Bankers Algorithms:-

Consider the system with 5 process $<P_0, P_1, P_2, P_3, P_4>$ and 3 resources types A, B, C

10 5 7

means its resources dy diya hai ↑ | itni max ho sakti hai ↑ | Currently itni available hai ↑

	Allocation			Max			Available		
	A	B	C	A	B	C	A	B	C
P_0	0	1	0	7	5	3	3	3	2
P_1	2	0	0	3	2	2	5	3	2
P_2	3	0	2	9	0	2	7	4	3
P_3	2	1	1	2	2	2	7	4	5
P_4	0	0	2	4	3	3	7	5	5
							10	5	7

(a) Find need matrix.

Need matrix = Max - Allocation

	A	B	C
P_0	7	4	3
P_1	1	2	2
P_2	6	0	0
P_3	0	1	1
P_4	0	0	1

(b) Is the system in a safe state, if Yes find safe sequence.

if
need ≤ available
then
execute process
new available = available + allocation
else
do not execute go forward.

P_0

7 4 3 ≤ 3 3 2

Not less.

Do not execute P_0.

P_1

1 2 2 ≤ 3 3 2

Yes less.

execute P_1.

New available = available + Allocation.

= 3 3 2 + 2 0 0

= 5 3 2

P_2

6 0 0 ≤ 5 3 2

Not less

Do not execute P_2

P_3

$0\ 1\ 1 \leq 5\ 3\ 2$

Yes Less

Execute P_3.

New available = available + allocation

$= 532 + 211$

$= 743$

P_4

$0\ 0\ 1 \leq 743$

Yes Less

Execute P_4

New available = available + allocation

$= 743 + 002$

$= 745$

P_0

$743 \leq 745$

Yes Less

Execute P_0

New available = available + allocation

$= 745 + 010$

$= 755$

P_2

$600 \leq 755$

Yes Less

Execute P_2

New available = available + Allocation

$= 755 + 302$

$= 1057$

⇒ **Safe sequences-**

$< P_1, P_3, P_4, P_0, P_2 >$