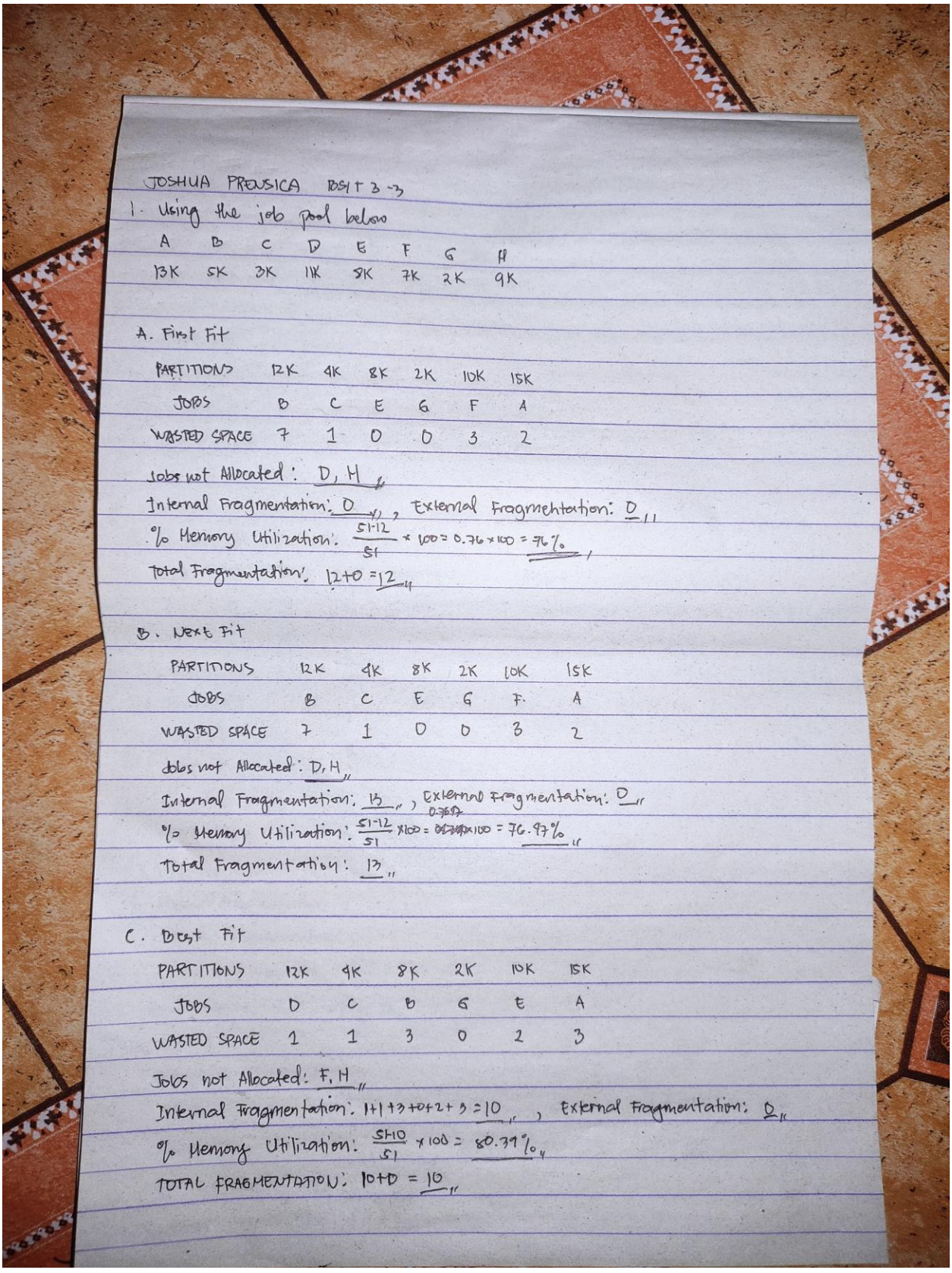


JOSHUA PRENSICA BSIT 3-3

1. Using the job pool below

A	B	C	D	E	F	G	H
13K	5K	3K	11K	8K	7K	2K	9K

A. First Fit

PARTITIONS	12K	4K	8K	2K	10K	15K
JOBS	B	C	E	G	F	A
WASTED SPACE	7	1	0	0	3	2

Jobs not Allocated: D, H

Internal Fragmentation: 0, External Fragmentation: 0

% Memory Utilization: $\frac{51-12}{51} \times 100 = 0.76 \times 100 = 76\%$

Total Fragmentation: 12+0 = 12

B. Next Fit

PARTITIONS	12K	4K	8K	2K	10K	15K
JOBS	B	C	E	G	F	A
WASTED SPACE	7	1	0	0	3	2

Jobs not Allocated: D, H

Internal Fragmentation: 13, External Fragmentation: 0

% Memory Utilization: $\frac{51-12}{51} \times 100 = 76.47\%$

Total Fragmentation: 13

C. Best Fit

PARTITIONS	12K	4K	8K	2K	10K	15K
JOBS	D	C	B	G	E	A
WASTED SPACE	1	1	3	0	2	3

Jobs not Allocated: F, H

Internal Fragmentation: 1+1+3+0+2+3 = 10, External Fragmentation: 0

% Memory Utilization: $\frac{51-10}{51} \times 100 = 80.39\%$

TOTAL FRAGMENTATION: 10+0 = 10

D. Worst Fit

PARTITIONS	12K	8K	10K	15K
JOBS	B	G	C	A
WASTED SPACE	7	6	7	2

Jobs not Allocated: D, E, F, H

Internal fragmentation: 7+6+7+2 = 22 "

External Fragmentation: 9+2 = 6 "

% Memory Utilization: $\frac{51-28}{51} \times 100 = 45.10\%$

Total Fragmentation: 22+6 = 28 "

2. Given the job stream

JOB	AT	MS	BT	PARTITION
A	0	9	6	12K
B	1	5	8	6K
C	2	8	9	6K
D	3	7	5	6K

ASSUME:

CPU scheduling Algorithm - Shortest Job First

Memory Allocation strategy - First Fit

Memory Management strategy - Multiple fixed partition

Compute for IF, EF and % MU

At time = 0

PARTITIONS	12K
JOBS	A
WASTED TIME	3

Jobs not Allocated = 2 "

Internal Fragmentation: 3 "

External Fragmentation: 0 "

% Memory Allocation: $\frac{30-3}{30} \times 100 = 90\%$ "

Total Fragmentation: 3+0 = 3 "

At time = 1

PARTITIONS	12K	6K
JOBS	A	5
WASTED TIME	3	1

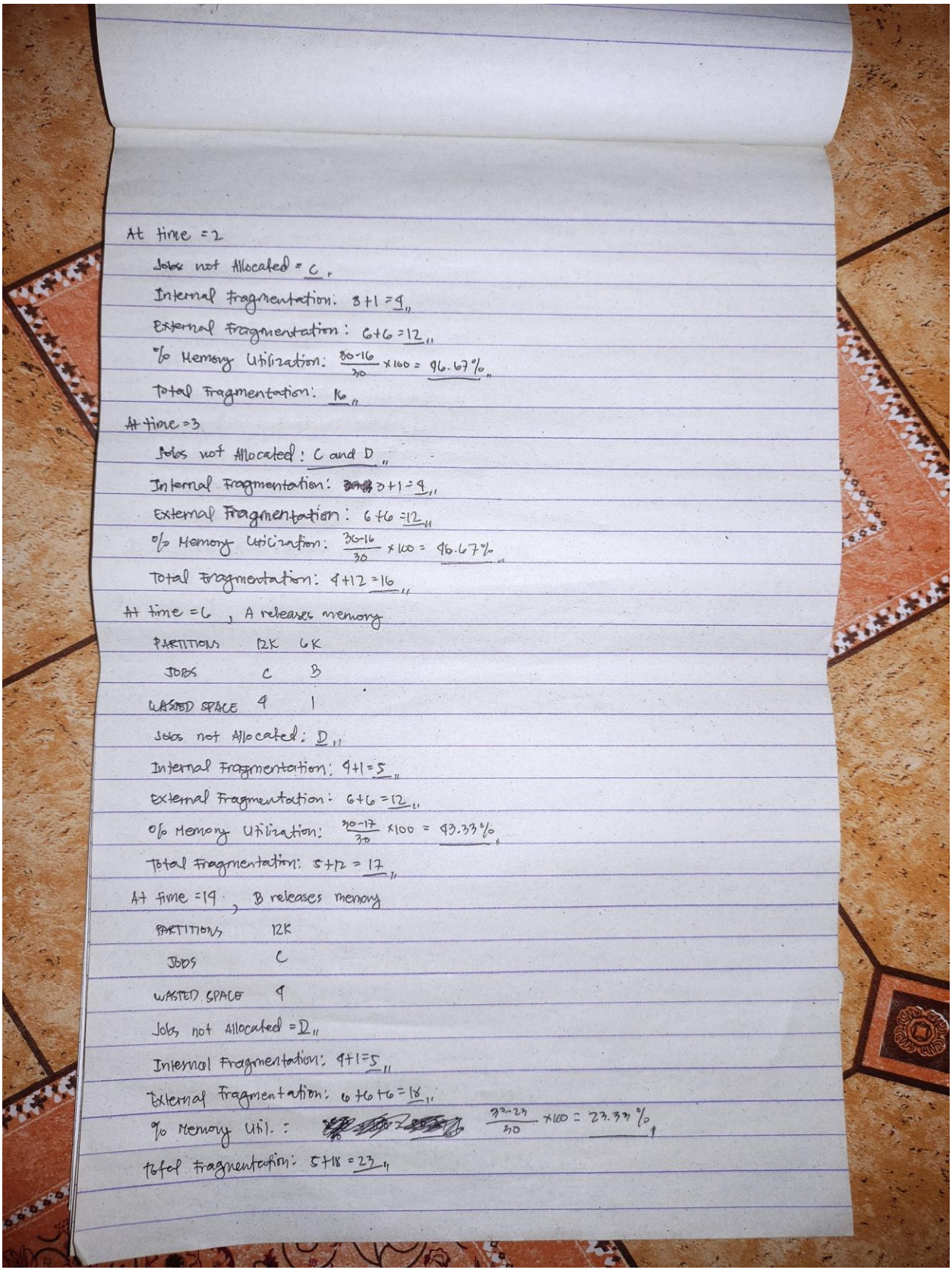
Jobs not Allocated = 0 "

Internal Fragmentation: 3+1 = 4 "

External fragmentation: 0 "

% Memory Allocation: $\frac{30-4}{30} \times 100 = 86.67\%$ "

TOTAL FRAGMENTATION: 4+0 = 4 "



At time = 2

Jobs not Allocated = C ,,

Internal fragmentation: 3+1 = 4 ,,

External fragmentation: 6+6 = 12 ,,

% Memory Utilization: $\frac{30-16}{30} \times 100 = 46.67\%$,,

Total Fragmentation: 16 ,,

At time = 3

Jobs not Allocated: C and D ,,

Internal Fragmentation: 3+1 = 4 ,,

External Fragmentation: 6+6 = 12 ,,

% Memory Utilization: $\frac{30-16}{30} \times 100 = 46.67\%$,,

Total Fragmentation: 4+12 = 16 ,,

At time = 6 , A releases memory

PARTITIONS	12K	6K
JOBS	C	B
WASTED SPACE	4	1

Jobs not Allocated: D ,,

Internal Fragmentation: 4+1 = 5 ,,

External Fragmentation: 6+6 = 12 ,,

% Memory Utilization: $\frac{30-17}{30} \times 100 = 43.33\%$,,

Total Fragmentation: 5+12 = 17 ,,

At time = 14 , B releases memory

PARTITIONS	12K
JOBS	C
WASTED SPACE	4

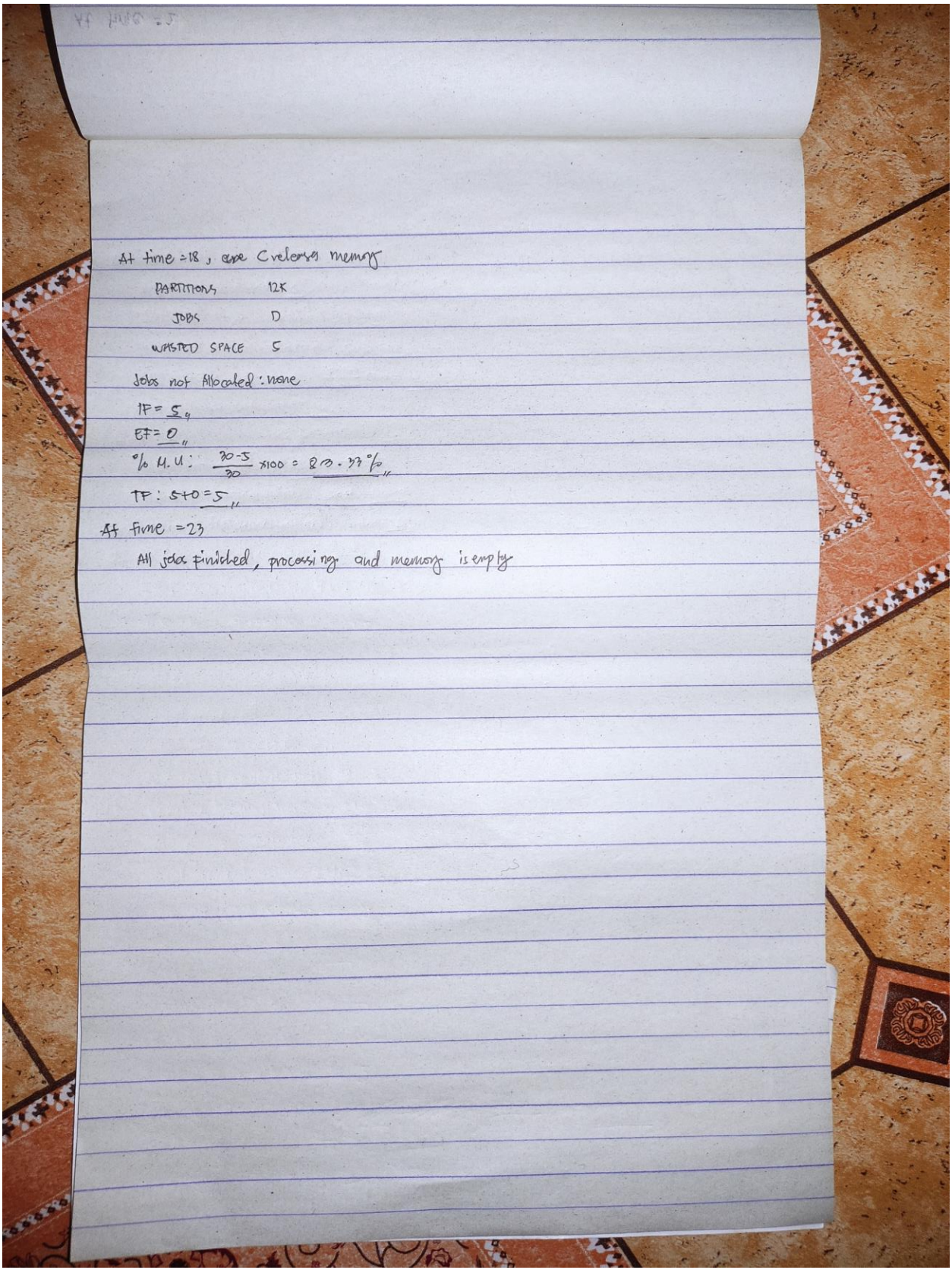
Jobs not Allocated = D ,,

Internal Fragmentation: 4+1 = 5 ,,

External Fragmentation: 6+6+6 = 18 ,,

% Memory Util.: $\frac{23-23}{30} \times 100 = 23.33\%$,,

Total Fragmentation: 5+18 = 23 ,,



At time =18, exe C releases memory

PARTITIONS	12K
JOBS	D
WASTED SPACE	5

Jobs not Allocated: none

IF = 5 "

EF = 0 "

% M.U: $\frac{30-5}{30} \times 100 = 83.33\%$ "

TF: 5+0 = 5 "

At time =23

All jobs finished, processing and memory is empty