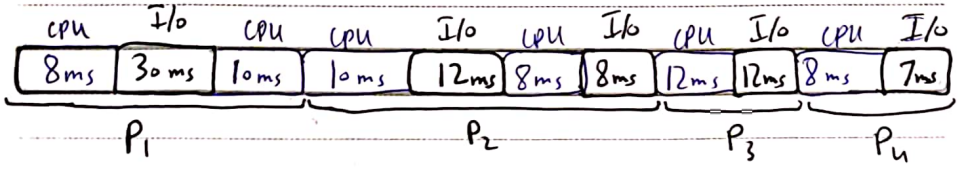
19-04-2021

Name: _____ Roll No _____ Page: 1

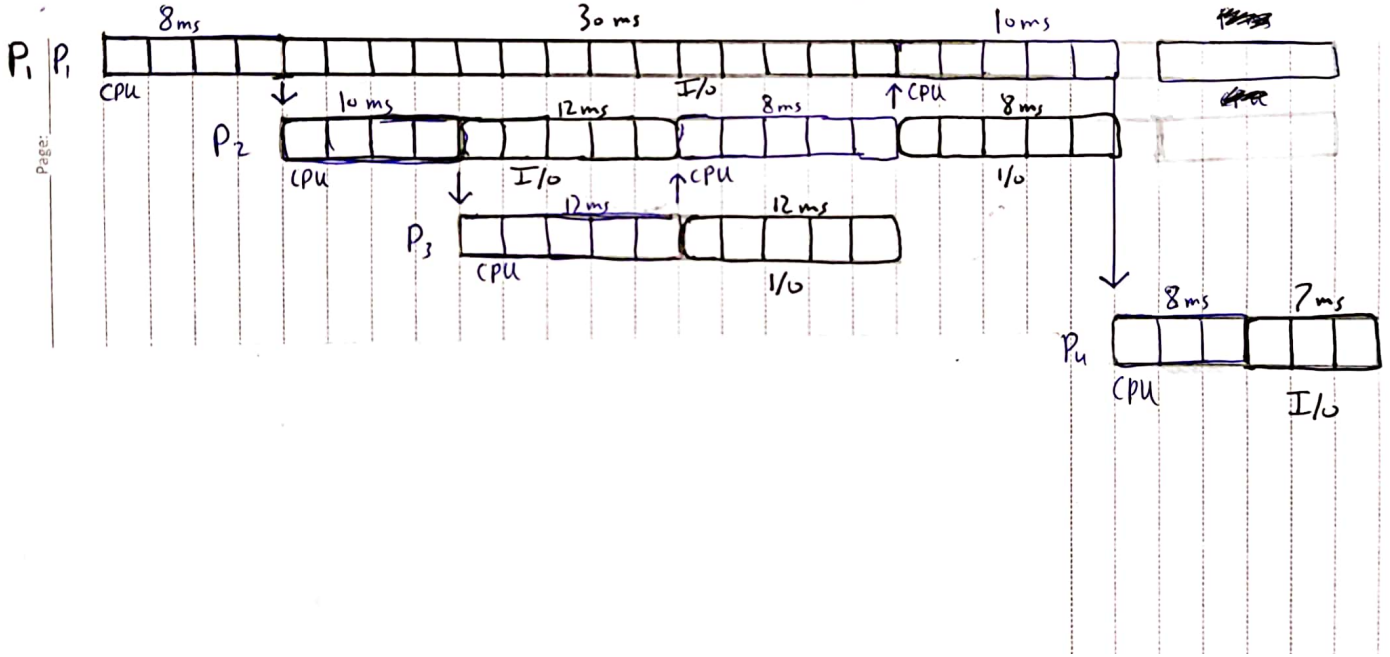
Name: Muhammad Usman Khan Roll No: 2115

Class: BSCS-5-(M) Subject :- OS

Question 1) a) Uni-Programming Diagram.



Question 1) b) Multi-Programming.



Question 2) a) Uni-Programming

CPU Utilization:

CPU time = $P_1 + P_2 + P_3 + P_4 = (8+10) + (10+8) + (12) + (8)$

= 56 ms

I/O time = 30 + 12 + 8 + 12 + 7 = 69 ms

Total time = 56 + 69 = 125 ms

CPU Utilization: $\frac{\text{CPU time}}{\text{Total time}} \times 100 = \frac{56}{125} \times 100 = \boxed{44.8\%}$

CPU Wastage: $\frac{\text{I/O time}}{\text{total time}} \times 100 = \frac{69}{125} \times 100 = \boxed{55.2\%}$

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Question 2) b) Multiprogramming

CPU time = $P_1 + P_2 + P_3 + P_4$

= $8 + 10 + 12 + 8 + 10 + 8$

= 56 ms

I/O time = 7 ms

Total time = $56 + 7 = 63$ ms

CPU Utilization :- $\frac{\text{CPU time}}{\text{total time}} \times 100 = \frac{56}{63} \times 100 =$

= **88.9 %**

CPU Wastage :- $\frac{\text{CPU Wastage}}{\text{total time}} \times 100 = \frac{7}{63} \times 100$

= **11.11 %**