Assignment - GA (Genetic Algorithm)

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Q1.) Ans→

$A_1 = 11101111$, $A_2 = 00010100$, $A_3 = 01000011$

$H_1 = 1******$, $H_2 = 0******$, $H_3 = ******11$

$H_4 = ***0*01*$, $H_5 = 1*****1*$, $H_6 = 1*****1*$

As we can see, A_1 is matching with H_1, H_3, H_5 & H_6.

A_2 is matchig with H_2 and,

A_3 is matchig with H_2, H_3 and H_4.

Now, let's find order and defining length of each schemata.

		O(H)	δ(H)
$H_1 = 1******$	→	1	0
$H_2 = 0******$	→	1	0
$H_3 = ******11$	→	2	1
$H_4 = ***0*01*$	→	3	3
$H_5 = 1*****1*$	→	2	6
$H_6 = 1*****1*$	→	2	6.

Probability of survival of a schema under mutation can be find using this formula:

$$S_m(H) = (1 - P_m(H))^{O(H)}$$

Where P_m = Probability of mutation