**9.1**

**1. Explain the main reasons to avoid using the action ‘will’ as language requirements?**

Will is avoided for legal reasons and this is linked to project requirements. The project requirements need to include a clear boundary, time, and feasible actions. Any requirements related to future having negative impact and increases miscommunications. The word 'will' have different meanings for different people. Some might see it as few months, others might see it as few years. (60)

**2. Define the term ‘Iron Triangle’ used in the project life-cycle?**

Iron Triangle refers to the relationship between the three factors of scope & resources, cost and time in project life-cycle. The three factors constrain each other. Change in one side must affect another side. And the quality of the project is determined by the balance of the three factors. (47)

**3. Explain the main methods of construction used in the development phase of the project life-cycle?**

The project initiation has two main activities, which is identify the stakeholder register to analysis of the stakeholder’s information and creating project charter to understanding to project goals, defining project organization listing problems and so on. In addition, there are determining budget, project success criteria stakeholder’s requirements and so on. (52)

**4.Explain the main purpose of the project planning phase in the project life-cycle?**

Project planning’s main purpose is to determines the scope of the project as well as the objective of the project. For example, the student union activity planning should take into account the scope of the audience of the activity and determine the objective of the project. So that project can move forward with direction. (56)

**5. Explain two software models or paradigms used in software development, you can highlight the benefits, and drawbacks of each.**

A. Waterfall refers to a development model with clearly defined sequential phases and phase objectives.

Advantage: 1. Easy to understand

2. Easy to manage

3. Fewer production issues

4. Better budget management.

Disadvantage: 1. Not flexible

2. Doesn’t handle unexpected risks well

3. Not good for complex/long projects

4. Difficult to capture all requirements upfront

B. Incremental also a linear process, an incremental waterfall.

Advantage: 1. Less testing and/or rework within each increment

2. Changes can be made sooner

3.Quicker time to first deliverable.

Disadvantage: 1. Cumulative costs to final product can be unclear

2. Unanticipated architectural issues may arise in later increments.

**6. Explain in which scenarios the Agile model is suitable or not suitable to be used in software development models？**

In my opinion the Agile model is Iterative & Incremental Model

Suitable for：1. small to medium projects.

2. Product can be broken into independent functional parts.

3. Unclear/dynamic requirements.

4. Co-located teams

5. Proactive collaborative teams.

Unsuitable for: 1. Requirements are clearly defined.

2. Lack of skilled personnel.

3. Documentation is needed.

4. Project leaders have a strong desire for control. (54)

**7. Define the meaning of ‘models and paradigms’ in a software development environment?**

Models describe the structures within software development projects.

Paradigms is a collection of relational patterns that fit at a certain level. Some rules must be followed to construct a database. In short, paradigms used as banners of the various camps campaigning to improve Software Engineering. (45)

**8. Explain the following statement ‘how can a software methodology impact the project life-cycle’?**

A company’s software inventory can make or break the viability of its organizational framework. Such as the Agile and Iterative methods are ideal for a web and app development in which changes are frequently introduced along the line. The waterfall is ideal for a classic web and app development where stability and predictability in the various phases of the development are preeminent. (64)

**9.Define the term ‘Kanban’, and explain how it can be used in software projects?**

Kanban focused on visualizing workflow and uses a “pull” system based on need, rather than a “push” model based on forecasts. First use each card is work item and each column is a work step. Secondly, limit WIP, multitasking is inefficient & harmful to progress. Third, manage flow. Aim for speed and smoothness as an indicator of how value is being created. Finally, feed back. Daily stand up meetings (10-15 minutes) are held in front of the Kanban board. And each team member says what they did and what they will be doing. (93)

**10. Explain the main purposes of using sprint retrospectives in Scrum methodology?**

1. After Review and before next Planning session

2. Time-boxed to max. 3 hours

3. Team inspects itself and create a plan for improvement: e.g. people, relationships, processes and tools. Identify and order the major items that went well. Plan for implementing improvements. And review the resource list. This provides a more transparent and clear reflection of the progress of the project.

**9.2**

**1.Define the term 'XP' in Agile methods?**

Extreme Programming’s abbreviation is XP. XP started in 1996. It stresses customer satisfaction & teamwork and self-organizes around a problem for efficiency. So it empowers developers to respond to changing requirements, even late in the project life-cycle. In the using process, XP follows sets of Values & Rules, such as ‘Do what is required, no more.’ (56)

**2.Explain how would lean software development model eliminate waste?**

It is important to eliminate delay, bureaucracy & unnecessary code. Then, during the lean software development model. Avoid the following points:

1. starting more than can be completed.

2. delay in the software development process.

3. unclear or constantly changing requirements.

4. partially done work.

5.defects and quality issues.

6. task switching. (50)

**3.Define the term 'sprint' used in the software development model?**

Sprint refers to the short, fixed period of time required for the Scrum team to complete a certain amount of work. Sprint is at the heart of Scrum and Agile. In the Scrum framework, large and complex products are split into small fragments, through many iterations called "Sprints". "Sprint makes projects easier to manage, and gives teams more flexibility to adapt to change." (62)

**4.Explain the main elements of stakeholder register used in the initiation phase in the project life-cycle?**

Stakeholder Register has three main Parts:

1.Stakeholder’s identification : Group name, location, and contact details.

2. Stakeholder’s assessment information：Role in the project and major requirements or expectations in the project.

3. Stakeholder’s classification Internal or external and classified (based on their influence and impact on the project). (56)

**5.Describe the main processes used in the project initiation?**

The project initiation’s definition is to define the processes needed to start a new project. And it purpose is to determine what the project should accomplish. It has two main activities. First is identify the stakeholders. A stakeholder can influence the success and failure of the project. Second is develop a Project Charter. Project Charters are used as the project’s vision, mission and success criteria. (69)

**6.Explain the following statement: In our opinion why do you think project planning fails?**

In my opinion, the reasons why the project planning is failed. Following the points:

1. planning is by activity rather than feature.

2. activities don’t finish early.

3. lateness is passed down the schedule.

4. activities are not independent.

5. multitasking causes further delays.

6. features are not developed by priority.

7. uncertainty is ignored.

8. estimates become commitment. (67)

**7.Describe how does the estimation concept work in agile methods?**

Agile Estimation avoids trying to estimate specific hours or workload. And the main aim of Agile estimation is to focus on consistency instead of accuracy. It passed the 5 approaches: Parametric, Analogous, Expert Judgement, Top-Down, and Bottom-Up. And it has many estimation methods, such as Wideband Delphi, T-shirt Sizing, Planning Poker and so on. (54)

**8.Explain the main factors affecting the estimation in agile methods?**

There have 4 main factors affecting the estimation in agile methods:

1. Wishful thinking: Basing estimates on beliefs rather than evidence.

2.Anchoring: Relying overly much on an initial piece of information.

3.Planning fallacy: Underestimating due to optimism bias.

4.Cognitive Dissonance: Holding two contradictory ideas simultaneously. (45)

**9.Define documentation and explain the main perspective of including documentation in projects?**

Documentation is one of the most important parts of a software project. And the AIP documentation, release notes, customer-facing help content, and so on needs to be documented. Perspectives on documentation, have 3 points: Familiarization – presentation, Education – training and Support – troubleshooting. Readers will be your various Stakeholders: Partners, Developers, End-users and Community. (53)

**10.Describe the main elements of documentation quality focus?**

There have 3 main elements of documentation quality focus.:

1. Integrity: Covers all features, usage modes, and interfaces. And answers essential questions (what, how, where)

2. Fidelity: matches the software, hardware, or device which it targets. logically organized.

3. Suitability: know who the audience is. know what they need to know.

Answer their questions. Accessible. Consistent & professional. (64)

**9.3**

**1.Define the term 'scheduling' used in project management, and explain the popular techniques used in schedule?**

Scheduling is the process of deciding how to commit resources between a variety of possible tasks.

1.Dependencies.Plan your iterations to avoid dependencies.

2.Details.Detailed scheduling for immediate iterations.

3.Teamwork.Involve the entire team，this is not merely for accurate scheduling, but also to promote buy-in.

**2.Describe the main components of interaction in the governance model.**

(1) Decision-making structures

organization design & reporting structure committee structures & charters control & support function interdependencies

(2) Operating procedures

(3) Infrastructure

Collaboration enablers People & information

**3.Describe three main IT governance and risk framework used in IT systems.**

COBIT：The world's leading IT governance and control framework.

CMM：The Capability Maturity Model focused on software engineering.

ITIL：IT Infrastructure Library focused on IT Service management

**4.Define the meaning of 'risk' and explain the main steps involved in risk management?**

1.Risk can be defined as an unplanned or uncertain condition or event which can have either a positive or negative effect when it occurs.

2.Uncertainty around the effects of certain factors on objectives

3.The possibility that something bad may happen (Cambridge Dictionary)

The main steps: 1. Risk Identification

2. Risk Analysis and Prioritization

3. Risk Avoidance and Mitigation

4. Risk Monitoring

**5.Define the term 'risk register' and describe how do 'risk registers' managing risks?**

The risk register is a document that reports risks and the measures taken to manage these risks. It includes description of risk, date identified impact, probability, severity, priority owner, action, status.

Once the risks are determined, it will continue to record, and then take actions to resolve these determined risks according to the calculated risk matrix

**6.Define the term 'governance', and explain how governance models work in Agile?**

Governance is the management framework for making decisions. Its supervisory function is consistent with the organization's governance model. It can provide a repeatable and robust system through which the organization can manage its capital investment. And its role covers the entire project life cycle.

The governance model can clarify the existing organizational governance model: What are the gaps and what are the current effective methods? And make the coordination and interaction of the three components of decision-making structure, operation process, and infrastructure

**7.Explain how does 'retrospective' work in Agile?**

Process improvement in agile needs to be reviewed. At the same time, retrospectives provide a safe space for the team to reflect on and discuss what has been done well, so that they can embrace the positive spirit of continuous improvement and share anything that helps the team improve. And in agile, you can determine what does not work and what specific actions the team can take to improve these things, and then group these projects and discuss them as a team. Finally agree on actions to be taken, assign owners and deadlines for their completion.

**8.Explain three reasons why quality assurance is essential for agile projects?**

1. 1. It happens throughout the life cycle.

2. It can actively analyze the process, method and output to ensure that the product produced has the required quality.

3. It can ensure compliance with policies and procedures.

**9.Briefly explain each of the main steps used in Pre-Mortem (failure analysis) ?**

1.Imagine the Failure. Brainstorm possible problems and coordinate

2.Generate Reasons for the Failure. The team members work independently to create a list of possible reasons for each failure

3. Consolidate the list. The team works together to prioritize the list.

4. Revisit the plan. Then give it to the product owner to check and improve, and finally add the approved operation to the to-do list

**10.Describe the main benefits for 'Theory of Constraints' in agile projects?**

TOC can find the activities that generate constraints from the entire project and focus on systematically eliminating this bottleneck until it is no longer a limiting factor. So as to improve the project by increasing profit, rapid improvement, increasing production capacity, shortening delivery time, and reducing work-in-progress