Conclusion
CONCLUSION

We presented fuzzy inventory integrated vendor-buyer model with backlogging, two stage fuzzy inventory closed vendor-buyer model with backorders in terms of two cases. In the first case, demand production cost, purchase cost, annual demand, setup cost per production run for the vendor, unit stock-holding cost per item per year for the vendor and for the buyer, size of each shipment from the vendor to the buyer, transportation cost, carrying cost represented by fuzzy number while Q is treated as a fixed constant. In the second case Q is also represented as a fuzzy number. For each fuzzy cases; a method of defuzzification, graded mean integration representation is applied to find the estimate of total expected cost of the buyer and the vendor in the fuzzy type and then corresponding optimal order netsize is derived to maximize the total profit.

We proposed two fuzzy models for an inventory problem with imperfect – quality items and boundaries of the fill rate. In the first model, the defective rate and the fill rate is represented by a fuzzy number, while the annual demand, the order cycle are treated as a fixed constant. In the second model, defective rate and annual demand are represented by a fuzzy number. For each fuzzy model, a method of defuzzification, namely the signed distance, is employed to find the estimate of total profit per unit time in the fuzzy sense, and the then the corresponding optimal order lot size is derived.
to minimize the total profit. Numerical examples are carried out to investigate the behavior of our proposed models and the results are compared with those obtained from the crisp model.

We considered a single buyer sourcing a single product from multiple heterogeneous suppliers and tackled the supplier selection and lot size decision with the objective to minimize total system costs. Numerical studies indicate that our solution procedure reduces the total number of supplier combinations that have to be tested for optimality and thus helps to reduce the complexity of the planning problem. For each fuzzy model, a method of defuzzification namely the Graded mean Integration Representation is employed to find the estimate of total cost function in the fuzzy sense and then the corresponding optimal order lot size is derived from Kuhn-Tucker Method. In order to increase the scope of our analysis, the model presented in this article could be extended to include further buyers, thus leading to a multiple-vendor multiple-buyer planning situation. In addition it would be interesting to introduce bargaining power into the model or analyse the effect of incentive systems of a multiple-vendor single-buyer model.

We developed the EOQ model with impact of stochastic lead time reduction on inventory cost under order crossover and fuzzy demands. Because demands are fuzzy, the quantities of all usually treated as a decision variable will be also fuzzy. The results of this study indicate that, for the EOQ model no matter what the spreads of fuzzy demands, as long as the fuzzy
demands are symmetric with the same mean, the optimal ordering quantities will be the same and equal to the conventional EOQ with the mean of fuzzy demands. Optimal ordering quantity is derived using Yager's ranking method. We are using the exponential distribution to characterize lead time. In reducing the lead time we take advantage of order crossover. With order crossover the lead times are transferred to effective lead times whose mean is the same as that of the original variance.

We analysed two EOQ based inventory models under total cost minimization and profit maximization that some parameters are fuzzy. By using FGP techniques, we determined the order quantity for the total cost minimization and profit maximization model to transform the main program in two models into two-level geometric program.