CS615 Final Term Short Questions with Answers

Prepared by: Muhammad Irfan (MBA-Exec Final)

1) Three subjective questions about COCOMO. (page 233)

The basic COCOMO technique estimates the effort and cost of a software project by using only the lines of code. You, use basic COCOMO when you need a rough estimate of effort, such as during maintenance projects. This is because in such projects, a majority of the work is already completed. Estimating the effort in the basic COCOMO technique involves three steps.

1. Estimating the total delivered lines of code

2. Determining the effort constants based on the type of the project

3. Substituting values for lines of code and effort constant in a formula

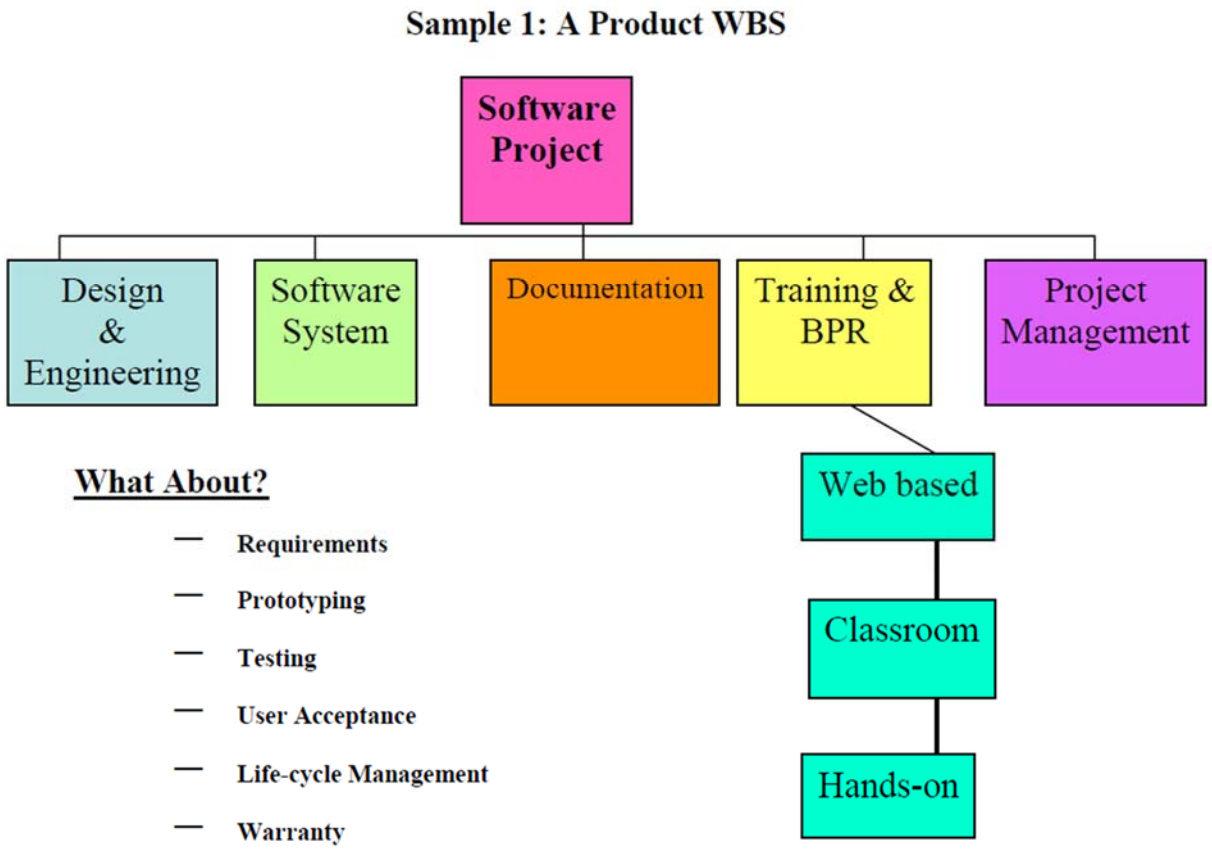
2) One about project scheduling activities. (page 284)

The project manager's objective is to define all project tasks build a network that depicts their interdependencies, identify the tasks that are critical within the network, and then track their progress to ensure that delay is recognized "one day at a time." To accomplish this, the manager must have a schedule that has been defined at a degree of resolution that enables the manager to monitor Progress and control the project.

3) Difference between leader and manager. (page 44)

Leadership is path finding
Management is path following
Management is about doing things right
Leadership is about doing the right things

4) Product related WBS of Bicycle diagram. (page 251)



5) What is activity? (page 138)

6) Define SLOC and its disadvantages. (page 229)

There are many techniques to calculate the size of a software project. You can calculate the size by using a directly measurable technique, the SLOC technique. It is defined as the source lines of code that are delivered as part of the product. The effort spent on creating the source lines of code is expressed in relation to thousand lines of code (KLOC).

– **Disadvantages of Using SLOC**

Despite being accurate in providing figures to calculate the effort required for a project, the SLOC technique has a drawback.

The SLOC technique is language-dependent. *The effort required to calculate source lines of code may not be the same for all languages.*

For example, to conceive and write 8 lines of code that accomplish a task in the assembly language may require 15 minutes. However, you may need only five minutes to complete the same lines of code if it is written in Visual Basic.

7) Something about Safety and Hazard. (page 328,354)

Software safety and hazard analysis are software quality assurance activities (Chapter 8) that focus on the identification and assessment of potential hazards that may affect software negatively and cause an entire system to fail. If hazards can be identified early in the software engineering process, software design features can be specified that will either eliminate or control potential hazards.

8) Implementation stage. (page 404,80)

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1. What are the tasks that you perform in project closedown? (2) (page 80)

Prepare closedown report

Identify learning

Identify reusable software components

Create reference material

2. State any three benefits of weekly status report (2) (page 64)

3. List the features of WBS? (2) (page 241)

First, it gives the management an idea about the size and complexity of the project. Second, it helps in planning, scheduling, and monitoring a project realistically. This is possible because all the tasks in the project can be performed measurable targets for each task

4. What are the advantage of function point (2) (page 231)

Function points are language-and technology-independent. Therefore, you can use them to estimate any kind of project. They can also be used to estimate the effort, cost, and schedules of projects that use the Prototyping and Spiral models because such projects have uncertain user and project requirements.

In addition, you can use function points as a project estimation technique when you anticipate changes in the middle of a project. These changes may disturb the estimates if, you had used SLOC to estimate the effort, cost, or size of a project. The FP estimation uses a subjective and holistic approach for project estimation. Consequently, the estimates calculated by using the FP are unlikely to be incorrect.

5. What are the types of risk (2) (page 307)

A software project encounters two types of risks, **development process risks and product-related risks**. Some of the development process risks are developer errors, natural disasters,

disgruntled employees, and poor management objectives. Some project related risks are incomplete requirements, unclear project deliverables and objectives, and complexity of the product.

6. How can material resource rate is calculated? (2) (page 390)

Microsoft Project calculates the resource cost by the hourly rates that you specify and the time required for completing a task.
However, when you assign a material resource to a task, Microsoft Project automatically calculates the total cost of the resource by using the material resource rate specified by you and the quantity of material required for completing the task.

7. Define software process & explain it (3) (page 128)

When you build a product or system, it's important to go through a series of predictable steps – a road map that helps you create a timely, high-quality result, The road map that you follow is called a 'software process' A software process provides the framework from which a comprehensive plan for software development can be established.

8. Write down concept of "time and effort allocation" for project scheduling? (3) (page 288)

Each activity in a software project needs a certain amount of time and effort for completion. To manage the project, you assign start and end dates to each activity. You also need to allocate appropriate effort to each activity. Most software projects operate with time and effort constraints. Therefore, managing within the available resources is very important for a software project manager

9. When risk is considered in the context of software engineering what conceptual underpinning are always in evidence (3) (page 316,306,334)

When risk is considered in the context of software engineering, Charette's three conceptual underpinnings are always in evidence. **The future is our concern** – what risks might cause the software project to go awry? **Change is our concern** -how will changes in customer requirements, development technologies, target computers, and all other entities connected to the project affect timeliness and overall success? Last, **we must grapple (handle) with choices** - what methods and tools should we use, how many people should be involved, how much emphasis on quality is "enough"?

10. What is process line? How many ways a progress line can be displayed? (3) (page 391)

To track a project plan, you first view the progress of a project. You can view the progress of a project by applying progress lines to the tasks in the project. You can display progress lines in three ways.

11. List the project planning key tasks used in planning physics (3) (page 143)

Project Planning: Key Tasks

1. Set goal and scope
2. Select lifecycle
3. Set organization team form
4. Start team selection
5. Determine risks
6. Create WBS
7. Identify tasks
8. Estimate size
9. Estimate effort
10. Identify task dependencies
11. Assign resources
12. Schedule work

12. What are the output that comes from staff acquisition (3) (page 205,40,139)

Project staff assigned. The project is staffed when appropriate people have been reliably assigned to work on it. Staff may be assigned full time, part time, or variably, based on the needs of the project.

Project team directory. A project team directory lists all the project team members and other stakeholders. The directory may be formal or informal, highly detailed or broadly framed, based on the needs of the project.

13. Why we use WBS?(5) (page 228,241,242)

Using a WBS provides a number of benefits to the management and to the development teams. **First**, it gives the management an idea about the size and complexity of the project. **Second**, it helps in planning, scheduling, and monitoring a project realistically. This is possible because all the tasks in the project can be performed measurable targets for each task.

14. Difference between reactive & proactive risk management (5) (page 316,351)

At best, a reactive strategy monitors the project for likely risks. Resources are set aside to deal with them, should they become actual problems.

More commonly, the software team does nothing about risks until something goes wrong. Then, the team flies into action in an attempt to correct the problem rapidly. This is often called a fire fighting mode. When this fails, “Crisis Management” [CHA92] takes over, and the project is in real jeopardy.

A considerably more intelligent strategy for risk management is to be proactive. A

Proactive strategy begins long before technical work is initiated. Potential risks are identified, their probability and impact are assessed and they are ranked by importance. Then, the software team establishes a plan for managing risk. The primary objective is to avoid risk, but because not all risks can be avoided, the team works to develop a contingency plan that will enable it to respond in a controlled and effective manner.

15. Prepare simple risk analysis table?(5) (page 311,342)

Table 6.2: Risk Analysis Table

Risk Description	Probability of Occurrence (0 – 1)	Impact on Project (1 – 10)	Risk Factor (Probability x Impact)

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1) Describe the Overestimated savings from reusable components and new tools technology-related problems in a software project? (page 89)

You can reuse software components in a software project to save time, effort, and cost of creating the component again. It is important that you assess the savings that the use of such a software component provides to a software project. This expectation of both the customer and the management might not be met, if you overestimate the savings from reusing software components.

2) Describe the Switching tools in mid-way technology-related problems in a software project? (page89)

The current technology environment offers new tools and technologies for software development at a fast rate. All these tools and technologies offer the benefits of a shorter development cycle, lower costs, and under better functionality than earlier tools. You should identify and commit to the tool and technology for the software project before the project commences. Switching the tool or technology used during the software development stage causes the developers to relearn a new tool. In addition, there is a chance that it might not be possible to integrate the software already developed with the new tool.

3) What is WBS document containing? (page 242)

WBS Contains the below documents;
– Maps all contractual obligations (SOW) regarding deliverables
– Details project objectives
– Detailed enough to meet performance (measurable) objectives
– Contains built-in WBS and Project Plan review and update

4) What is the guideline of SQA for the different project? (page 368,363)

5) What is Work automation system in the software project management?

6) Suppose there are the Human recourse department needs to schedule the network, how you can schedule it and what types of method you adopt for the network scheduling? (page 285,296)

To plan the activities in a project, you can also use network-scheduling techniques. Network scheduling techniques use network schedules to trace the completion of predetermined activities. There are two basic network-scheduling techniques:
• PERT and
• CPM

– Program Evaluation and Review Techniques (PERT)

– Critical Path Method (CPM)

9) Define the Delphi technique is an estimation technique and which types of group discussions can be used in it? (page 228,237)

The Delphi technique is a Human-based estimation technique. Human-based estimation techniques use human experience and analytical skills to estimate the size, productivity, and effort required for a project. This is a trusted technique and is widely used in many established organizations to facilitate practical and reasonable estimation.

10) What is task Unit Testing? (page394)

Select the task Unit testing for which you want to view the task completion status. This task exists under the Testing summary task

11) Define SQA? (page 122)

SQA is the process of evaluating the quality of a product and enforcing adherence to software product standards and procedures. It is an umbrella activity that ensures conformance to standards and procedures throughout the SDLC of a software product. There are a large number of tasks involved in SQA activities. These include:
i. Formulating a quality management plan
ii. Applying software engineering techniques
iii. Conducting formal technical reviews
iv. Applying a multi-tiered testing strategy
v. Enforcing process adherence
vi. Controlling change
vii. Measuring impact of change
viii. Performing SQA audits
ix. Keeping records and reporting

12) Define the project planning task? (page 143)

Project Planning: Key Tasks

1. Set goal and scope
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12. Schedule work

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Explain ESTIMATION? 2 Marks (page 222)

Estimation of factors such as cost, effort, risks, and resources is crucial. It gives you a fair idea of the size of the project. You can use the information about size to estimate the cost, effort, and duration of the project. This further helps plan for resources and schedule the project.

Explain WBS? 2 Marks (page 227)

Dividing into Logical Units/Tasks
To correctly estimate the effort, size, or cost of completing a project, it is important to be aware of the multiple tasks that comprise a project. You can divide a project into logical units or tasks by using the WBS technique. Creating a WBS is a prerequisite for any estimation activity. It enables you to conceptualize an abstract entity, such as a project, into distinct, independent units. After dividing a project into tasks, you can categorize them as logical, broad tasks. For example, tasks, such as drawing up a marketing strategy, planning a phase-wise product release, and interacting with media agencies and the production department can be compiled under a common category, Marketing.

Explain Quality Control 2 Marks (page 358,119,140)

But how do we achieve quality control? Quality control involves the series of inspections, reviews, and tests used throughout the software process to ensure each work product meets the requirements placed upon it.

What is COCOMO? 3 Marks (page 223)

Constructive Cost Model (COCOMO)
The COCOMO technique is another popular estimation technique. Dr: Barry Boehm propounded this technique in 1981. COCOMO uses cost driver attributes to calculate the effort and duration of a project. The COCOMO technique has three levels of implementation. With each level, the complexity of the model increases. The levels of the COCOMO technique are:
i. Basic
ii. Intermediate
iii. Advanced

Explain SLOC? 3 Marks (page 229)

At the beginning of a software project, it is important to determine the size of the project. The project size helps determine the resources, effort, and duration of the project.
There are many techniques to calculate the size of a software project. You can calculate the size by using a directly measurable technique, the SLOC technique.

Explain Project Scheduling? 3 Marks (page 284)

Software project scheduling is an activity that distributes estimated effort across the planned project duration by allocating the effort to specific software engineering tasks.

RISK REFINEMENT? Marks 3 (page 325)

During early stages of project planning, a risk may be stated quite generally. As time passes and more is learned about the project and the risk, it may be possible to refine the risk into a set of more detailed risks, each somewhat easier to mitigate, monitor, and manage.

What is Quality Assurance explain Marks 5 (page 361,139)

Quality Assurance—evaluating overall project performance on a regular basis to provide confidence that the project will satisfy the relevant quality standards.

What is RISK PROJECTION Marks 5 (page 321)

Risk projection, also called risk estimation, attempts to rate each risk in two ways-the likelihood or probability that the risk is real and the consequences of the problems associated with the risk, should it occur. The project planner, along with other managers and technical staff, performs four risk projection activities:
(1) Establish a scale that reflects the perceived likelihood of a risk,
(2) Delineate the consequences of the risk,
(3) Estimate the impact of the risk on the project and the product, and
(4) Note the overall accuracy of the risk projection so that there will be no misunderstandings.

CS615 Final Term Subjective

WBS, what it contains... (page 242)

Repeated

What is progress line (page 390)

To track a project plan, you first view the progress of a project. You can view the progress of a project by applying progress lines to the tasks in the project. You can display progress lines in three ways.

What is software process (page 128)

When you build a product or system, it's important to go through a series of predictable steps – a road map that helps you create a timely, high-quality result, The road map that you follow is called a 'software ***process***'

Types of risk (page 307)

the desired reaction is to pre-empt all possible outcome and plan for them. Project risks can be broadly categorized into development process risks and product risks.

Develop sample risk table (page 321,349)

Risks	Category	Probability	Impact	RMMM
Size estimate may be significantly low	PS	60%	2	
Larger number of users than planned	PS	30%	3	
Less reuse than planned	PS	70%	2	
End-users resist system	BU	40%	3	
Delivery deadline will be lightened	BU	50%	2	
Funding will be lost	CU	40%	1	
Customer will change requirements	PS	80%	2	
Technology will not meet expectations	TE	30%	1	
Lack of training on tools	DE	80%	3	
Staff inexperienced	ST	80%	2	
Staff turnover will be high	ST	60%	2	

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1) Define the SAFETY RISKS AND HAZARDS 5 Marks (page 353)

Risk is not limited to the software project itself. Risks can occur after the software has been successfully developed and delivered to the customer. These risks are typically associated with the consequences of software failure in the field.

2) Define the importance Human Resources Management in the terms of the Software Management? (page 39)

Project Human Resource Management includes the processes required to make the most effective use of the people involved with the project. It includes all the project stakeholders—sponsors, customers, partners, and individual contributors.

3) Define the Risk & Change Management Concepts (page 333)

Risk analysis and management are a series of steps that help a software team to understand and manage uncertainty. Many problems can plague a software project A risk is a potential problem - it might happen, it might not But regardless of the outcome, it's a really good idea to identify it, assess its probability of occurrence, estimate its impact, and establish a contingency plan should the problem actually occur.

4) Explain the WBS? (page 227,241)

5) Define the disadvantages of the SLOC? (page 230)

Despite being accurate in providing figures to calculate the effort required for a project, the SLOC technique has a drawback.
The SLOC technique is language-dependent. *The effort required to calculate source lines of code may not be the same for all languages*

6) Define the Project \scheduling? (page 284)

7) Define the SQA Concept? (page 122)

8) Write the Overview about RISK REFINEMENT? (page 325)

9) Draw the Product Operation Table According to the WBS? (page 120)

Correctness	Accuracy of the program and the extent to which it fulfills design specifications
Reliability	Extent to which the program is secure and its ability to recover quickly from failure.

Efficiency	Performance of the program and its ability to perform tasks within a time frame
Integrity	Ability of the program to take care of security and the extent to which it can prevent unauthorized.
Usability	Ease with which a user can learn, operates, and uses the program.

10) Define the Product risk? 5 marks (page 336)

Product risks crop up in the form of changing requirements during product development. Incomplete and unclear requirements are a risk to the product during development. Similarly, problems in meeting design specifications can also be categorized as risk to product development.
Risks could arise if the project deliverables or objectives are not clearly defined or if technical data is missing.

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List the names of inputs to team development. Marks: 2 (page 206)

Inputs to Team Development
i. Project staff. The staff assignments implicitly define the individual competencies and team competencies available upon which to build.
ii. Project plan. The project plan describes the technical context within which the team operates.
iii. Staffing management plan.
iv. Performance reports. Performance reports provide feedback to the project team about performance against the project plan.
v. External feedback. The project team must periodically measure itself against the expectations of those outside the project

What are the software risk components? Marks: 2 (page 319,348)

• **Performance risk** - the degree of uncertainty that the product will meet its requirements and be fit for its intended use.

• **Cost risk** - the degree of uncertainty that the project budget will be maintained.

• **Support risk** - the degree of uncertainty that the resultant software will be easy to correct, adapt, and enhance.

• **Schedule risk** - the degree of uncertainty that the project schedule will be maintained and that the product will be delivered on time.

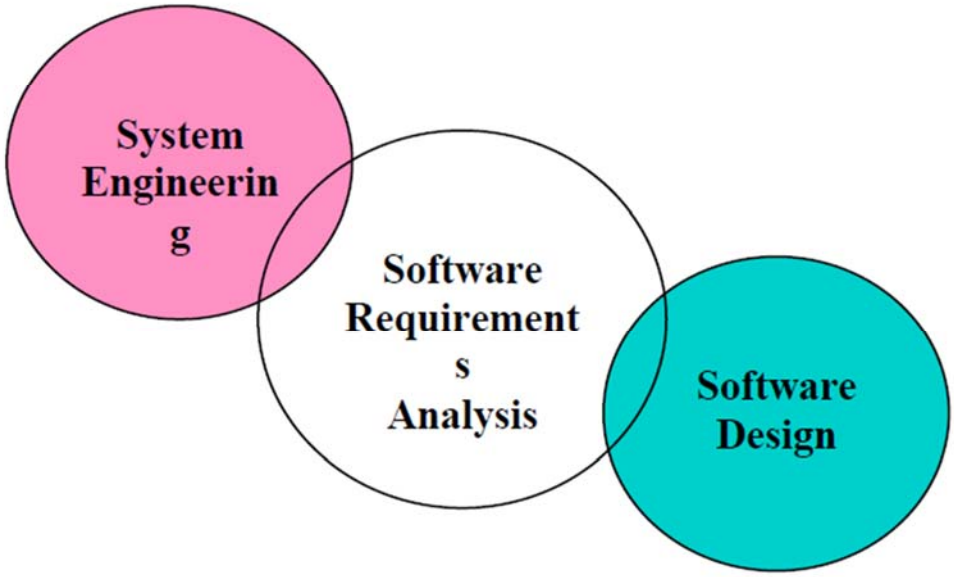
What is meant by constraints and what types of constraints are added to the tasks of MS Project? Marks: 2 (page 377,153,203)

Constraints are defined as1illitations that negatively affect the schedule and quality of a project. Some of the typical project constraints are mentioned below:

- Duration of a project
- Resources of a Project
- Performance goals of a project

What acts as a bridge between software engineering and software design? Marks: 2 (page 93)

Figure 1: a bridge between system engineering and software design



Write names of six methods of requirements elicitation for software? Marks: 3 (page 98)

1. Initiating the Process
2. Facilitated Application Specification Techniques
3. Quality Function Deployment
4. Use Cases

5. Analysis Principles
6. Software Prototyping

What are outputs that come from staff acquisition? Marks: 3 (page 206)

i. Project staff assigned. The project is staffed when appropriate people have been reliably assigned to work on it. Staff may be assigned full time, part time, or variably, based on the needs of the project.
ii. Project team directory. A project team directory lists all the project team members and other stakeholders. The directory may be formal or informal, highly detailed or broadly framed, based on the needs of the project.

How will you explain the concept of tracking the project plan? Marks: 5 (page 390)

Project management is a multiple-phase undertaking. The first phase is the project initiation or the project planning phase. This phase is followed by the project tracking phase. Finally, you wrap up a project with the-project-end phase. Project tracking is an extremely in important activity in an organization. Unless a project is tracked effectively, it might never come close to termination. Project tracking also ensures strict adherence to project plans, requirements, and schedules.

What is functional decomposition? Elaborate it with the perspective of WBS. Marks: 5 (page 267,264)

The functional decomposition of a software project is a division of the system into its operational components as they are seen by the user. Functional decomposition is part of the requirements phase of a project. The objective of this phase is to define air the characteristics of the system from the user's perspective.
In a similar way, a complex project can be divided into simpler components. While the full project may be difficult to manage, each component will be easier to handle. Software projects can be decomposed into smaller components in order to provide better estimates of the amount of work involved, or in order to monitor the activities of the various development teams.

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Proactive and reactive (page 316,351)

WBS why we use? (page 228,241,242)

Software requirement ki phases kitni hain? Tools and techniques for the team management Output from the staff acquisition (page 206)

Negotiations.

Pre-assignment.

Procurement.

aik scenario base the us mei btanaa tha functional requirements koun c hain aur non functional requirements koun c? Reengineering process ki diagram (page 417,419)

Figure 12.2 displays the reengineering process.

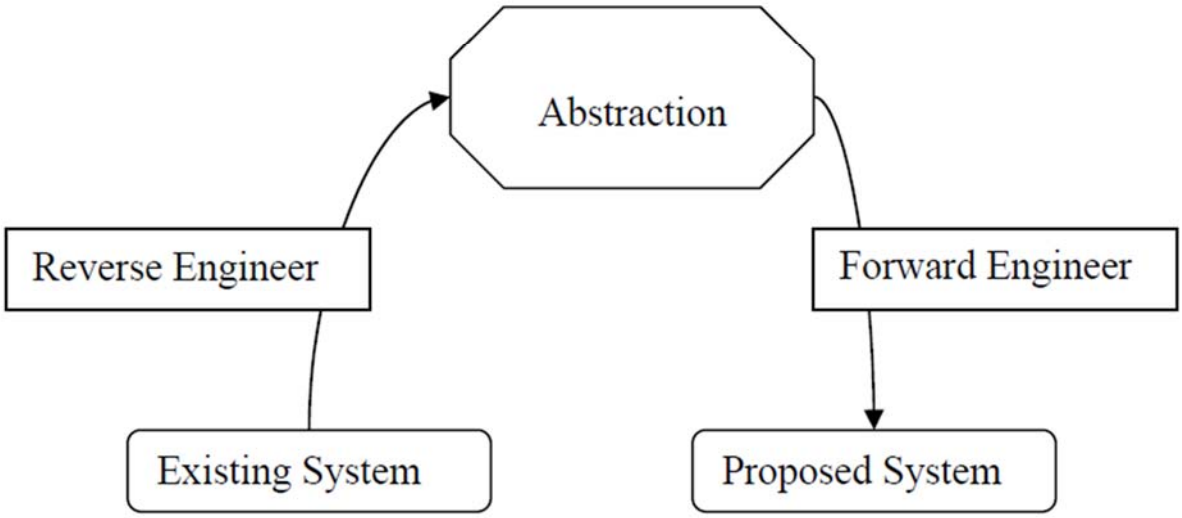

Figure 12.2: *Reengineering Process*

Team development kaye steps (page 206)

Risk identification (page 309, 318, 324, 338, 42)

Lag and lead time (page 382)

Lag time is defined as the excess time that is allowed to lapse between predecessor and the successor tasks. This results in a delay in the start of the successor task. For example, you may use this option if you feel that the tasks of the analysis phase are taking more than the planned time to complete. Consequently, you might not want to start the high--level design task as planned but postpone it. In this case, you would calculate the maximum lag time for the high-level design to start.
Lead time is defined as the overlap that exists between two dependent tasks. For example, you could decide to start testing units when developers have partially completed creating the applications for a project. Therefore, you move ahead of the schedule of a successor task before time.

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What are the advantages of WBS? (page 228)

What are the types of risks? (page 307)

Development Process Risks

Product Risks

Differentiate between leaders and managers?

What is the concept of "Interdependence" for project scheduling fundamentals? (page 288)

As you have seen, a software project is composed of multiple phases and each phase is composed of multiple activities. Although each activity is treated separately, it is linked to other activities. As a project manager, you determine the interdependence and sequence of activities. For example, some activities can be completed without any inputs from other activities, whereas other activities cannot start unless a preceding activity is completed.

What is Recurring Tasks in Microsoft project? What steps you perform to create the recurring task (page 375,376)

Recurring tasks, as the name suggests, occur repeatedly at regular intervals. For example, a weekly project meeting with all the team members is a recurring task. You can schedule a recurring task in a project plan cycle as daily, weekly monthly, or yearly. You make this selection after deciding the seriousness of the nature of the task. The seriousness of the nature of the task determines how often the task needs to recur.

1. Select the task row where you want the task to appear.
2. Click the **Insert** menu.
3. Click the Recurring Task command to display the Recurring Task Information dialog box.
4. Type Project meeting in the Name text box.
5. Select the Friday check box in the Recurrence pattern group box. This step specifies that the task should recur every Friday. Note that the Weekly option button is selected by default.
6. Click the **End by** option button.

What is meant by FTR and why this activity is performed? (page 126,122)

Formal Technical Reviews
One of the most common, yet important, software quality assurance activity performed is FTR. This activity is performed to check errors in logic, function, or implementation for any representation of the software.

What are the main techniques to estimate the effort? (page 223,227,229,232)

Work Breakdown Structure (WBS)

Measuring Effort for a Project

a) Source lines of Code (SLOC)
b) Function Point (FP)

c) Constructive Cost Model (COCOMO)

d) Delphi technique

What is meant by reengineering, draw the reengineering process diagram? (page 417,419)

Figure 12.2 displays the reengineering process.

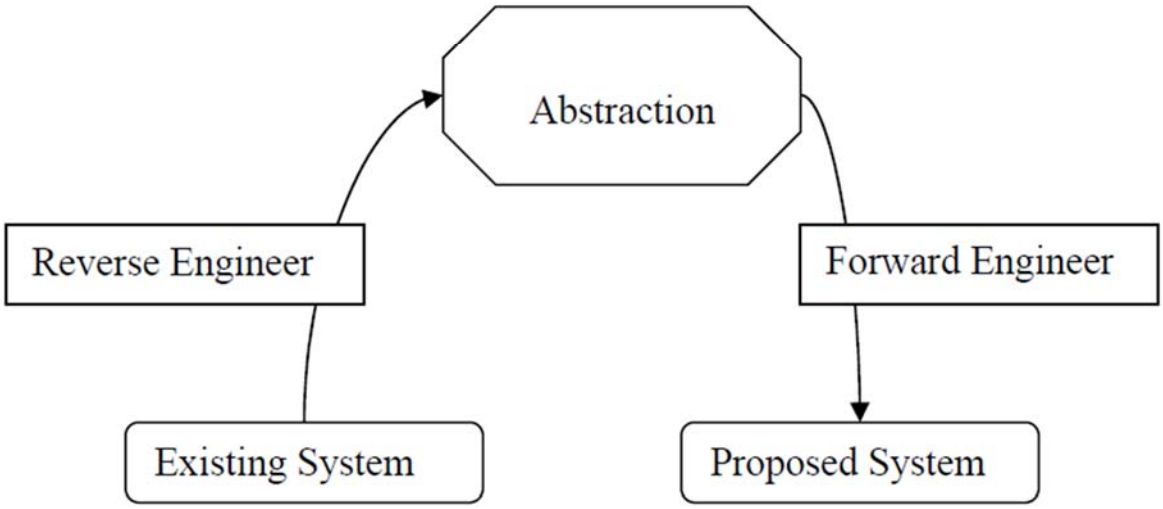

Figure 12.2: *Reengineering Process*

Do you agree that software process is important in software project management? Briefly explain your answer. (page 128)

Assume that you are working as a project manager in a software company. You are developing a human resource system for Qarshi industries (PVT) Ltd. List out different guidelines that you will follow for creating a software project schedule for this system? (page 288,287)

Some of the guidelines for creating a software project schedule are discussed below:

a) Classification
b) Interdependence
c) Time and effort allocation
d) Validation criteria
e) Defined responsibilities and outputs