Question 1.

a) List seven stages of the Software Process.

b) Research the London Ambulance Service disaster and using the stages of the Software Process analyse lessons that can be learned from it.

Question 1 Ideas

- **Analyses and Design - major flaws in the process of gathering requirements and writing specifications/designs**
  - key users such as ambulance operators, dispatchers etc. were not consulted
  - "highly detailed and extremely prescriptive" requirements document
  - no sign off on the design specification and no process to make sure the contract understood the system they had to create
  - the scope was too large and no plan to iterate or introduce features one step at a time
  - attempt to redesign the whole process rather than develop a software that "fitted" into the process

- **Implementation and Building - no experience, no solid team**
  - the company had no experience with real-time applications
  - the software development process was flawed with no firm foundation
  - unreasonable timescales (completed in 11 months)
  - no solid project management, no solid team (in fact two people primarily in change were "a manager expecting to become redundant and a contractor who was a temporary addition to the organisation")

- **Testing - no quality assurance**
  - no validation or verification testing (seems to be working as users wanted but is this what they needed)

Question 1 Ideas

- **Testing - no quality assurance**
  - real world conditions, errors / recovery not handled (system is working under ideal conditions but can it work in real-world conditions?)
    - didn't function well when given invalid or incomplete data regarding the position or statuses of ambulances - had to switch to semi-automated process the next day
    - when ambulance crew incorrectly pushed wrong buttons and then tried to correct mistakes the system didn't accept the fix - couldn't deal with normal day to day conditions
  - no performance testing, stress testing or testing under load - no load tests run at all
    - the system failed completely after eight days due to memory leak in a small portion of a code - incident information was held on the server file even after it was no longer needed
  - no usability tests
    - quirks and issue in the UI (terminal screens had black spots preventing ambulance operators from getting all the information)
    - attempted to change the whole process with introduction of new software
    - attempts to remedy mistakes were not accepted
    - staff trained 10 months in advance

- **Deployment**
  - there were 81 known issues, no load tests run and no provisions for a backup system
  - re-use some of the hardware that was already purchased for the previously closed project as part of the attempt to save money instead of purchasing hardware more suitable for the new system