OPEN ENDED ASSIGNMENT

Submitted by

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Q.1. Using Critical Ratio Rule find the following:

a) Total flow time
b) Average Flow Time
c) Average no. of Jobs
d) Total Tardiness
e) Total Lateness

Job	Processing time (days)	Due Date (days)
A	6	8
B	2	6
C	8	18
D	3	15
E	9	22

ANSWER:

- **CRITICAL RATIO = (Due Date – Today's Date)/ (Processing Time)**

Job	Processing time (days)	Due Date (days)	**CR**
A	6	8	1.33
B	2	6	3
C	8	18	2.25
D	3	15	5
E	9	22	2.44

At Day 6 (Job A is completed) CR:

Job	Processing time (days)	Due Date (days)	CR
B	2	6	0
C	8	18	1.5
D	3	15	3
E	9	22	1.77

At Day 8 (Job A and B completed) CR:

Job	Processing time (days)	Due Date (days)	CR
C	8	18	1.25
D	3	15	2.33
E	9	22	1.55

At Day 16 (Job A, B and C completed) CR:

Job	Processing time (days)	Due Date (days)	CR
D	3	15	-0.33
E	9	22	0.66

Final Sequence having Critical Ratio:

A ⟶ B ⟶ C ⟶ D ⟶ E

Job	Flow Time		Due Date	Lateness	
	In	Out		Earliness	Tardiness
A	0	6	8	-2	
B	6	8	6		2
C	8	16	18	-2	
D	16	19	15		4
E	19	28	22		6

Make Spam = 28 Days

1. **Total Flow Time =** 6+8+16+19+28 **= 77 Days**
2. **Average Tardiness :** $\frac{\text{Total Tardiness}}{\text{No. of job}} = \frac{6 + 15 + 25}{4}$ **= 11.5 Days**
3. **Average Flow Time** : $\frac{\text{Total Flow Time}}{\text{No. Of Job}} = \frac{6 + 8 + 16 + 19+28}{5}$ **= 15.4 Days**
4. **Average No. Of Jobs** : $\frac{\text{Total Flow Time}}{\text{Make Spam Time}} = \frac{6 + 8 + 16 + 19+28}{28}$ **= 2.75 Days**
5. **Total Lateness** = -2+2-2+4+6 = **9 Days**
6. **Total Tardiness** = 2+4+6 = **12 Days**