

## DS 5110 CPU Scheduling Worksheet

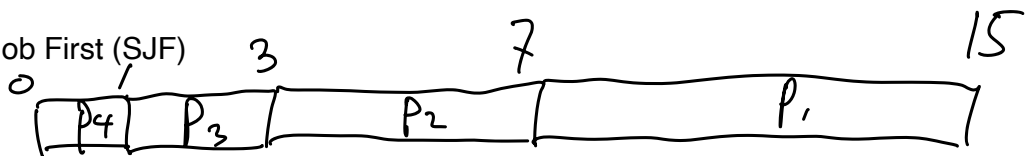
Consider the following set of four jobs (processes). Shown are the required CPU run-time of each process.

Job	Run-Time
P1	8
P2	4
P3	2
P4	1

Arrival Time  
 0  
 3 ←  
 → 4 }  
 4 }

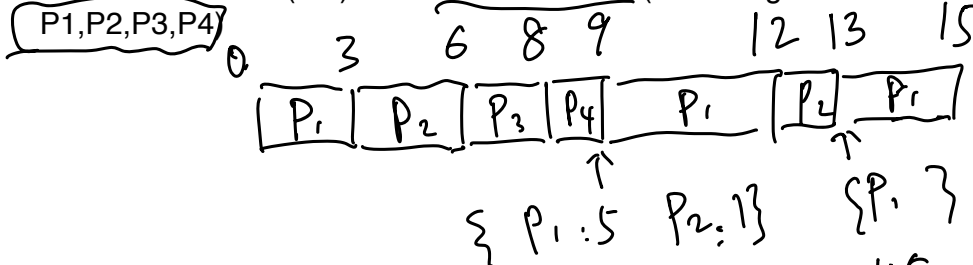
Assume all jobs arrive simultaneously at time 0: a) Draw the Gantt charts to illustrate the execution of these 4 jobs with the following scheduling policies; b) Calculate the average turnaround time for each question.

**Q1. Shortest Job First (SJF)**



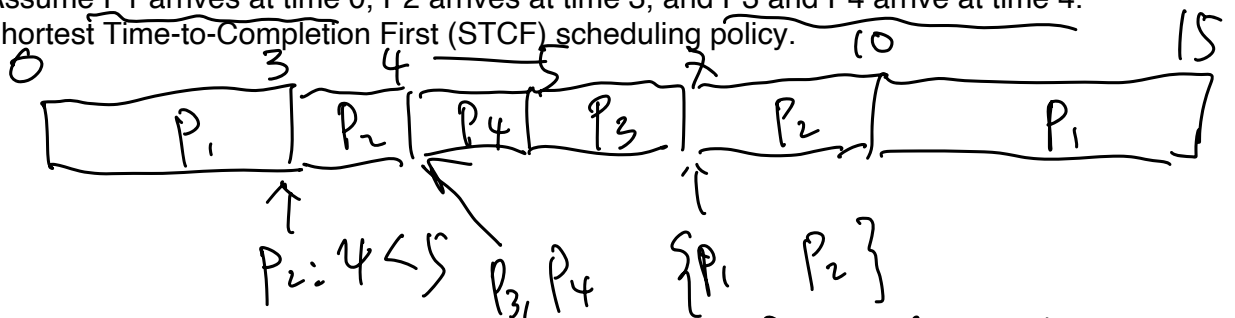
$$ATT = \frac{15 + 7 + 3 + 1}{4} = \frac{26}{4}$$

**Q2. Round-Robin (RR) with a time slice of 3** (assuming the arrival order as follows:



$$ATT = \frac{15 + 13 + 8 + 9}{4} = \frac{45}{4}$$

**Q3. Assume P1 arrives at time 0, P2 arrives at time 3, and P3 and P4 arrive at time 4.** For Shortest Time-to-Completion First (STCF) scheduling policy.



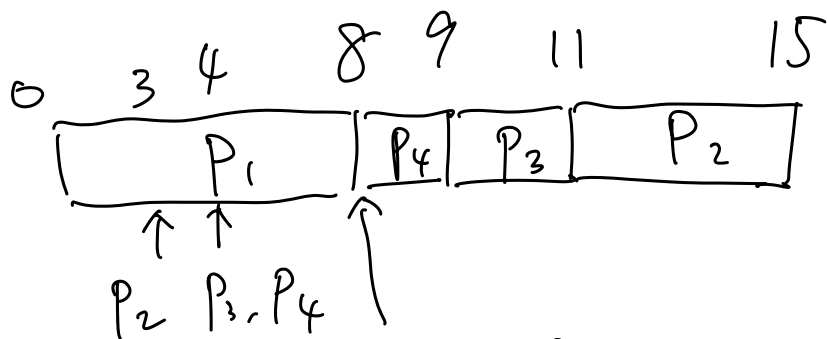
$$ATT = \frac{15 + (10 - 3) + (7 - 4) + (5 - 4)}{4} = \frac{26}{4}$$

Q4. SJF

Arrival.

P1	0
P2	3
P3	4
P4	4.

$$8 + 12$$



$P_2, P_3, P_4$

$\{P_2, P_3, P_4\}$

$$ATT = \frac{8 + (15 - 3) + (11 - 4) + (9 - 4)}{4}$$

$$\Rightarrow \frac{32}{4}$$