(6 p) As we discussed in the course, the Hypervisor in charge of coordinating several VMs maintains a shadow page table, which needs to be synchronized accordingly to the changes made by each VM to their own page tables. To perform such synchronisation, the Hypervisor does not mark the pages used by the VMs to maintain their page tables as read-only, but instead relies on the page faults issued by each VM to update its own shadow page table. What are the pros and cons of such an approach?
[**HINT:** Pros: Hypervisor does not gain control for changes that do not really require its intervention. Cons: freed-up pages will be found later, only when a page fault is induced by the Guest.]

(6 p) As we discussed in the course, the Hypervisor in charge of coordinating several VMs maintains a shadow page table, which needs to be synchronized accordingly to the changes made by each VM to their own page tables. To perform such synchronisation, the Hypervisor marks the pages used by the VMs to maintain their page tables as read-only, instead of relying on the page faults issued by each VM to update its own shadow page table. What are the pros and cons of such an approach?
[**HINT:** Cons: Hypervisor might gain control for changes that do not really require its intervention. Pros: freed-up pages will be found immediately, not only when a page fault is induced by the Guest.]

(6 p) Do all guest-induced page faults need to be re-injected to the guest OS? Motivate your answer.
[**HINT:** Yes, they belong to the guest OS and need to be handled by it, no matter the extra steps the Hypervisor applies for virtualization. Check lecture about virtualization.]