**Prescriptive Analytics Assignment**

1. Develop a simple application of two-variable linear programming problem to find an optimal product mix in a ‘realistic’ context. Specify the resources to be considered and the resource requirements, market demand considerations, technical considerations, managerial policies, and any other relevant factors, and formulate the linear programming problem using realistic assumptions or estimates of the same. Find the optimal solution of your linear programming problem and discuss its sensitivity analysis and managerial implications.

[10 marks]

1. Develop applications of linear programming problem in any two areas of management (i.e. two out of Marketing, Finance, HR, and/or Operations). Specify the relevant factors to be considered, and formulate the linear programming problem using realistic assumptions or estimates of the same. Find the optimal solutions of your linear programming problems and discuss their sensitivity analysis and managerial implications.

[20 marks]

1. Develop an application of trans-shipment problem in a ‘realistic’ context. Your application should include at least two origins (e.g. two manufacturing plants), at least three intermediary points (e.g. warehouses), and at least five destinations (e.g. retail outlets). Use geographical locations for each of the nodes (origins, intermediary points, and destinations), for example within a state or a district, and formulate the problem using realistic assumptions or estimates for production and transportation capacities and costs, market demand and prices, and any other relevant factors. Find the optimal solution of your linear programming problem and discuss its sensitivity analysis and managerial implications.

[10 marks]