CSC 325 SUPPLIMENTARY

QUESTION ONE [COMPULSORY] [30 MARKS]

a) Explain why monitoring and control are important in any project. [3 marks]

Monitoring and control are essential in any project to ensure that it stays on track and achieves its objectives within the specified constraints of time, cost, and quality. Monitoring involves regularly tracking progress, identifying deviations from the plan, and taking corrective actions as necessary. Control involves implementing these corrective actions, managing resources effectively, and ensuring that the project remains aligned with its goals.

b) State the criteria that is used to judge the success of any project. [2 marks]

The criteria used to judge the success of any project typically include meeting the project objectives within the specified constraints of time, cost, and quality, as well as stakeholder satisfaction and the achievement of desired outcomes or deliverables.

c) Outline the project activities required for work break down structure. [3 marks]

Project activities required for a work breakdown structure (WBS) include identifying all the tasks or activities necessary to complete the project, breaking them down into smaller, more manageable components, and organizing them hierarchically to represent the entire scope of work.

d) i. Discuss the advantages and disadvantages of using a Gantt chart in comparison to a network diagram. [8 marks]

Advantages of using a Gantt chart include its visual representation of project tasks over time, making it easy to understand and communicate project timelines to stakeholders. It also allows for easy identification of task dependencies and critical path analysis. However, Gantt charts may oversimplify complex project networks and can be challenging to update dynamically.

Disadvantages include the difficulty of representing complex interdependencies and the inability to show the relationships between tasks as clearly as a network diagram. They may also lack the ability to illustrate resource dependencies effectively.

e) Describe THREE algorithmic techniques used for estimating effort for an IT system development project. [6 marks]

1. **Function Point Analysis:** This technique quantifies the functionality provided to the user based on logical data and transactional processes, allowing for estimation based on the size and complexity of the system.

2. **COCOMO (Constructive Cost Model):** COCOMO estimates effort based on project size, development environment, and team experience, providing a structured approach to estimating effort through mathematical models.

3. Wideband Delphi Technique: This technique involves experts providing anonymous estimates, which are then aggregated and iteratively refined through discussion until a consensus is reached, providing a more accurate estimate through collective wisdom.

f) Explain the following concepts:

i. Project management [2 marks]

Project management involves planning, organizing, and overseeing the execution of a project from start to finish, ensuring that it achieves its objectives within the specified constraints of time, cost, and quality while managing resources effectively.

ii. Quality as used in project management [2 marks]

Quality in project management refers to meeting or exceeding stakeholder expectations and requirements, delivering a product or service that meets predefined standards and specifications, and ensuring that the project outputs are fit for their intended purpose.

g) In preparation for meeting your project sponsor, you have developed an estimate using the PERT method. Briefly describe the PERT method. [14 marks]

The Program Evaluation and Review Technique (PERT) method is a project management technique used to estimate the duration of tasks in a project. It involves identifying the optimistic, pessimistic, and most likely time estimates for each task, calculating the expected duration using a weighted average, and determining the critical path to identify the longest path through the project network. This method incorporates uncertainty into the estimation process and is particularly useful for projects with high levels of variability or risk.

QUESTION TWO [20 MARKS]

a) i. Define a project. [2 marks]

A project can be defined as a temporary endeavor undertaken to create a unique product, service, or result. It is characterized by a specific set of objectives, constraints, and resources allocated to achieve those objectives within a defined timeframe.

ii. Identify the unique attributes of a project [2 marks]

- **Temporary:** Projects have a defined beginning and end, with a finite duration.

- **Unique:** Each project is distinct, producing a deliverable or outcome that is different from previous projects.

- **Progressive Elaboration:** Projects evolve over time as more information becomes available and as the project team gains a deeper understanding of project requirements and constraints.

- **Cross-functional:** Projects typically involve collaboration among various stakeholders and functional areas within an organization.

- **Uncertainty:** Projects often involve a degree of uncertainty regarding outcomes, resources, and other factors that may impact project success.

b) Explain the triple constraint concept. [6 marks]

The triple constraint concept, also known as the project management triangle, refers to the three key factors that constrain the execution of a project: time, cost, and scope. These constraints are interrelated, and changes to one constraint may impact the others. The concept can be summarized as follows:

- **Time:** Refers to the duration or deadline for completing the project. It represents the timeframe within which the project must be delivered.

- **Cost:** Refers to the budget or financial resources allocated to the project. It includes all expenses associated with the project, such as labor, materials, and overhead costs.

- **Scope:** Refers to the deliverables or outcomes of the project and the work required to achieve them. It defines what needs to be accomplished and the boundaries of the project.

c) Briefly explain the FIVE phases of IT project methodology. [10 marks]

1. **Initiation**: In this phase, the project is formally authorized and initiated. Project objectives, scope, and stakeholders are identified. Initial feasibility assessments may be conducted to determine the viability of the project.

2. **Planning:** This phase involves detailed planning and preparation for project execution. Project plans are developed, outlining tasks, schedules, resources, budgets, and risk management strategies. Stakeholder expectations and communication plans are also established.

3. **Execution:** The execution phase involves implementing the project plan, carrying out the work, and managing project resources to achieve the project objectives. Regular monitoring and control are essential during this phase to ensure that the project stays on track.

4. **Monitoring and Controlling:** In this phase, project performance is monitored against the project plan, and corrective actions are taken as necessary to address deviations from the plan. Progress reports are generated, and changes to the project are managed through a formal change control process.

5. **Closing:** The closing phase involves formally closing out the project, completing any remaining deliverables, obtaining final approvals, and transitioning the project outputs to the appropriate stakeholders. Lessons learned are documented for future reference, and the project team is disbanded.

QUESTION THREE [20 MARKS]

a) What does it mean to take a system view of a project? [4 marks]

Taking a system view of a project means considering the project as part of a larger system or context, rather than in isolation. This approach involves understanding how the project interacts with its environment, stakeholders, and other systems within the organization. Key aspects of taking a system view include:

-Integration: Recognizing that the project is interconnected with other systems, processes, and functions within the organization. This involves identifying and managing dependencies and interactions between the project and its broader context.

- Holistic Perspective: Considering the project in its entirety, including its goals, objectives, constraints, and impacts on various stakeholders. This involves understanding the interrelationships between different project components and how they contribute to the overall success of the project.

- **Feedback Loops:** Acknowledging that the project is dynamic and may be influenced by feedback from stakeholders, changes in the environment, or unforeseen events. This involves incorporating feedback mechanisms into project management processes to adapt and respond to changes effectively.

- **Optimization:** Striving to optimize the performance of the project within the constraints of time, cost, quality, and other factors. This involves identifying opportunities to enhance efficiency, effectiveness, and value delivery by considering the project within its broader system context.

- Sustainability: Considering the long-term implications of the project on the organization, stakeholders, and environment. This involves assessing the project's sustainability and resilience, as well as its ability to adapt to changing conditions over time.

b) Explain how a system view of a project applies to project management. [6 marks]

b) A system view of a project applies to project management by providing a framework for understanding and managing the complexity of projects within their broader organizational context. This approach helps project managers:

- Identify Stakeholders: By recognizing the project as part of a larger system, project managers can identify and engage with stakeholders who may be affected by or have an interest in the project. This allows for more effective communication, collaboration, and stakeholder management.

- Manage Dependencies: Understanding how the project interfaces with other systems, processes, and functions within the organization enables project managers to identify and manage dependencies effectively. This involves coordinating activities, resources, and timelines to minimize conflicts and optimize integration.

- Adapt to Change: Taking a system view helps project managers anticipate and respond to changes in the project environment, such as shifting priorities, emerging risks, or new opportunities. By understanding the broader context, project managers can adapt their plans, strategies, and resources to address evolving needs and requirements.

- **Optimize Performance:** By considering the project within its broader system context, project managers can identify opportunities to optimize performance and value delivery. This may involve leveraging synergies, streamlining processes, or aligning the project with organizational goals and strategies to maximize impact and outcomes.

c) Discuss how the four frames of organizations, help project managers understand the organizational context for their projects. [10 marks]

- **Structural Frame:** This frame focuses on the organization's formal structure, roles, responsibilities, and processes. Project managers can use this frame to understand how the project fits within the organization's hierarchy, reporting relationships, and decision-making processes. It helps in clarifying authority, allocating resources, and managing workflows effectively.

- **Human Resource Frame**: This frame emphasizes the people within the organization, their needs, motivations, and relationships. Project managers can use this frame to understand the dynamics of the project team, stakeholders, and organizational culture. It helps in building strong relationships, fostering collaboration, and addressing interpersonal issues that may impact project success.

- **Political Frame:** This frame views organizations as arenas where different stakeholders compete for resources, power, and influence. Project managers can use this frame to navigate organizational politics, identify key stakeholders and their interests, and build alliances to support the project. It helps in managing conflicts, negotiating priorities, and mobilizing support for project objectives.

- **Symbolic Frame:** This frame focuses on the organization's symbols, rituals, and values, as well as its identity and culture. Project managers can use this frame to understand the organization's norms, beliefs, and symbols, and how they shape attitudes and behaviors. It helps in aligning the project with organizational values, communicating a compelling vision, and fostering a sense of purpose and meaning among stakeholders.

QUESTION FOUR [20 MARKS]

a) Explain the following concepts:

i.Project risk [1 mark]

Project risk: Project risk refers to the potential events or circumstances that may have a negative impact on the objectives, outcomes, or success of a project. Risks can arise from various sources, including uncertainty in project scope, technology, resources, environment, and external factors.

ii. Project risk management [2 marks]

Project risk management: Project risk management involves identifying, assessing, prioritizing, and responding to risks throughout the project lifecycle to minimize their impact and maximize opportunities for project success. It includes processes such as risk identification, risk analysis, risk response planning, and risk monitoring and control.

b) Risk monitoring and control should be part of the overall monitoring and control of any project. Explain the tools used for monitoring and controlling risks. [9 marks]

- **Risk Register**: A risk register is a document that contains information about identified risks, their potential impacts, probability of occurrence, and planned responses. It serves as a central repository for tracking and managing risks throughout the project.

- **Risk Reviews:** Regular risk reviews involve assessing the status of identified risks, evaluating their likelihood and potential impact, and updating risk response plans as needed. Risk reviews may be conducted periodically or triggered by significant events or changes in the project environment.

- **Risk Tracking and Reporting:** Risk tracking involves monitoring the status of identified risks, tracking changes in their likelihood and impact, and documenting any new risks that emerge. Risk reporting involves communicating risk information to stakeholders, including updates on risk status, trends, and mitigation efforts.

- **Risk Analysis Tools:** Various quantitative and qualitative techniques can be used to analyze risks, including probability and impact assessment, sensitivity analysis, scenario analysis, and Monte Carlo simulation. These tools help project managers assess the severity of risks, prioritize them for response planning, and evaluate the effectiveness of risk mitigation strategies.

- **Issue Management Systems:** Issue management systems are used to track and manage issues that arise during project execution, including risks that materialize into problems or uncertainties that require immediate attention. These systems help ensure that risks are addressed promptly and effectively to minimize their impact on project objectives.

c) A response to a particular project risk may follow various strategies. Explain. [8 marks]

Avoidance: This strategy involves taking actions to eliminate or reduce the likelihood of a risk occurring or its impact on the project. Avoidance strategies may include changing project scope, technology, resources, or processes to mitigate the risk.

Mitigation: Mitigation involves taking proactive measures to reduce the likelihood or impact of a risk if it occurs. Mitigation strategies may include implementing risk controls, contingency planning, or risk transfer mechanisms to minimize the potential consequences of a risk.

Transference: Transference involves shifting the risk to another party, such as through insurance, outsourcing, or contractual agreements. Transference strategies transfer the financial or operational responsibility for managing the risk to a third party better equipped to handle it.

Acceptance: Acceptance involves acknowledging the existence of a risk and deciding not to take any action to mitigate it. Acceptance strategies may be appropriate for risks with low likelihood or impact, risks that are beyond the project's control, or risks that are outweighed by potential benefits or opportunities.