Name : Siddharth Charan
Roll No. : 190101085

Hence, K_1 K_2 K_3 K_4

0 1 0 1

[4-1's] [5-1's] [2-1's] [3-1's]

Hence $\langle K_1 K_2 K_3 K_4 \rangle = \langle 0101 \rangle = 5^{th}$ bit is wrong.

Hence, 011100 0111 0 is obtained correctly.

Q.④ ~~t = (p - q) *~~ r

$x = 10 - 1100 - 01 * 111100$

in decimals

$x = 2 - 12 - 1 * 60$

As, last number is very large.

max. value of x :-

$x = ((2-12) - (1*60))$

$[x = -10 - 60 = (-70)_{10}]$ Ans.

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Q. (1) $(3125.345)_8$

⇒ First we will convert number in decimal

$(3125.345)_8 = 3\times8^3 + 1\times8^2 + 2\times8 + 5 + 3\times8^{-1} + 4\times8^{-2} + 5\times8^{-3}$

$= (1621.447265625)_{10}$

⇒ Then we will convert this in base 5 :-

$(1621.447265625)_{10} \Rightarrow$

⇒ $(1621)_{10} = (22441)_5$ (it is simple)

and for decimal part we need multiply sum method.

$(0.447265625)_{10} \Rightarrow 0.2104232$

⇒ Hence

$(3125.345)_8 = (22441.2104232)_5$

Q. 2. $X = A + B$

$A = 11001010$ $\quad B = 10110100$

First, we need to add both the numbers and then, we will change X to 2's complement.

A $\quad 11001010$

B $\quad 10110100$

X $\quad 101111110$

X in 2's system $\quad 01000010$ Ans.

Q. (3) Given,

$H = D_{11}\ D_{10}\ D_9\ D_8\ D_7\ D_6\ D_5\ D_4\ D_3\ D_2\ D_1$

As, there are 12 bits in this code.

From formula $2^K \geq m + K + 1$

$K = 4$, $m = 8$

So, 1, 2, 4 and 8 bits are K_1, K_2, K_3 and K_4

Also, K_1 will depend on ⇒ 1, 3, 5, 7, 9, 11

K_2 ⇒ 2, 3, 6, 7, 10, 11

K_3 ⇒ 4, 5, 6, 7, 12

K_4 ⇒ 8, 9, 10, 11, 12