Perform a literature research, look into the Linux 3.x source code and answer the following:

**Code structure:**

1. [20 pts] Where are the page tables defined in the Linux source code? What are the “.h” and “.c” source files implement the page table(s) and its functionality? What are the most important/predominant c functions in those files?

2. [20 pts] What type are they (inverted, regular, hierarchical, nested, etc)? Describe the page table data structure (what fields/records/columns/pointers etc it has), and describe the purpose of each field.

3. (bonus) [10 pts] Is the translation look-aside buffer (TLB) in the Linux source? If yes, where in the source code? If not, why?

**Runtime location:**

4. [20 pts] Where in memory is the page table stored for a process? Is it in kernel or user memory space and is it accessible (addressable) by the program?

5. [20 pts] Describe using a diagram the typical usage of the page table for a memory translation.

6. [20 pts] Is the entire page table loaded on memory? If yes, how big is it, with respect to the number of running processes? If no, where are the non-loaded parts stored?

**Notes**

This homework assignment asks you to perform literature research and to cite sources. You are encouraged to discuss the homework and your findings with other classmates (even outside your group) yet you are not allowed to share your documents and you are not allowed to solve the homework for others. Your submitted report will be checked for plagiarism. DO NOT COPY&PASTE from other documents. Write your own words and draw your own diagrams and acknowledge your sources. Avoid exceeding 3 pages.