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Question 1
Question 2
Question 3
Question 4
Question 5

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Qtext:-

Answer the following questions for given game state: **[3+3+2=8 Marks]**

About the Game:

Soldier/Pawn (S) can move only one straight step ahead. Only if opponent coins are available, it can move in diagonally one step forward to attack the opponent coin. Under uncertainty, in the presence of other moves by the player, if the soldier has an advantageous position to attack the opponent then such moves are preferred by the player with 0.7 probability, else soldier moves with probability of 0.6. In either of the above cases all the remaining moves are equally likely to occur.

Horses/Knight(H) can move either forward/backward in L–shaped strides covering exactly 3 tiles. It is the only piece that can jump over other coins. If the player has lost all the soldiers, then all the knight's moves are equally likely to occur. If the Horse/Knight is positioned in any of the four corner of the board, then with 0.7 probability that player wins the game and with 0.3 probability the same player losses the game. In the absence of such positioning, the probability of a win for the player is 0.6 and that of loss for the same player is 0.4.

a. In this zero-sum game, if player with black colored pieces starts the play, construct game tree with utility up to level 2 or only one round per each player.

   Static Evaluation Value = Utility of MAX player – Utility of MIN player

   Utility of a player = Utility of player's Win + Utility of player's Loss

b. Apply Expectiminmax algorithm using the generated utility tree. Show each step & all the calculations in the algorithm

c. Design your own static evaluation function to suit the below three player chess game.