1 Here.
Problem 5.1
190
$\alpha^2 = \alpha$
$d+d=\beta$
82=8 65=1+d1=1(H)
8+8=8
$S^2 = \beta \beta (1) + \beta \beta (1) $
$\delta + \delta = dd$
(i) true (8), true (1) and will age , well
Now, from the equations abhove we can devise that.
Lis a product unit
so, d=1 17 15+15) ====(1=1)
r is a sum unit atdist - forth
So, 8 = 0 1 = 6 = 18 = 18 = 1 + 18 + 1
Now, from the abhove, we can say that.
D=F=d+dF=-dd
B= d+d=2 - 10-1-1)1+1F-11-1
Now, Very De (And 11) + d.L.
CANDED A COUNTY IN THE
$8^2 = BB = 22$ — (1)
8+8 = dd = 11, 11 = 1- (2).
F in dead in the me in the me
Now converting (22) to decimal and
Supposing it as 1X10
Supposing it as $1 \times 10^{\circ}$ So, $(x)_{10} = 2 \times b^{\circ} + 2 \times b^{\circ}$

	So, we have,
	(x) = 2b + 2 - (3)
	137
	Now, converting (11) to decimal and supposing
	it as y
	So,
	$(y)_{10} = 1b' + 1 \cdot b^{\circ}$
	4 = 0 + 0
	$(y)_{10} = 1b + 1 = 28$
	So, 8 = 4 ± 6
	$\delta_b = \begin{pmatrix} 1b+1 \\ 2 \end{pmatrix} \qquad (H) \qquad (U) \qquad = \qquad (H) \qquad ($
	2/10
	Now, equating (1) and, (3) and (4)
, 5000	Now the contract against the work was
	$(b+1)^2 = 4(2b+2)$
Or,	$(h+1)^2 - 9h+9$
or,	$b^2 + 2b + 1 - 8b - 8 = 0$
or,	b 6h to - I - A
or,	$b^2 - 7b + b - 7 = 0$
or	b(b-7)+1(b-7)=0= = = = ============================
w,	(b+1)(b-7)=0
•	b = -1 or b = 7
	Since the second
	orde mere are no -ve bases
	tono bamber on sie the some water works
	X 2D II - Misagdus

	Page
	Therefore decimal number 99 would be
	$7 \boxed{14 \rightarrow 0} \boxed{181212} \boxed{100}$ $7 \boxed{14 \rightarrow 0} \boxed{181212}$ $7 \boxed{2 \rightarrow 2}$
	7 12 10 1181213
	+ [2 → 2
1	100 John Jed (100 2 - 1
	13 (201) 7.
1	
	which is (B&a) for the utopians.
1	
1	Problem 5.2 3(38 HP) = 13-1 =15/2001
1	. 1/
4)	$(-1)_{10} = (?)_{5}$
	in fe
	firstly representing (1) 10 lin base 5
	- 10001 ALLE DE LA TIME DE LA TIM
	The b-1 complement of salls
	4443
	The bis complement of (1)5
	4443
	+ aldeletele en entre entre entre entre entre
	4444 m of (18 in 18) (18 in 18)
	50,
	(-1)10 = (4444) 500 manufactor 11-al
	HIDD THE MERCHANNEY A
	$(-8)_{10} = (?)_{5}$
	sind ou of stat of theory
	firstly representing (18)10 in base 5
	A PART -
41211	5 8 -1 3
01)	5 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
	0 - 224

	$(8)_{10} = (0013)_5$
	Now (b-1) complement of (0013)5
	(4431)2
	b's complement of (0013)9
	4431
	14432)5
	(-1132)5
	Therefore (-8) 10 = (4432) 5 3 3 3 3 3
-	
(b)	$(-8)_{10} + (-1)_{10}$
	So,
	(4432) + (4444) 5
	1000
	-4.432 to topmoidmen a sol
<u> </u>	4444 = 8+1-+ 4431 = vasional max 2 a sent
W.	So, 44510 manadamo 20 == 1
	$(-8)_{10} + (-1)_{10} = (4431)_{5}$
	(onverting (4431), to decimal:
	(b-1) complemet is -0013
	b's complement is 0014
	(3-)
	Converting (0014) to have 10 we have
	$(0014)_5 = ((1 \times 5 + 4 \times 5^\circ)_{10}$
	2 (3) _{[8}
	here, as we are finding the complement of (4431) and converting it to decimal we know the sign
8	ichow the skn

Page____ is -ve. JE = 1 (11.) Therefore (4431) = (-9)105 the conversed december is -9.0 Problem 5.3 Mere, we have. - 273.15/10= 34 04.0 Since the number is negative the sign bit at the first is 1. (Dolou) = 121. So, dealing the calculations with 273.15,0 for the rest of the part we have, 235.15 = (160010001.05Tug $(275.15)_{10} = (?)_2$ Considering the integer part of the decimal 0010010001000000 2 (273 → 1 2 868 - 10 2 34 - 10 2 1-1 $(273)_{10} = (400010001)_{2}$ so, Now considering me part after the decimal

```
0.19 \times 2 = 0.30
             = 0.60
    0.30 \times 2
             = 1.20
   0.60 + 2
                               0
             = 0.40
   0.20 X2
             = 0.80
   0.40 x2
   0.80 +2 = 1.60
   0.60 \times 2 = 1.20
  0.20 \times 2 = 0.40
So, Alle - so substate i regiment sittle
  0.15_{10} = (00\overline{1001})_{2}
50,
   273.15_{10} = (100010001.001001)_{2}
More,
In exponent form (1.00010001001001) * 2$1000
              (1.00010001001001) * 21000
That is
 1.00010001001001 E 8
The
exponent is represented by (8+127) = 135
in a single precision floating system.
                  201735 -1
Converning
                  2 67 -> 1
                  2 33 +1
                   2/16 -> 0
                   2
             0100020400
                    2/2 -0
    LEMENT BAS 19102 (1) > IN AMERICAN LIKE
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	Date Page
	S_0 , $(135)_{10} = (10000111)_2$
	· ·
	Now,
	Sign bit is 1
	Exponent is 10000111
	Mantissa is \$0001000100100110011
	So, Floating point representation.
	let S = Sign
	E = Exponent
	M= Mantissa
	SE M
	SE M 1 10000111 \$ 00010001001100110011
(b).	Now, the decimal fraction from the answer.
	from
	(100010001.001001),
	(\$100010001.0010011001), is 23 bit.
	So, converting the decimal part.
	.00100110011
Ø	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
	$\frac{2457}{16384} + \frac{1}{2^{15}} = \frac{4915}{32768}$
74	= 0.1419633789 0.149993896 48
	So, the number actually stored is -273.1499633789
	So, the number actually shored is -273.1499633789 -273.1499389648
	-273.173300000