Please check your descriptive writing skill as well as your knowledge of operating systems by answering below questions

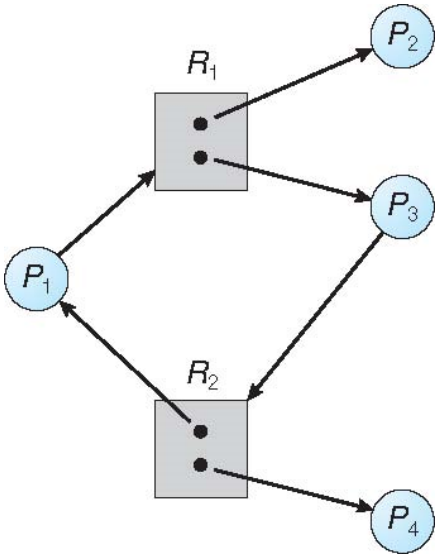
Q1: Please explain the difference between message passing model and shared memory model for inter-process communication.

Q2: Please explain the concept of a context switch.

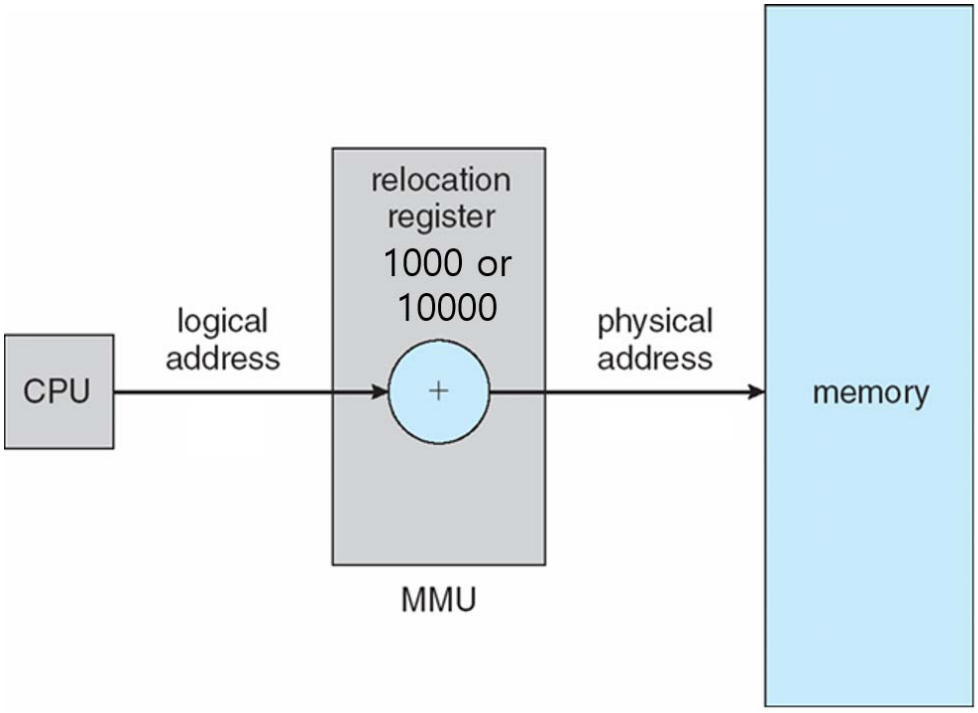
Q3: Please describe the three requirements to be a solution to the critical-section problem.

Q4: Please proof that Peterson's Solution can be a solution to the critical-section problem.

Q5: The below graph represents a System Resource-Allocation Graph. In this graph, process is represented by circle and resource is represented by square. Please proof why the below example is not deadlock situation.



Q6: Memory-Management Unit (MMU) is shown below. Please find the corresponding physical addresses of the blow logical addresses according to the relocation (based) and limit address.



When the relocation (base) address is 1000 and the limit address is 1000

(1) Logical address 10
(2) Logical address 100

When the relocation (base) address is 10000 and the limit address is 2000

(3) Logical address 100
(4) Logical address 1000

Q7: Please describe the difference between mounted file system and unmounted file system.

Q8: Explain why is DMA used for devices that execute large transfers?

Q9: Please describe the advantages of the I/O Subsystems: scheduling, buffering, caching, spooling.

Q10: How can we improve the efficiency of I/O?