Configuration management (CM) is concerned with the policies, processes and tools for managing changing software systems. CM is essential for team projects to control changes made by different developers.

→ CM(配置管理)關注管理不斷變化的軟件系統的政策，流程和工具。CM對於團隊項目控制不同開發人員所做的更改至關重要。

CM activities : Version management(版本管理), System building(系統建設), Change management(變更管理), Release management(發布管理)

Version management (VM) is the process of keeping track of different versions of software components or configuration items and the systems in which these components are used.

→ 版本管理（VM）是追蹤軟體組件或配置項的不同版本以及使用這些組件的系統的過程。

A codeline is a sequence of versions of source code with later versions in the sequence derived from earlier versions.

→ codeline(代碼行) 是原始碼的一系列版本，在早期版本的序列中具有更高版本。

A baseline is a definition of a specific system. The baseline therefore specifies the component versions that are included in the system plus a specification of the libraries used, configuration files, etc.

→ baseline(基準線)是特定系統的定義。因此，基線指定了系統中包含的組件版本以及所使用的庫的規格，配置文件等。

Version control (VC) systems identify, store and control access to the different versions of components. There are two types of modern version control system:

1. **Centralized systems**, where there is a single master repository that maintains all versions of the software components that are being developed. Subversion is a widely used example of a centralized VC system.

2. **Distributed systems**, where multiple versions of the component repository exist at the same time. Git is a widely used example of a distributed VC system. Benefits of distributed systems: (1)It provides a backup mechanism for the repository. (2)It allows for off-line working. (3) Is essential for open source development.

→ 版本控制（VC）系統指的是儲存和控制對不同版本的組件的存取。有兩種類型的現代版本控制系統：

\*\***集中式系統**，其中有一個主儲存庫，用於維護正在開發的所有軟體組件版本。 Subversion是集中式VC系統的一個廣泛使用的例子。  
**\*\*分散式系統**，其中同時存在多個版本的組件儲存庫。 Git是分佈式VC系統的一個廣泛使用的例子。分散式系統的優點：(1)它為儲存庫提供備份機制。(2)它支援離線工作。(3)對於開源開發很重要。

Version control (VC) systems key features: Version and release identification(版本和發布識別), Change history recording(更改歷史紀錄), Support for independent development(支持獨立發展), Project support(專案支持), Storage management(儲存管理)

System building is the process of creating a complete, executable system by compiling and linking the system components, external libraries, configuration files, etc.

→ 系統構建是創建完整的過程，通過編譯和連接系統的可執行系統組件，外部庫，配置文件等。

Release management involves making decisions on system release dates, preparing all information for distribution and documenting each system release., a release may also include: executable code, data files, configuration files and documentation.

→ 發布管理涉及在系統發布日期做出決策，準備所有資訊以進行分發並記錄每個系統發布。一個發布可能包括: 可執行碼，資料文件，配置文件和文檔。

(b) (4%) Describe the Continuous Integration?

