

Q8)  
(8M)

What do you understand by SCM ? discuss the importance

PAGE No.	
DATE	SCM

② Software configuration Management (SCM) is the set of activities which

- identify change
- Monitor & control change
- Ensure proper implementation of change made to the item.
- Auditing & reporting on change made.

① SCM is a technique of identifying, organizing and controlling modification to software being built by programming team.

③ - During the development of software change must be managed and controlled in order to improve quality and reduce error  
- Hence SCM is a quality assurance activity that is applied throughout the software process.

Importance of SCM :-

- 1) Tracking & managing changes in software development process.
- 2) It enhances the productivity of the software application with minimal error.
- 3) It is used to manage the software & hardware inside the application.
- 4) It handles the software budgeting as per the change in application.
- 5) It updates each team member's code parallelly by considering different version control.

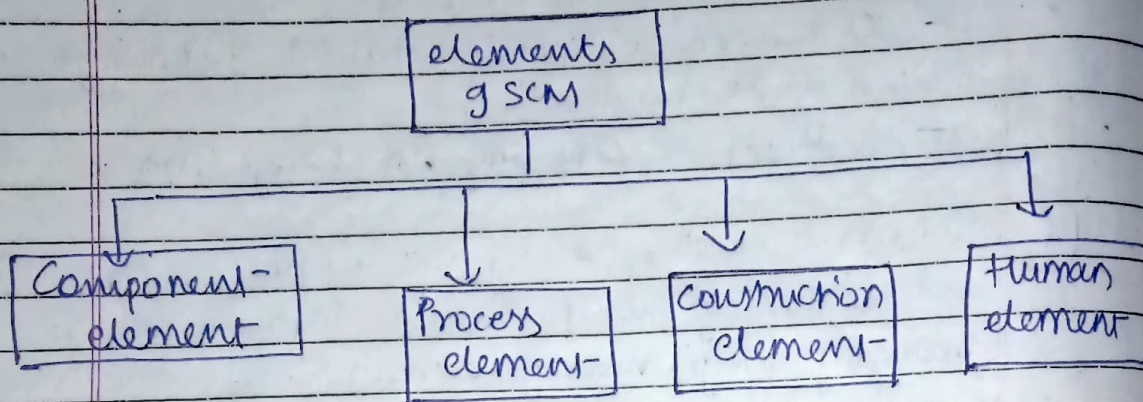


(Q9)

What are the elements that exist when effective SCM system is implemented? discuss each briefly (6M).

PAGE No.	
DATE	/./

Ans:- 4 Important element of SCM are:-



Component element - It consist of collection of tools that are used for file management system, for ex:- Databases.

Process element :- It consist of actions & tasks used during change management and use of software.

Construction element :- It is a collection of tools that automate the construction of software.

Human elements :- It consist of set of tools that are used by software team to implement software configuration management.



10.02)

What is SCM repository?

Explain the features of tool set

CASE No.	
DATE	/ /

supporting SCM repository. (6M)

Ans:-

SCM repository is a collection of information accessed by software engineers to make appropriate changes in it.

The software repository is basically a database that act as a center for both accumulation & storage for software related information.

The software engineers interact with repository using tools that are integrated within it.

Features:-

The SCM can be performed by interacting with repositories.

1) Versioning - As project progresses various versions may get created. The repository must be able to maintain all these versions and permit the developer to go back to previous versions during testing & debugging.

2) Dependency Tracking & change management - The data stored in the repository are related to each other. The repository must have an ability to keep track of these relationship & to maintain data integrity.

3) Requirement Tracing :- If the constructed components, its design is tracked, then particular requirement can be traced out.



#### 4) Configuration Management

PAGE No.	
DATE	/ /

The repository must be able to keep track of series of configuration representing project milestones.

5) Audit trails: establishes additional info about when, why & whom changes are made.

Q11) Explain SCM repository in detail. What are the advantages of SCM repository? (6M).

Ans:- In SCM,

⇒ SCM is any kind of practice that tracks & provides control over changes to source code, so software developers sometimes use revision control softwares (repository) to maintain documentation & configuration files as well as source code.

⇒ So software repository is basically a database for accumulation & storage of software engineering info.

⇒ The repository is handled using all modern database management functions.

⇒ It must maintain important properties such as data integration & sharing.

⇒ & It must maintain uniform structure & format for work products.

⇒ To achieve these capabilities, the repository is defined in terms of meta-model.



## Advantages of SCM repository

PAGE No.	
DATE	/ /

Info sharing

1) It manages & control multi-user access for multiple developers to work at a time.

2) Shares information among developers & also several tools.

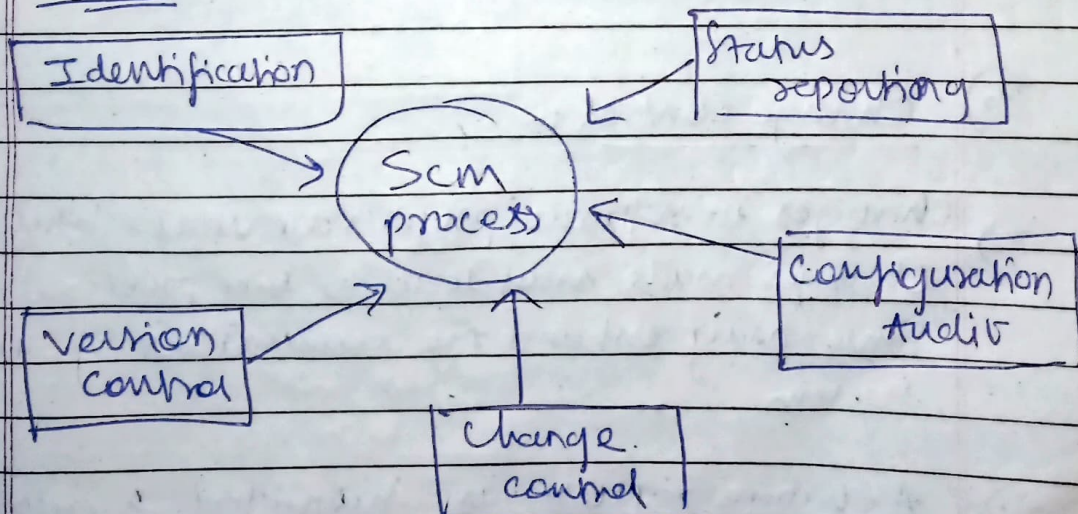
3) It established a data model that can be accessed by many software engineering tools with control of access to the data. thereby, providing an integrated platform for all software engineering activities.

(Tool integration)

4) It maintains data integration,

5) SCM repository provides database functions that allows various SCM task to be performed on one or more SCIs.  
(software configuration items).

Q12) What are the layers of SCM process?  
(6M)





# 1) Identification :-

PAGE No.	
DATE	/ /

Identifies object in software configuration.

- Basic object - Unit of test created by the software engineer during analysis, design, code or test.
- Aggregate object - A collection of essential objects and other aggregate objects.
- The interrelationship between configuration objects can be described with a module interconnection language (MIL)

## 2) Version control :-

It combines procedure & tools to handle different version of configuration objects that are generated during software process.

The CM allows user to specify the alternative configurations of software system by selecting appropriate version.

## 3) Change control :-

- ⇒ Changes in software projects are vital. Some changes made may lead to big problems & some may enhance the capabilities of the system.
- ⇒ A change request is submitted & calculated to assess technical merit, potential side effect, and overall impact on system functions & projected cost. \*



⇒ A change report is then generated and presented to CCA (Change Control Authority)

⇒ The check in & check out process implement 2 necessary elements of change control — access control & synchronization control.

#### 4) Configuration Audit:-

⇒ SCM audits to verify that software product satisfies the baseline requirements & ensures what is built & what is delivered

⇒ SCM audits the "watchdogs" that ensures that the integrity of the project's scope is preserved.

#### 5) Status Reporting:-

⇒ It provides the accurate status and current configuration data to developers, testers, end users, customers and stakeholders through admin guides, user guides, FAQ, installation guides etc.

13Q)

Very Imp

What is SCM? Explain the change control mechanism in SCM (6M).

Change Control Mechanism in SCM:-



# Change control process

PAGE NO.	
DATE	/ /

Need for change



change request



evaluation of request



generation of change report



decision of CCA for change



denial of  
change request



intimate user  
about denial

change request  
accepted & ECO  
generated



Assign individuals to  
config. objects



check-out config. obj



Make changes & review  
them



check-in the object that  
have being changed



perform SQA & testing  
activities



Promote changes in next  
release



rebuild appropriate version  
distribute new version