1. [3 marks] Suppose you are responsible for the IT infrastructure of an organization, which has about 15 desktop computers. You are advised that automation for uniformity is a good solution. What does it mean by “automation for uniformity”? Why is it a good solution in principle? Will you implement a fully automatic system in this case of yours? Why or why not.
2. ‘Automation for uniformity’ mainly refers to automation of operating system installations, configuration and updates for workstations or desktops. Automation is done mainly to limit variations between machines.

Automation is a good solution because it:

* results in uniformity machines which are uniform and identical in their configuration.
* leads to easy support and management.

In an organization with 15 desktops and one system administrator (i.e. me), I would implement a fully automatic system because:

* automation will save time and resources during installation phase and subsequent user support
* automation will result in consistent and uniform machines

1. [2 marks] Please summarise the technologies used in server computers to improve reliability, availability, and performance.

Technologies used in server computers to improve reliability, availability and performance include:

* redundancy – This includes redundant power supplies, multiple network connections, backups (full and n+1)
* Hot-swappable components – components which can be plugged in without having to halt the server computer, which avoids downtime
* RAID – Redundant Array of Independent Disks

1. [2 marks] Please summarise the “Scope of Coverage” of a Helpdesk operation.

The “Scope of Coverage” of a Helpdesk operation is a policy defining the scope of support. It mainly defines what is being supported, who will be supported, when is the support provided and for how long the average support request takes to complete.

1. [3 marks] Suppose that you are responsible for the IT department of a university with students around the world. It is infeasible to meet each student in person. The IT department is responsible for all secure communication with the students. Assume that there is a trusted certificate authority which can securely issue certificates to all involved parties. Please explain:
   * Why the trusted certificate authority is essential to establish a secure communication? What role does it play in the secure communication between the IT department and the students?
   * From time to time, your department, on behalf of the University, makes public announcements. The announcements are of public nature and can be shared and transmitted by any interested parties, say, prospective students. How would you guarantee the authenticity of your announcements? It is not a solution to publish the announcement on a website for students to compare and decide if the received copies are the same as the web copies.

The