Government College University Lahore

Department of Computer Science

Roll #: _____ **Section:**_____**Name:** _____

Course Title: Operating System **Semester:** 6th

Course Code: CS -2205 **Academic Year:** 3

Instructors: Dr. Awais Qasim & Dr. Ayesha Atta **Date:** 29-05-2021

Exam: Final Term **Time Allowed:** 180 Min

NOTE: Attempt all questions on plain pages (Hand Written Format) and submit Single PDF File of attempted Paper/Pages over MS Teams in given time.

Q1. Suppose you are hired by Microsoft Corporation. You are part of a team developing a new state of the art Operating System? The team lead has suggested that they should remove the system call interface from this new OS. What are your thoughts on this? (5)

Q2. Why it was not possible to implement dual mode of operation at software level? (5)

Q3. How does the use of cache memory make a computer fast? What happens when the data in cache is changed/modified? (5)

Q4. Suppose in an operating system a new process is allotted 4 segments of 4KB each? In this system how is creating 5 new processes is different from creating 5 new threads? Answer your question by computing the result. (5)

Q5. How can we implement producer consumer problem in message passing systems? Write code if possible. (5)

Q6. Using FCFS, preemptive SJF and non-preemptive SJF, Round Robin (Q=2) find out the individual and average wait time for each process. (10)

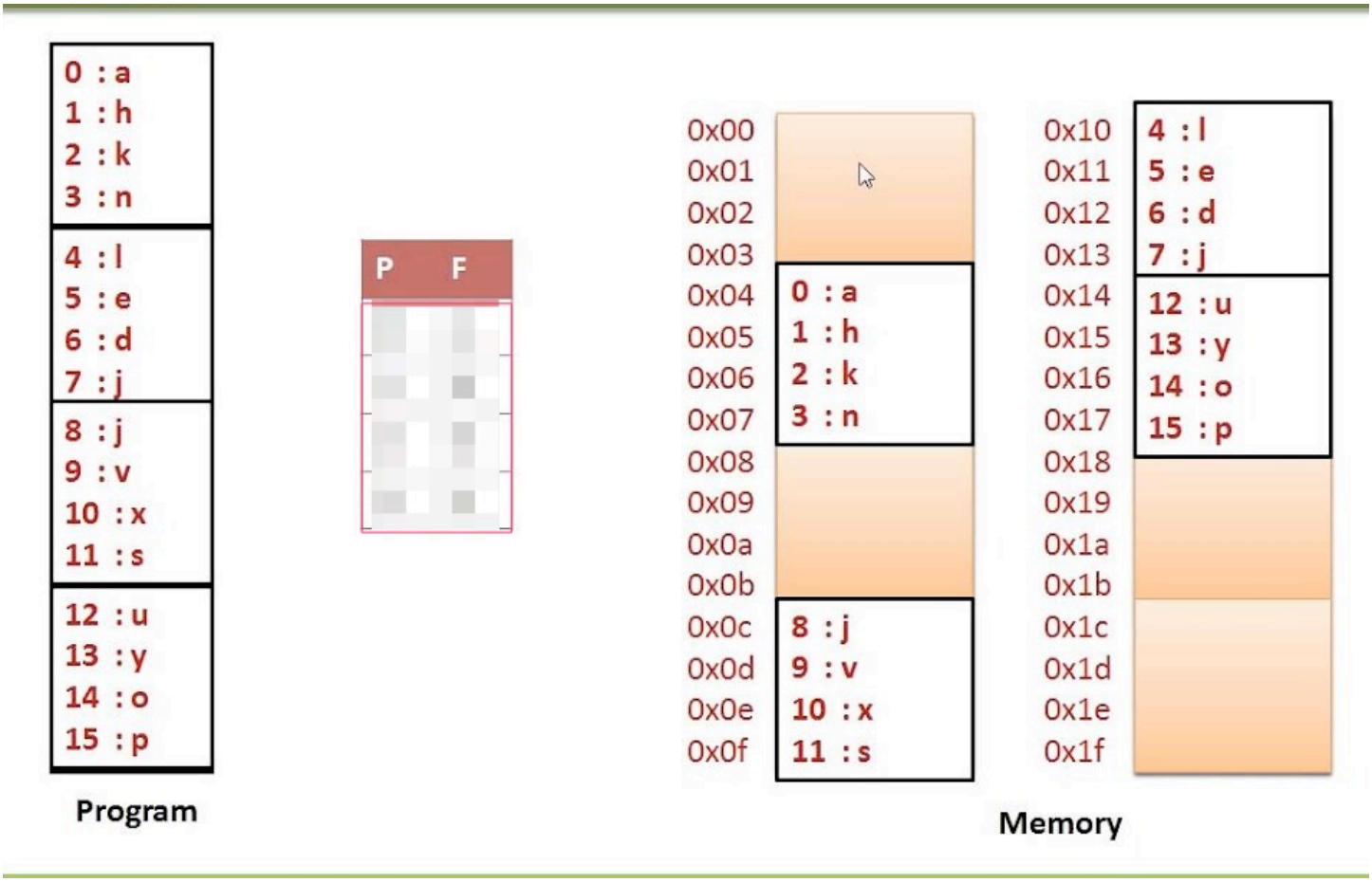
Process	Arrival Time	Burst Time
P1	4	5
P2	3	2
P3	2	2
P4	1	3
P5	5	2
P6	0	4
P7	7	5
P8	0	3
P9	6	5

Q7. In scheduling schemes, aging has been used for long to prevent starvation in preemptive scheduling? If we cannot use aging then describe other ways to handle starvation. (5)

Q8. Use TestandSet to synchronize Producer-Consumer Problem? Write code and show how your solution works. (5)

Q9. How can we eliminate external and internal fragmentation? (5)

Q10. Complete the page table given below. (5)



Q11. If page size is 64KB and there is a program of size 6400KB. What will be the total size of page table in memory in KB? (5)