SURESH GYAN VIHAR UNIVERSITY Accredited by NAAC with 'A' Grade		INTERNAL ASSIGNMENT - 1
Course	MCA	**Optimization Technique**
Semester	4	
Total Marks:	15	

Q.1. **Write answers for any two questions from below. (5 marks each – Word limit – 500)**

A. Solve the following L.P.P. Maximize z = 3x1 + 2x2 Subject to
x1 ≥ 2;, x1, x2 ≥ 0

B. Explain different types of replacement policies.

C. The deflection of a rectangular beam is inversely proportional to the width and the cube of depth. Find the cross-sectional dimensions of the beam, which corresponds to minimum deflection that can be cut from a cylindrical log of radius r.
10 A manufacturer produces small refrigerators at a cost of Rs.60 per unit and sells them to a retailer in a lot consisting of a minimum of 100 units. The selling price is set at Rs.80per unit if the retailer buys 100 units at a time. If the retailer buys more than 100 units at a time, the manufacturer agrees to reduce the price of all refrigerators by 10 cents for each unit bought

Q.2. **Write short notes on all of the following topics (1 mark each - Word limit - 100)**

A. Unbounded Solution

B. Quantity discount Model

C. Types of sequencing problem

D. Formulation of an LPP

E. Sequencing of 'N' Jobs On three machines

Q.1.   Write answers for any two questions from below. (5 marks each – Word limit – 500)

A.   A company has decided to order 360 units whenever the on-hand inventory falls to 90 units. There appears to be no seasonal fluctuation to the demand, but it does fluctuate daily and is approximately normally distributed. Historically, the lead time has been four days, and the average sales during this four day period is 72 units with a standard deviation of 10 units. There are 250 working days per year. How much safety stock is the company carrying? What service level is implied by this policy?

B.   Solve the LPP by graphical method Minimize Z = l2.5x + l5y Subject to
2x + l.5y > 30; x + l.5y > l8; x, y > 0
5. Solve the following L.P.P. by graphical method. Maximize z =3000x + 2000y
Subject to x + 2y ≥ 6
2x + y ≥ 8
2 x −y ≤ l ;x, y ≥ 0

C.   Annual demand for the Doll two-drawer filing cabinet is 50,000 units. Bill Doll, president of Doll Office Suppliers, controls one of the largest office supply stores in Nevada. He estimates that the ordering cost is Rs10 per order. The carrying cost is Rs4 per unit per year. It takes 25 days between the time that Bill places an order for the two-drawer filing cabinets and the time when they are received at his warehouse. During this time, the daily demand is estimated to be 250 units.
(a) What is the economic order quanti
(b) What is the reorder poi
(c) What is the optimal number of orders per year

Q.2.   Write short notes on all of the following topics (1 mark each - Word limit - 100)

A.   Sequencing of 'N' Jobs On three machines

B.   Infeasible Solution

C.   Economic Lot Size or Economic Order Quantity

D.   Limitations of LPP

E.   Graphical LP Solution