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1) Suppose you are asked to generate a set of 8 real numbers in the range of -60 to 40 whose mean would be 10. Now, you have to solve this problem using Genetic Algorithm.

- Encode the problem and deduce two parent chromosomes, PC1 and PC2. (3)
- Define a suitable fitness function for the problem and calculate the fitness of PC1 and PC2.(4)
- Illustrate single point crossover after the 4th gene between PC1 and PC2, and then perform mutation. You can mutate a number of your choosing. Finally, calculate fitness of the two newly formed child chromosomes and comment on which child is fitter. (3)
- What are the terminating conditions of GA when the goal state is not defined? Mention two such techniques.(2)

- 2) a. From the following state space tree what is the goal node? And Why? (2)
- Let's say an agent starts from state A, can we reach the goal if it follows simple Hill Climb Algo? What would be the path from start node A? (5)
 - Is there any drawback that you noticed after the simulation? If so, what is it? (1)

