S.D.E.

M.B.A. (E) Sem-IV (2 Year Course) : WINTER - 2018
SUBJECT: ELECTIVE –II: OPERATIONS RESEARCH
(PRODUCTION MANAGEMENT)

Day: Wednesday
Date: 05/12/2018

W-2018-4757

Time: 02.00 PM TO 05.00 PM
Max. Marks: 70

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 Discuss Sensitivity Analysis concept with suitable examples. **(10)**

Q.2 What is replacement problem? Describe some important replacement situations. **(10)**

Q.3 What is Dynamic Programming? What sort of problems can be solved by it? **(10)**

Q.4 What do you understand by Quadratic Programming? How does Quadratic Programming Problem differ from the Linear Programming Problem? **(10)**

Q.5 Write short notes on Any **TWO**: **(10)**

a) Network Models
b) Applied Queuing Models
c) Parametric Programming
d) Inventory Control

SECTION-II

Q.6 A belt snapping for conveyors in an open cast mine occur at the rate of 2 per shift. There is only one hot plate available for vulcanising, and it can vulcanise on an average 5 belts snap per shift. **(15)**

a) What is the probability that when a belt snaps, the hot plate is readily available?
b) What is the average number of belts in the system?
c) What is waiting time of an arrival?
d) What is the average waiting time plus vulcanising time?

Q.7 ABC company buys in lots of 500 boxes which is a 3 month supply. The cost per box is Rs. 125 and the ordering cost is Rs. 150. The inventory cost is estimated at 20% of unit value. **(15)**

a) What is the total annual cost of the existing inventory policy?
b) How much money could be saved by employing the economic order quantity?

Q.8 We have the lots of 1,000 bulbs, supplied to a shop.Cost of individual replacement is Rs. 10 and the bulk replacement cost is Rs. 2.50 per bulb. The failure pattern noticed is as follows: **(15)**

Period in months:	1	2	3	4	5
Failure rate %	0.10	0.15	0.25	0.30	0.20

Work out the optimum replacement policy.

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