

231K-0001

BAI-1A

AI-Assignment - 2

Date

MTWTF

Q2)

a) Initial Population

$[1, 2, 2, 1, 2, 2, 2], [2, 2, 3, 1, 3, 1, 1], [2, 3, 3, 1, 1, 1, 1],$
 $[3, 2, 2, 3, 3, 1, 1], [3, 1, 2, 3, 2, 1, 1], [1, 1, 1, 3, 1, 3, 1]$

b) Fitness

$[-522, -501, -10535, -500, -516, -80538]$

It is negative because aim is to minimize the total cost & time so greater value means less fitness

c) Weights

$[80017, 80038, 70004, 80039, 80023, 1]$

Formula: $\forall f \in \text{fitness} [f + \text{abs}(\min(\text{fitness})) + 1]$

Example: 80023

$$-516 + |-80538| + 1 = 80023$$

d) Selection

Parent 1 = $[3, 2, 2, 3, 3, 1, 1]$

Parent 2 = $[3, 2, 2, 3, 3, 1, 1]$

e) Crossover

Child 1 = $[3, 2, 2, 3, 3, 1, 1]$

Child 2 = $[3, 2, 2, 3, 3, 1, 1]$

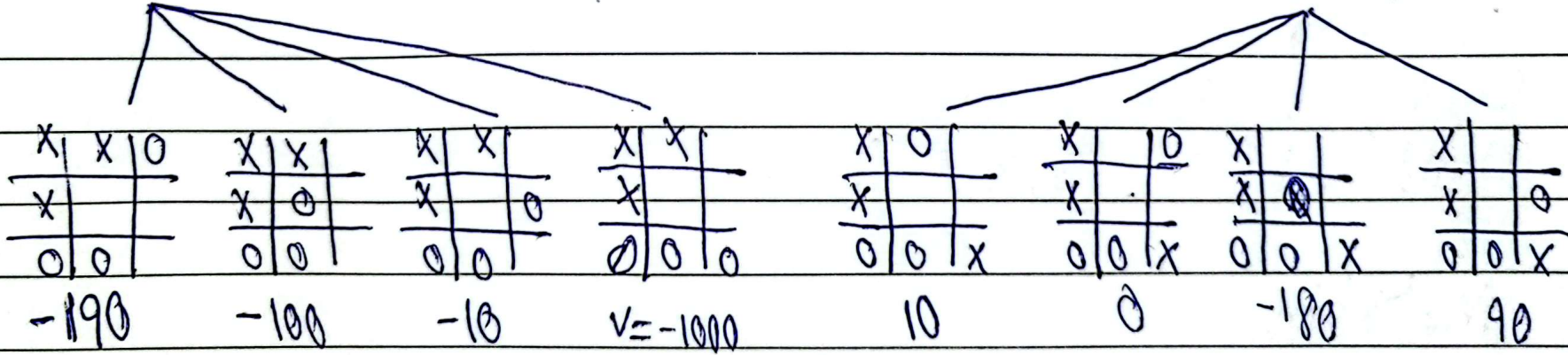
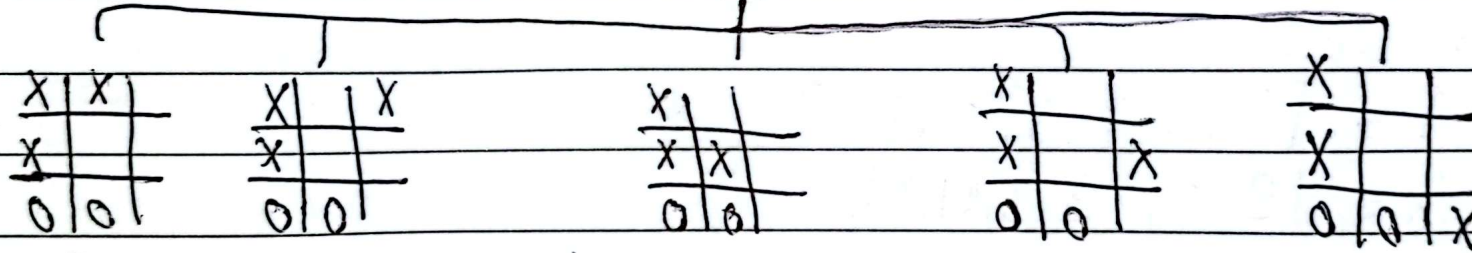
f) Mutation

Child 1 = $[3, 2, 2, 1, 3, 3, 1]$

Child 2 = $[2, 3, 2, 3, 3, 1, 1]$

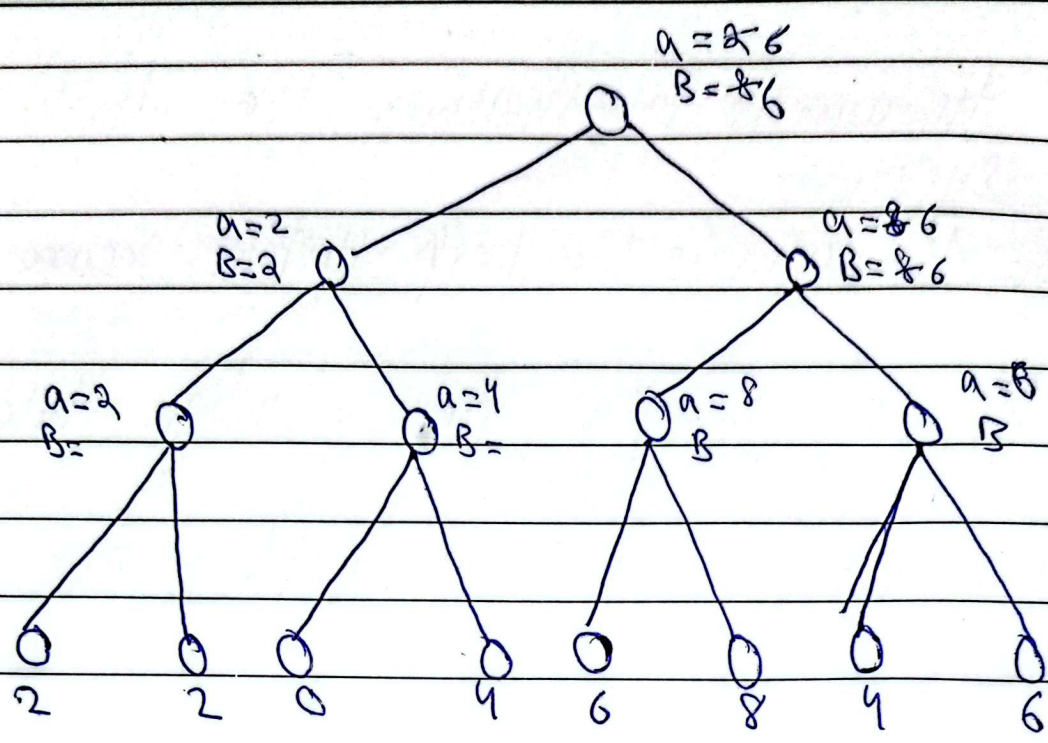
Q4)

X		
X		
0	0	

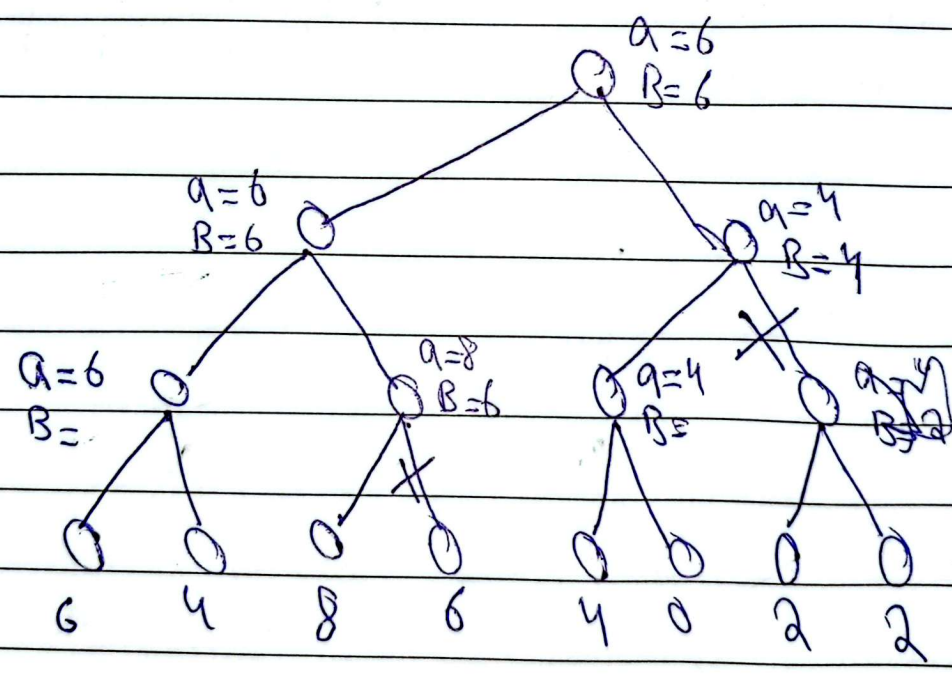


X will choose rightmost block.

Q9)
A)



B)



Q6)

a) ① Attacker: Its aim is to maximize the attack on the system.
 Defender: Its aim is to keep system secure.

② The defender tries to grow their advantage while minimizing the attacker's success.
 The attacker performs checks to exploit poor defender moves.

③ With stochastic elements, the defender may trade probabilities & consider multiple strategies.

b) & c)

