Abstract

In his attempt the author has carried out his research work in two directions. In the first part he studied to Optimize the cost of recruitment in order to balance the human resource inventory of the Business Enterprises.

In order to minimize the cash outflow, an optimization model for a manpower system is considered, where in the vacancies are filled up based on promotion and recruitment. A mathematical model is constructed based on the mapping of a manpower system with an appropriate queuing model. Based on the application of queuing theory with two server model, the following relations were derived:

- The expected number of vacancies in any given grade
- The Average number of vacancies to be filled up
- Evaluation of total cost in order to raise and fill the vacancies by promotion and recruitments

An optimization model for a manpower system is considered where in, the vacancies are filled up based on promotion and recruitment. A manpower model is constructed based on the mapping manpower system with an appropriate Transportation Model. After the mapping, the decision making situation is converted into an equivalent Integer programming model with the objective of cost minimization.

The problem of attaining the desired structure from the given structure for a two characteristic manpower flow model including demotion with optimum number of transitions for a fixed recruitment policy is considered and the same is transferred in to a transportation programming model with the objective of cost minimization.

In the second part, the author has considered the problem to Optimize the risk and the return related to the portfolio decision making situations.

Essentially, the standard portfolio optimization problem is to identify the optimal allocation of the available limited resources based on the limited set of investments. In this juncture, the term optimality refers the tradeoff between the perceived risk and the expected return. For each type of investment both the values namely the perceived risk and the expected return can be computed based on the past data available related to the specific industry. The situation can be put into a mathematical model based on the preemptive goal programming model and the same can be solved. Efficient portfolios are the allocations that achieve the highest possible returns with minimum risk.

The decision regarding Investment plays a vital role in any type of organization. Normally these decisions are based on risk-return patterns. Involvement of the risk factor leads to a decision to be made under uncertainty. This situation is converted in to an Integer programming mathematical model.

Investment decisions are based on the risk-return patterns. Appropriate measures of risk and return are of great concern to investors. CAPM, based on market beta, addresses this concern quite well. But, an alternative CAPM can also be thought of. An attempt is made to construct a model for measuring the corporate profitability performance and identifying the risk category of companies applying accounting beta [β] based on the CAPM model.