Exp 9 Problems 9610.

Q1

What are the applications of expert system

Ans i) Expert system can be broadly designed used for designing and manufacturing physical devices such as camera lenses and automobiles.

ii) Expert system are primarily used for publishing the relevant knowledge to the users.
The two popular expert system used for this domain is an advisor and a tax advisor.

iv. In finance industries, it is used to detect any type of possible fund, suspicious activity & advise bankers that if they should provide loans for business or not.

v. In medical diagonsis, the expert system is used, It was the first area where these system were used.

vi. The expert system can also be used for planning & scheduling some particular tasks for achieving the goal of that task.

Exp 10 Postlab 9610.

Q1 How to overcore corbinational explosion in TSP

Corbinatorial explosion refers to rapid increase in the rumber of possible solution as the problem size increases, making the computationally expensive to find an optimal solution.

Methods to overcore this:

1) Heuristic method:
Nearest Neighbor:
Start from random city & always choose the nearest unvisited city, until all cities are visited.

2) Metaheuristic Algo:
Genetic Algorithms: Solutions are represented as chromosomes, which undergo selection, crossover and rutation operations to evolve towards an optimal solution.

Simulated annealing: It allows for some bad moves to escape local optima & explore the solution space more effectively.

3.) Approximation Algo.
Minimum Spanning Trees (MST)
Algo like Kruskal's Prim's algo can be used to find a MST of the graph & modify to form route.

4) Pruning technique:
Eliminate branches of the search tree that cannot lead to an optimal solution reducing number of solution that can be considered.

Q2 What is the learning from travelling Salesman problem?

1. Travelling Salesman problem states that the salesperson has to visit each house in city by taking the shortest path.
2. The houses are depicted as nodes, the paths as edges, its goal is to keep both the travel costs and distance travelled as low as possible.
3. The learning for this problem includes find a solution which is most optimal to meet the goal by using the genetic algorithm method
4. The genetic algorithm employs the method where all the solutions are represented as chromosomes which undergo selection, crossover mutation operations to evolve towards an optimal solution.