Q1. The company wants to know the optimized staffing recommendations for the business case described. Write the mathematical model for the deterministic optimization problem. Define and explain your decision variables, objective function and the constraint.

Ans: The decision variables are Month, States and

number of FTEs works. The objective variables are

number of FTEs works (Demand)

Constraint are restrictions on the decision variables that are full time equivalent works should not be less than 50 hours a week and part time employee works should not be less than 10 hours a week.

Q3. The company also wants to know the staffing recommendations for the worst-case and best-case scenarios. As mentioned earlier, there are days that an employee will be unavailable to process applications due to training, off days, etc. This will affect employee availability.

Assuming that the distribution is the same across all the states, answer the

following questions: What is the optimal number of staff members for the

worst and best cases?

Ans: The optimal number of staff members for the worst cases 922

and best cases 4528 What are the percentages of outsourcing for

the worst and best cases?

Ans: The percentages of outsourcing for the worst 15%

and best cases 25% What is the average cost per

application for the worst and best cases?

Ans: the average cost per application for the worst cases 1163 and best cases 3147