محمد بن عبد الرحمن خير

Q1

1 → c

2 → a

3 → a

4 → d

5 → a

6 → b

7 → d

8 → c

9 → c

10 → b

11 → a

12 → c

13 → a

14 → a

15 → c

Q2/ ①

محمد رضا حسين احمد جعفر

$max = 10x_1 + 15x_2 + 30x_3$

$x_1 + 3x_2 \quad x_3 \geq 90$

$2x_1 + 5x_2 + 3x_3 \geq 120$

$x_1 + x_2 + x_3 \geq 60$

$x_1, x_2, x_3, S_1, S_2, S_3, A_1, A_2, A_3 \geq 0$

		cj	0	0	0	0	0	0	-1	-1	-1	
B	CB	XB	x_1	x_2	x_3	S_1	S_2	S_3	A_1	A_2	A_3	m.R
A_1	-1	90	1	3	1	-1	0	0	1	0	0	90/3
A_2	-1	120	2	[5]	3	0	-1	0	0	1	0	120/5 ←
A_3	-1	60	1	1	1	0	0	-1	0	0	1	60/1
	$w^* = -162$		-4	-9 ↑	-5	1	1	1	0	0	0	← Δj
A_1	-1	18	-0.2	0	-0.8	-1	[0.6]	0	1	-0.6	0	18/0.6
x_2	0	24	2/5	1	3/5	0	-1/5	0	0	1/5	0	—
A_3	-1	36	0.6	0	0.4	0	0.2	-1	0	-0.2	0	36/0.2
	$w^* = -54$		0.4	0	0.4	1	-0.4 ↑	1	1	0.8	0	Δj

Q2/ ②

محمد رضا عبد الرحمن خضير

B_V	C_B	C_j / X_B	X_1	X_2	X_3	S_1	S_2	S_3	A_1	A_2	A_3	R.W
X_1	0	30	0.33	0	1.3	-1.6	-1.6	0	1.16	-16	0	
X_2	0	30	0.33	1	-1.06	-1.5	1	0	1.8	-1.4	0	
A_3	-1	36	0.54	0	0.14	0.26	1	0.4	0.36	0.3	0	Δj

محمد رائد عبد الامير خضر
محمد رضا عبد الحسين علي حمزة

٢.١ -

Q3/ ①

$w = 9 + 10 + 11 = 30$

$f = 12 + 14 + 4 = 30$

$w = F \qquad 30 = 30$

	w_1		w_2		w_3		factory
f_1	9	5	3	1	0	8	12
f_2	0	2	7	4	7	0	14
f_3	0	3	0	6	4	7	4
warehouse	9		10		11		30/30

th min total $= 5*9 + 1*3 + 4*7 + 0*7 + 7*4$
$= 104$

$F_1 w_3 \Rightarrow f_1 w_3 \rightarrow f_1 w_2 \rightarrow f_2 w_2 \rightarrow f_2 w_3 = 11$

$f_2 w_1 \Rightarrow f_2 w_1 \rightarrow f_2 w_2 \rightarrow f_1 w_2 \rightarrow f_1 w_1 = -6$

$f_3 w_1 \Rightarrow f_3 w_1 \rightarrow f_3 w_3 \rightarrow f_2 w_3 \rightarrow f_2 w_2 \rightarrow f_1 w_2 \rightarrow f_1 w_1 = -12$

$f_3 w_2 \Rightarrow f_3 w_2 \rightarrow f_3 w \rightarrow f_3 w \rightarrow f_2 w_3 \rightarrow f_2 w_2 = -5$

Q3/ ②

محمد رمضان عبد الرحمن خضر

	w_1	w_2	w_3	Factory
f_1	5 [5]	7 [1]	0 [8]	12
f_2	0 [2]	3 [4]	11 [0]	14
f_3	4 [3]	0 [6]	0 [7]	4
warehouse	9	10	11	30/30

$F_2 w_1$

$f_1 w_3 \Rightarrow f_1 w_3 \rightarrow f_1 w_2 \rightarrow f_2 w_2 \rightarrow f_2 w_3 = 11$

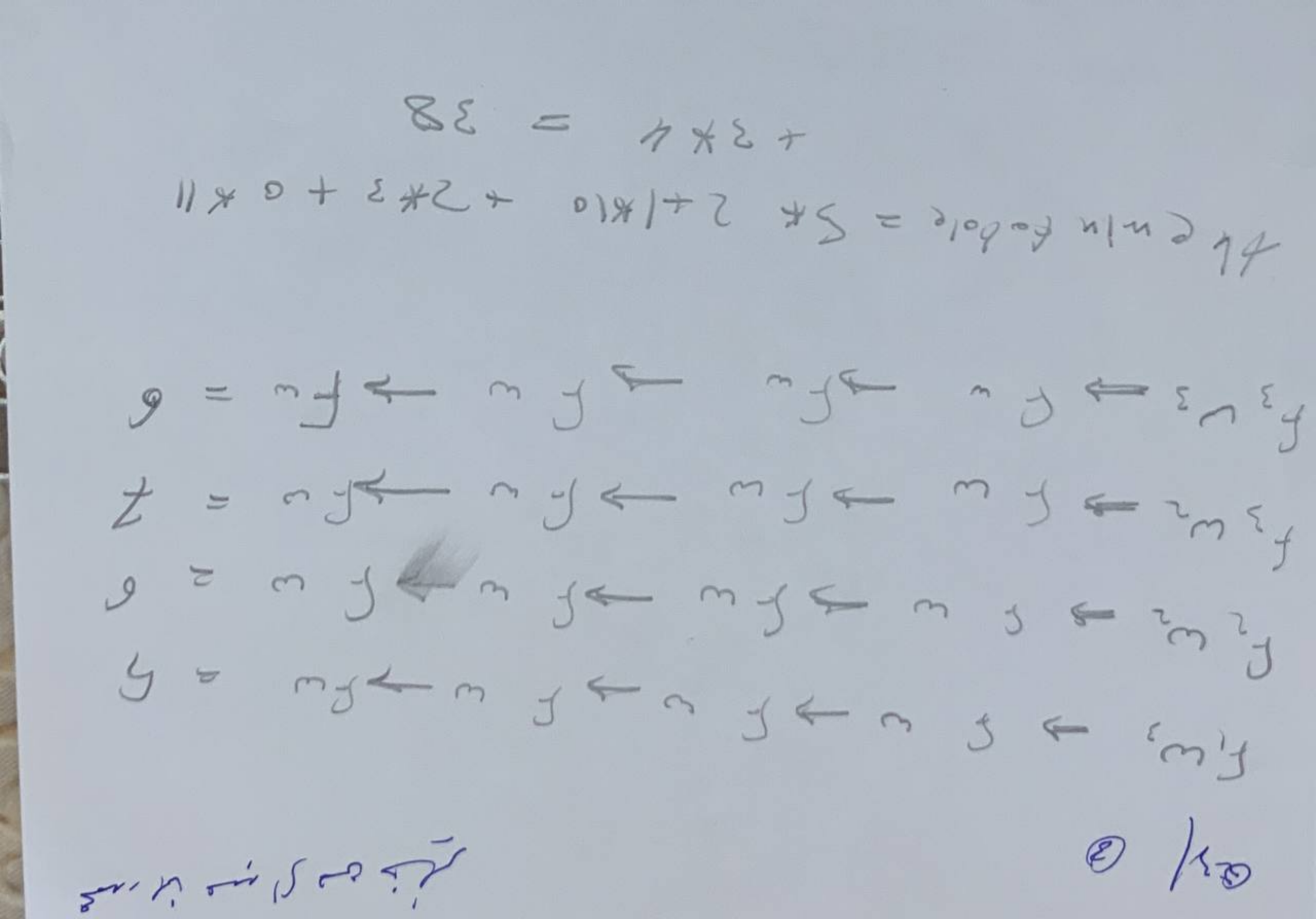
$f_2 w_1 \Rightarrow f_2 w_1 \rightarrow f_2 w_2 \rightarrow f_1 w_2 \rightarrow f_1 w_1 = 2$ (-6)

$f_3 w_2 \Rightarrow f_3 w_2 \rightarrow f_3 w_1 \rightarrow f_1 w_1 \rightarrow f_1 w_2 = 7$

$f_3 w_3 \Rightarrow f_3 w_2 \rightarrow f_3 w_1 \rightarrow f_1 w_1 \rightarrow f_1 w_2 \rightarrow f_2 w_2 \rightarrow f_2 w_3 = 12$

	w_1	w_2	w_3	Factory
f_1	2 [5]	10 [1]	0 [8]	12
f_2	3 [2]	0 [4]	11 [0]	14
f_3	4 [3]	0 [6]	0 [7]	4
warehouse	9	10	11	30/30

$F_2 w_1$



Q3/ ⓐ

محمد رنا عبد الرحمن خليل

$F_1 W_3 \rightarrow F\ W \rightarrow F\ W \rightarrow F\ W \rightarrow F W = 5$

$F_2 W_2 \rightarrow F\ W \rightarrow F W \rightarrow F\ W \rightarrow F\ W = 6$

$F_3 W_2 \rightarrow F\ W \rightarrow F W \rightarrow F\ W \rightarrow F W = 7$

$F_3 W_3 \Rightarrow F\ W \rightarrow F W \rightarrow F\ W \rightarrow F W = 6$

the min table = 5 * 2 + 1 * 10 + 2 * 3 + 0 * 11
+ 3 * 4 = 38