Subject : Elective-II : Operations Research (Production Management)

Day : Saturday

Date : 04/06/2016

S.D.E. 30364

Time : 02.00 P.M. TO 05.00 P.M.

Max Marks : 70   Total Pages : 1

N.B.:
1) Attempt any **FOUR** questions from Section –I and any **TWO** questions from Section –II.
2) Figures to the right indicate **FULL** marks.
3) Answers to both the sections should be written in **SAME** answer book.
4) Use of non programmable **CALCULATOR** is allowed.

SECTION-I

Q.1 Explain the term parametric programming pointing out its characteristics. **(10)**

Q.2 Discuss Inventory control techniques. **(10)**

Q.3 What do you understand by a 'Queue'? Explain 'Applied Queuing Models'. **(10)**

Q.4 Explain the concept of Dynamic Programming and give a mathematical formulation of Dynamic Programming Problem. **(10)**

Q.5 Write short notes on any **TWO** of the following: **(10)**
   a) System Reliability
   b) Quadratic Programming
   c) Replacement Models and Policies
   d) Sensitivity Analysis

SECTION-II

Q.6 A firm is considering replacement of a machine, whose cost price is Rs. 12, 200 and the scrap value Rs. 200. The running (maintenance and operating) costs are found from experience to be as follows: **(15)**

Year	1	2	3	4	5	6	7	8
Running Cost (Rs.)	200	500	800	1200	1800	2500	3200	4000

When should the machine be replaced?

Q.7 What is Network Analysis? Explain the areas of application of Network Models. **(15)**

Q.8 Solve graphically the following Non Linear Programming problem: **(15)**
Maximize $Z = 8x_1 - x_1^2 + 8x_2 - x_2^2$
Subject to the constraints
$$x_1 + x_2 \leq 12$$
$$x_1 - x_2 \geq 4$$
and $x_1, x_2 \geq 0.$

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