

Dr. Latif and Dr. Raja Latif and Dr. Muhammad Latif and Dr. Abdul Latif

Contents

Marks: 20; Time: 20 Minutes

NAME:.....

I.D.#:

--	--	--	--	--	--

SERIAL# SECTION #: (check: Sec.03A)

03A	8 a	9 a	10 a
	1 m	2 m	3 m

NOTE: SHOW ALL STEPS OF THE SOLUTION.

NO CREDIT FOR ANSWERS WITHOUT COMPLETE SOLUTION.

The questions are not in any order of difficulty at all. Only the nonprogramable calculators are allowed.

Write the simplified answer of each question at the end of each question.

Q.1. 75Rolf26TBk.(Marks : 8). Set up the initial SIMPLEX TABLEAU for the following problem. Do not solve.

A company makes one item on production line A and another item on production line B.

They have 1500 hours of labor and \$ 4000 operating funds available per week.

It takes four hours labor to produce each item on line A and six hours labor for each item on line B.

Each item on line A costs \$ 12 to produce, and each item on line B costs \$ 8.

The company makes a profit of \$ 3 on each item from line A and \$ 4 on each one from line B.

How many of each item should they produce to maximize total profit?

$$(A). \left[\begin{array}{cccc|c} 4 & 12 & 1 & 0 & 0 & 1500 \\ 6 & 8 & 0 & 1 & 0 & 4000 \\ \dots & \dots & \dots & \dots & \dots & \dots \\ -3 & -4 & 0 & 0 & 1 & 0 \end{array} \right]$$

$$(B). \left[\begin{array}{cccc|c} 4 & 6 & 1 & 0 & 0 & 1500 \\ 12 & 8 & 0 & 1 & 0 & 4000 \\ \dots & \dots & \dots & \dots & \dots & \dots \\ -4 & -3 & 0 & 0 & 1 & 0 \end{array} \right]$$

$$(C). \left[\begin{array}{cccc|c} 4 & 6 & 1 & 0 & 0 & 4000 \\ 12 & 8 & 0 & 1 & 0 & 1500 \\ \dots & \dots & \dots & \dots & \dots & \dots \\ -3 & -4 & 0 & 0 & 1 & 0 \end{array} \right]$$

$$(D). \left[\begin{array}{cccc|c} 3 & 4 & 1 & 0 & 0 & 1500 \\ 12 & 8 & 0 & 1 & 0 & 4000 \\ \dots & \dots & \dots & \dots & \dots & \dots \\ -4 & -6 & 0 & 0 & 1 & 0 \end{array} \right]$$

$$(E). \left[\begin{array}{cccc|c} 4 & 6 & 1 & 0 & 0 & 1500 \\ 3 & 4 & 0 & 1 & 0 & 4000 \\ \dots & \dots & \dots & \dots & \dots & \dots \\ -12 & -8 & 0 & 0 & 1 & 0 \end{array} \right]$$

$$(F). \left[\begin{array}{cccc|c} 6 & 4 & 1 & 0 & 0 & 1500 \\ 8 & 12 & 0 & 1 & 0 & 4000 \\ \dots & \dots & \dots & \dots & \dots & \dots \\ -3 & -4 & 0 & 0 & 1 & 0 \end{array} \right]$$

$$(G). \left[\begin{array}{cccc|c} 4 & 8 & 1 & 0 & 0 & 1500 \\ 12 & 6 & 0 & 1 & 0 & 4000 \\ \dots & \dots & \dots & \dots & \dots & \dots \\ -4 & -3 & 0 & 0 & 1 & 0 \end{array} \right]$$

$$(H). \left[\begin{array}{cccc|c} 4 & 6 & 1 & 0 & 0 & 1500 \\ 12 & 8 & 0 & 1 & 0 & 4000 \\ \dots & \dots & \dots & \dots & \dots & \dots \\ -3 & -4 & 0 & 0 & 1 & 0 \end{array} \right]$$

$$(I). \left[\begin{array}{cccc|c} 8 & 6 & 1 & 0 & 0 & 1500 \\ 12 & 4 & 0 & 1 & 0 & 4000 \\ \dots & \dots & \dots & \dots & \dots & \dots \\ -3 & -4 & 0 & 0 & 1 & 0 \end{array} \right]$$

$$(J). \left[\begin{array}{cccc|c} 4 & 6 & 1 & 0 & 0 & 15 \\ 12 & 8 & 0 & 1 & 0 & 40 \\ \dots & \dots & \dots & \dots & \dots & \dots \\ -3 & -4 & 0 & 0 & 1 & 0 \end{array} \right]$$

$$(K). \left[\begin{array}{cccc|c} 6 & 4 & 1 & 0 & 0 & 4000 \\ 12 & 8 & 0 & 1 & 0 & 1500 \\ \dots & \dots & \dots & \dots & \dots & \dots \\ -3 & -4 & 0 & 0 & 1 & 0 \end{array} \right]$$

$$(L). \left[\begin{array}{cccc|c} 4 & 6 & 1 & 0 & 0 & 1500 \\ 12 & 8 & 0 & 1 & 0 & 4000 \\ \dots & \dots & \dots & \dots & \dots & \dots \\ 3 & 4 & 0 & 0 & 1 & 0 \end{array} \right]$$

$$(M). \left[\begin{array}{cccc|c} 4 & 6 & 1 & 0 & 0 & 1500 \\ 4 & 3 & 0 & 1 & 0 & 4000 \\ \dots & \dots & \dots & \dots & \dots & \dots \\ -8 & -12 & 0 & 0 & 1 & 0 \end{array} \right]$$

(N) None of the previous choices given in this question is correct.

Write your complete answer to this question.

Q.2.311Sullivan69. (Marks : 6). Gifting. A child's grandparents have opened a \$ 6000 savings account for the child on the day of her birth.

The account pays 8 % compounded semiannually.

The child will be allowed to withdraw the money when she reaches the age of 25.

What will the account be worth at that time?

Q.3.64MS70. Production. (Marks : 6). A luggage manufacturer produces three types of luggage: economy, standard, and deluxe.

The company produces 1000 pieces of luggage at a cost of \$ 20, \$ 25, and \$ 30 for the economy, standard, and deluxe luggage, respectively.

The manufacturer has a budget of \$ 20700.

Each economy luggage requires 6 hours of labor, each standard luggage requires 10 hours of labor and each deluxe luggage requires 20 hours of labor, The manufacturer has a maximum of 6800 hours of labor available.

If the manufacturer sells all the luggage, consumes the entire budget, and uses all the available labor, how many of each type of luggage should be produced?

Let x = Number of economy type of luggage.

Let y = Number of standard type of luggage.

Let z = Number of deluxe type of luggage.

$$(A) \begin{cases} x + y + z = 1000 \\ 25x + 20y + 30z = 20700 \\ 6x + 10y + 20z = 6800 \end{cases}$$

$$(B) \begin{cases} x + y + z = 1000 \\ 20x + 30y + 25z = 20700 \\ 6x + 10y + 20z = 6800 \end{cases}$$

$$(C) \begin{cases} x + y + z = 1000 \\ 20x + 25y + 30z = 20700 \\ 6x + 20y + 10z = 6800 \end{cases}$$

$$(D) \begin{cases} x + y + z = 1000 \\ 25x + 20y + 30z = 20700 \\ 20x + 10y + 6z = 6800 \end{cases}$$

$$(E) \begin{cases} x + y + z = 1000 \\ 25x + 20y + 30z = 20700 \\ 10x + 6y + 20z = 6800 \end{cases}$$

$$(F) \begin{cases} x + y + z = 1000 \\ 25x + 20y + 30z = 20700 \\ 20x + 10y + 20z = 6800 \end{cases}$$

$$(G) \begin{cases} x + y + z = 1000 \\ 20x + 25y + 30z = 20700 \\ 6x + 10y + 20z = 6800 \end{cases}$$

$$(H) \begin{cases} x + y + z = 1000 \\ 30x + 25y + 20z = 20700 \\ 6x + 10y + 20z = 6800 \end{cases}$$

$$(J) \begin{cases} x + y + z = 1000 \\ 25x + 20y + 30z = 20700 \\ 10x + 6y + 20z = 6800 \end{cases}$$

$$(K) \begin{cases} x + y + z = 1000 \\ 20x + 25y + 20z = 20700 \\ 6x + 10y + 30z = 6800 \end{cases}$$

$$(M) \begin{cases} x + y + z = 1000 \\ 30x + 25y + 20z = 20700 \\ 6x + 10y + 30z = 6800 \end{cases}$$

(N) NONE OF THE ABOVE CHOICES IS CORRECT.

Write correct system of equations.

Amount : _____ Dollars.