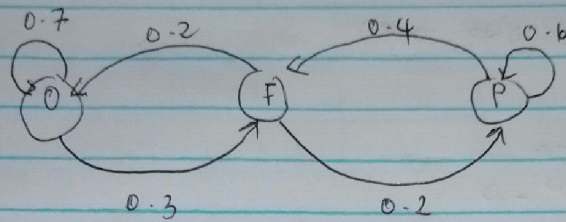**NAME: ODE VICTOR**

MATRIC NUMBER: 17/SCI01/059

COURSE CODE: CSC314

Q3

Let O : Outstanding

F : Fair

P : Poor

0.7   0.2   0.4   0.6

O   F   P

0.3   0.2

(B)

	O	F	P		
O	0.7	0.3	0	=	1
F	0.2	0.6	0.2	=	1
P	0	0.4	0.6	=	1

$$P = \begin{pmatrix} 0.7 & 0.3 & 0 \\ 0.1 & 0.6 & 0.2 \\ 0 & 0.4 & 0.6 \end{pmatrix}$$

First Transition

$$P^{(1)} = P^{(0)} \cdot P$$

$$(0.3 \quad 0.6 \quad 0.1) \begin{pmatrix} 0.7 & 0.3 & 0 \\ 0.2 & 0.6 & 0.2 \\ 0 & 0.4 & 0.6 \end{pmatrix}$$

$$p^{(1)} = (0.33 \quad 0.49 \quad 0.18)$$

2nd Transition

$$p^{(2)} = p^{(1)} \cdot P$$

$$(0.33 \quad 0.49 \quad 0.18) \begin{pmatrix} 0.7 & 0.3 & 0 \\ 0.2 & 0.6 & 0.2 \\ 0 & 0.4 & 0.6 \end{pmatrix}$$

$$p^{(2)} = (0.329 \quad 0.465 \quad 0.206)$$

Q2

	P₁	D₂	D₃	D₄		
S₁	10 20	50 30	¯110	¯170	60	10
S₂	¯10	1 0	¯60	10 10	~~40~~ 70
S₃	60 50	1 50	30 150	10 190	100 ~~30~~ 60 0
Demand	70 60 0	50 0	30 0	200 10	

$P_1 \quad P_2 \quad P_3 \quad P_4 \quad P_5 \quad P_6$

10	10	50	X	X	X
10	X	X	X	X	X
30	30	40	40	40	50

P₁	10	30	50	60
P₂	30	30	40	20
P₃	30	X	40	20
P₄	50	X	60	90
P₅	50	X	X	90
P₆	50	X	X	X

Q3

Let O : Outstanding
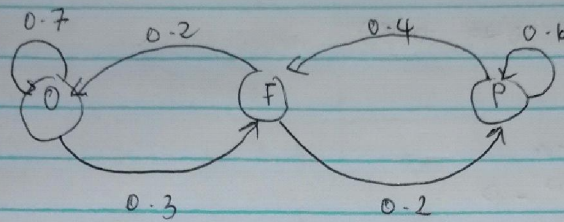
F : Fair

P : Poor

(B)

	O	F	P		
O	0.7	0.3	0	=	1
F	0.2	0.6	0.2	=	1
P	0	0.4	0.6	=	1

$$P = \begin{pmatrix} 0.7 & 0.3 & 0 \\ 0.1 & 0.6 & 0.2 \\ 0 & 0.4 & 0.6 \end{pmatrix}$$

First Transition

$$P^{(1)} = P^{(0)} \cdot P$$

Q6

25	16	22
31	20	19
35	24	17

Row Reduction

10	0	7
12	1	0
18	7	0

0	0	8
1	0	0
1		0

$X = 25$

$Y = 20$

Column Reduction

0	0	7
1	1	0
8	7	0

$Z = 17$

$\underline{62}$

∴

0	0	7
2	1	0
8	7	0

0	0	8
1	0	0
7	6	0

since M = n

Q2 (iii)

	D_1	D_2	P_3	P_4	
S_1	60	—	—	—	60 0
	20	60	110	70	60 0
S_2	10	—	—	—	60 0
	10	0	60	10	
S_3	1	50	30	20	
	50	50	150	90	150 50 30 20
Demand	70	50	30	20	170
	20				
	0				

$S_1 - D_1 = 60 \times 20 = 1200$

$S_2 - D_1 = 10 \times 10 = 100$

$S_3 - D_2 = 50 \times 90 = 4500$

$S_3 - D_3 = 150 \times 30 = 4500$

$S_3 - D_4 = 90 \times 20 = 1800$

$\underline{\underline{11,100}}$

$(10 \times 20) + (50 \times 30) + (10 \times 15)$

$(60 \times 50) + (30 \times 150) + (90 \times 10)$

$= 10,200$

Q2 ii

	D_1	D_2	P_3	D_4	supply
S_1	[60] 20	30	110	70	85 0
S_2	10	[10] 0	60	10	46 0
S_3	[0] 50	[40] 80	[30] 150	[20] 90	100 90 50 30 0
	70	58	30	20	170
	60	40	0	0	
	0	0			

$S_1 - D_1 : 60 \times 20 = 1200$

$S_2 - D_2 : 10 \times 0 = 0$

$S_3 - D_1 : 10 \times 50 = 500$

$S_3 - D_2 : 40 \times 80 = 3200$

$S_1 - D_3 : 150 \times 30 = 4500$

$S_3 - D_4 : 20 \times 90 = 1800$

$\overline{ 11,200}$