Certified Ekasi IT Project Manager - Complete Study Guide

Developed for Ekasi Courses: Certified Ekasi IT Project Manager
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Table of Contents

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1. Fundamentals of Project Management

1.1 Feasibility and Business Case

What is Feasibility? Feasibility is the assessment of whether a proposed project is viable, practical, and achievable within given constraints. It evaluates the practicality of a proposed plan or method.

Components of Feasibility Analysis:

- **Technical Feasibility**: Can the project be technically accomplished?
- **Economic Feasibility**: Is the project cost-effective?
- **Legal Feasibility**: Are there any legal obstacles?
- **Operational Feasibility**: Will the organization be able to use the system?
- **Schedule Feasibility**: Can the project be completed within the required timeframe?

Making a Business Case:

- Identify the problem or opportunity
- Propose solutions with cost-benefit analysis
- Compare alternatives
- Recommend the best approach
- Consider risk implications

- Justify the investment

1.2 Requirements Elicitation

Purpose of Requirements Elicitation: To gather, analyze, and document what stakeholders need from a system or project.

Methods of Requirements Elicitation:

- **Interviews**: One-on-one discussions with stakeholders
- **Workshops**: Group sessions to gather collective requirements
- **Questionnaires**: Structured data collection
- **Observation**: Watching current processes
- **Document Analysis**: Reviewing existing documentation
- **Prototyping**: Creating early versions for feedback

Analysis and Verification:

- Validate requirements with stakeholders
- Ensure requirements are complete, consistent, and testable
- Prioritize requirements based on importance
- Document requirements clearly and unambiguously

1.3 Project Objectives

Setting Project Goals:

- **SMART Criteria**: Specific, Measurable, Achievable, Relevant, Time-bound
- Align with organizational strategy
- Define clear deliverables
- Establish success criteria

Measures of Success:

- Key Performance Indicators (KPIs)
- Quality metrics
- Time and budget adherence
- Stakeholder satisfaction
- Business value delivered

1.4 Development Stages

Traditional Development Lifecycle:

1. **Requirements Elicitation**: Gathering user and system needs
2. **Requirements Analysis**: Detailed examination and documentation
3. **Design**: Creating system architecture, software, hardware, and network designs
4. **System Building**: Software coding and integration
5. **Verification and Validation**: Testing and quality assurance
6. **Installation**: System deployment
7. **Adapting for Off-the-Shelf**: Modifying lifecycle for package implementations

1.5 Build vs. Buy Decisions

Criteria for Decision Making:

- **Cost Considerations**:
  - Initial development/purchase costs
  - Ongoing maintenance costs
  - Total cost of ownership
- **User Requirements**:
  - Specific needs vs. generic functionality
  - Customization requirements
  - Integration needs
- **Time Scale**:
  - Urgency of implementation
  - Development time vs. deployment time
  - Time to market considerations

1.6 Project Management Approaches

Agile/Lightweight Approaches:

- Iterative development
- Frequent customer collaboration
- Responding to change over following plans
- Working software over comprehensive documentation

Incremental Approaches:

- Delivering functionality in small, manageable pieces
- Early delivery of working components
- Reduced risk through early feedback

Iterative Approaches:

- Repeated cycles of development
- Continuous refinement based on user feedback
- Risk reduction through early validation

1.7 Installation Issues

Methods of Going Live:

- **Direct Cutover**: Immediate switch from old to new system
- **Parallel Running**: Both systems operate simultaneously
- **Phased Implementation**: Gradual rollout by modules or locations
- **Pilot Implementation**: Testing with a small user group first

Resource Considerations:

- Hardware and software requirements
- Personnel training needs
- Support staff availability
- Infrastructure readiness

Launch Planning:

- Detailed implementation timeline
- Contingency plans for potential issues
- Communication strategies
- Rollback procedures if needed

1.8 Project Closure

Quality Assurance Activities:

- Final testing and validation
- Documentation completion

- Knowledge transfer

Feedback Collection:

- Stakeholder satisfaction surveys
- Lessons learned sessions
- Performance evaluation

Project Review:

- Success measurement against objectives
- Budget and schedule analysis
- Risk management effectiveness

Resource Management:

- Team member reassignment
- Contract termination
- Equipment disposal or reallocation

1.9 Selection and Acquisition

Off-the-Shelf Applications:

- **Standard Implementation**: Using software as-is
- **Customized Implementation**: Modifying to meet specific needs
- Evaluation criteria for selection
- Vendor assessment and management

1.10 Project Support Activities

Configuration Management:

- Version control
- Change tracking
- Baseline management
- Release management

Change Control:

- Change request processes

- Impact assessment
- Approval workflows
- Implementation tracking

Chapter 1 Review Questions

Multiple Choice Questions

1. Which of the following is NOT a component of feasibility analysis? a) Technical feasibility b) Economic feasibility c) Marketing feasibility d) Legal feasibility

2. What does the acronym SMART stand for in project objective setting? a) Simple, Measurable, Achievable, Relevant, Time-bound b) Specific, Measurable, Achievable, Relevant, Time-bound c) Specific, Manageable, Appropriate, Realistic, Timely d) Strategic, Measurable, Actionable, Realistic, Trackable

3. Which requirements elicitation method involves watching current processes? a) Interviews b) Workshops c) Observation d) Document Analysis

4. In the traditional development lifecycle, which stage comes immediately after Requirements Analysis? a) Requirements Elicitation b) Design c) System Building d) Verification and Validation

5. Which "go-live" method involves running both old and new systems simultaneously? a) Direct Cutover b) Parallel Running c) Phased Implementation d) Pilot Implementation

6. What is the main difference between PBS and WBS? a) PBS focuses on deliverables, WBS focuses on activities b) PBS focuses on activities, WBS focuses on deliverables c) PBS is for agile projects, WBS is for traditional projects d) There is no difference between PBS and WBS

7. Which project closure activity involves measuring success against objectives? a) Quality Assurance b) Gathering Feedback c) Reviewing Success d) Releasing Resources

8. Configuration management is an example of: a) Project closure activity b) Project support activity c) Risk management activity d) Quality assurance activity

9. When deciding between build vs. buy, which factor considers the urgency of implementation? a) Cost b) User Requirements c) Time Scale d) Quality

10. Which approach delivers functionality to users in small steps? a) Waterfall approach b) Incremental approach c) Spiral approach d) V-model approach

Answer Key:

1. c) Marketing feasibility
2. b) Specific, Measurable, Achievable, Relevant, Time-bound
3. c) Observation
4. b) Design
5. b) Parallel Running
6. a) PBS focuses on deliverables, WBS focuses on activities
7. c) Reviewing Success
8. b) Project support activity
9. c) Time Scale
10. b) Incremental approach

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2. Planning and Resourcing

2.1 Work Breakdown Structures

Product Breakdown Structure (PBS):

- Hierarchical decomposition of project deliverables
- Focus on "what" will be delivered
- Organized by product components

Work Breakdown Structure (WBS):

- Hierarchical decomposition of work activities
- Focus on "how" work will be accomplished
- Organized by work packages and tasks

Key Differences:

- PBS is deliverable-oriented
- WBS is activity-oriented
- Both provide project structure but from different perspectives

2.2 Diagramming Methods

Activity on Node (AON):

- Activities represented as nodes

- Dependencies shown as arrows between nodes
- Clear representation of task relationships

Network Analysis:

- Mathematical approach to project scheduling
- Identifies critical paths and float
- Optimizes resource allocation

Critical Path Analysis:

- Identifies the longest path through project
- Determines minimum project duration
- Highlights activities that cannot be delayed

Gantt Charts:

- Bar charts showing project timeline
- Visual representation of task duration and dependencies
- Easy to understand for stakeholders

Precedence Analysis:

- Determines task dependencies and relationships
- Identifies which activities must precede others
- Foundation for scheduling

2.3 Resource Allocation

Identifying Resource Types:

- Human resources (skills and availability)
- Equipment and materials
- Facilities and infrastructure
- Financial resources

Resolving Resource Conflicts:

- Resource leveling
- Resource smoothing
- Priority-based allocation

- Alternative resource identification

2.4 Agile Planning Approaches

Time-boxing:

- Fixed time periods for development activities
- Forces prioritization of features
- Provides regular delivery milestones

Product Backlog:

- Prioritized list of features and requirements
- Continuously refined and updated
- Source of work for development teams

Sprint Backlog:

- Work selected for specific iteration
- Detailed tasks and estimates
- Team commitment for sprint duration

MoSCoW Prioritization:

- **Must have**: Critical requirements
- **Should have**: Important but not critical
- **Could have**: Nice to have if time permits
- **Won't have**: Not planned for current release

2.5 Estimation Techniques

Parametric/Algorithmic Models:

- Mathematical formulas based on historical data
- Size drivers (lines of code, function points)
- Productivity rates and adjustment factors

Expert Judgment:

- Leveraging experience of seasoned professionals
- Consensus-building techniques

- Domain-specific knowledge application

Analogy Estimation:

- Comparing to similar past projects
- Adjusting for differences in scope and complexity
- Historical data analysis

Top-down vs. Bottom-up:

- **Top-down**: Starting with overall estimate, breaking down
- **Bottom-up**: Estimating individual components, rolling up
- Hybrid approaches combining both methods

Chapter 2 Review Questions

Multiple Choice Questions

1. Which diagramming method is best known for its bar chart representation of project timelines? a) Activity on Node b) Network Analysis c) Critical Path Analysis d) Gantt Chart

2. In MoSCoW prioritization, what does the 'S' stand for? a) Should have b) Suggested c) Secondary d) Supporting

3. The longest path through a project network that determines minimum project duration is called: a) Critical Path b) Network Path c) Primary Path d) Master Path

4. Which estimation technique compares the current project to similar past projects? a) Parametric modeling b) Expert judgment c) Analogy estimation d) Bottom-up estimation

5. In agile planning, what is a time-boxed iteration called? a) Phase b) Sprint c) Cycle d) Stage

6. Resource leveling is primarily used to: a) Increase resource productivity b) Reduce project costs c) Resolve resource conflicts d) Improve quality

7. Which approach starts with an overall estimate and breaks it down into components? a) Bottom-up estimation b) Top-down estimation c) Analogical estimation d) Parametric estimation

8. In Activity on Node diagrams, what do the arrows represent? a) Activities b) Dependencies c) Resources d) Milestones

9. A product backlog in agile methodology contains: a) Completed features b) Current sprint tasks c) Prioritized list of features and requirements d) Test cases

10. Which technique uses mathematical formulas based on historical data for estimation? a) Expert judgment b) Analogy estimation c) Parametric/algorithmic models d) Three-point estimation

Answer Key:

1. d) Gantt Chart
2. a) Should have
3. a) Critical Path
4. c) Analogy estimation
5. b) Sprint
6. c) Resolve resource conflicts
7. b) Top-down estimation
8. b) Dependencies
9. c) Prioritized list of features and requirements
10. c) Parametric/algorithmic models

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3. People and Organisation

3.1 Team Building Theory

Belbin's Team Roles:

- **Plant**: Creative problem-solver
- **Resource Investigator**: Explores opportunities
- **Coordinator**: Clarifies goals and promotes decision-making
- **Shaper**: Challenges and drives action
- **Monitor Evaluator**: Analyzes options objectively
- **Teamworker**: Cooperates and supports
- **Implementer**: Turns ideas into action
- **Completer Finisher**: Ensures thorough completion
- **Specialist**: Provides specific technical knowledge

Tuckman-Jensen Team Development Stages:

1. **Forming**: Team comes together, politeness and uncertainty
2. **Storming**: Conflicts arise, roles and processes challenged
3. **Norming**: Team establishes working relationships and processes
4. **Performing**: Team works effectively toward common goals
5. **Adjourning**: Team disbands after completing work

3.2 Project Staffing

Identifying Skill Requirements:

- Technical competencies needed
- Soft skills and experience levels
- Domain knowledge requirements
- Leadership and management capabilities

Sourcing Personnel:

- Internal resources and transfers
- External recruitment and contractors
- Training and development programs
- Partnerships and vendor resources

3.3 Management Styles

Appropriate Styles for IT Projects:

- **Democratic**: Collaborative decision-making for creative work
- **Autocratic**: Quick decisions in crisis situations
- **Transformational**: Inspiring innovation and change
- **Servant Leadership**: Supporting team development and growth

3.4 Team Management

Motivation Techniques:

- Clear goal setting and expectations
- Recognition and reward systems
- Career development opportunities
- Autonomy and empowerment

Retention Strategies:

- Competitive compensation and benefits
- Work-life balance initiatives
- Learning and growth opportunities
- Positive work environment and culture

3.5 Project Manager Role

Key Responsibilities:

- Project planning and scheduling
- Resource management and allocation
- Risk identification and mitigation
- Stakeholder communication and management
- Quality assurance and control
- Budget and cost management

Essential Skills:

- Leadership and team building
- Communication and negotiation
- Problem-solving and decision-making
- Technical knowledge and business acumen
- Time management and organization

3.6 Stakeholder Management

Internal Stakeholders:

- Project team members
- End users and customers
- Sponsor and steering committee
- Other departments and functions

External Stakeholders:

- Vendors and suppliers
- Regulatory bodies

- External customers
- Partners and contractors

Management Strategies:

- Regular communication and updates
- Expectation management
- Conflict resolution
- Influence and negotiation techniques

3.7 Project Organization

Key Roles and Responsibilities:

- **Project Board/Steering Committee**: Strategic oversight and governance
- **Project Manager**: Day-to-day management and coordination
- **Team Leaders**: Managing specific work streams
- **Suppliers**: Providing external services or products
- **Project Support**: Administrative and coordination support
- **Project Assurance**: Independent quality and compliance monitoring

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Chapter 3 Review Questions

Multiple Choice Questions

1. According to Belbin's team roles, which role is responsible for turning ideas into action? a) Plant b) Shaper c) Implementer d) Completer Finisher

2. In Tuckman-Jensen's team development model, which stage comes after Storming? a) Forming b) Norming c) Performing d) Adjourning

3. Which Belbin team role is known for being creative and solving problems in unconventional ways? a) Plant b) Resource Investigator c) Coordinator d) Monitor Evaluator

4. Which management style is most appropriate for inspiring innovation and change? a) Democratic b) Autocratic c) Transformational d) Laissez-faire

5. The project manager's responsibility that involves identifying and mitigating potential problems is: a) Resource management b) Stakeholder communication c) Risk identification and mitigation d) Quality assurance

6. Which team development stage is characterized by conflicts and challenges to roles and processes? a) Forming b) Storming c) Norming d) Performing

7. Internal stakeholders include all of the following EXCEPT: a) Project team members b) End users c) Regulatory bodies d) Steering committee

8. Which retention strategy focuses on providing learning opportunities? a) Competitive compensation b) Work-life balance c) Career development opportunities d) Recognition systems

9. The role responsible for strategic oversight and governance is: a) Project Manager b) Team Leader c) Project Board/Steering Committee d) Project Support

10. Which Belbin role focuses on exploring opportunities and developing contacts? a) Plant b) Resource Investigator c) Coordinator d) Teamworker

Answer Key:

1. c) Implementer
2. b) Norming
3. a) Plant
4. c) Transformational
5. c) Risk identification and mitigation
6. b) Storming
7. c) Regulatory bodies
8. c) Career development opportunities
9. c) Project Board/Steering Committee
10. b) Resource Investigator

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4. Monitoring and Reports

4.1 Project Progress Monitoring

Key Metrics to Monitor:

- **Time and Progress**:
  - Planned vs. actual start/finish dates
  - Milestone completion status
  - Schedule variance analysis

- **Costs**:
  - Budget vs. actual expenditure
  - Cost variance and trends
  - Forecast to completion
- **Scope and Functionality**:
  - Requirements completion status
  - Scope changes and their impact
  - Feature delivery progress
- **Quality**:
  - Defect rates and trends
  - Testing progress and results
  - Customer satisfaction metrics

4.2 Project Control Lifecycle

Monitoring Stages:

1. **Planning**: Establish baselines and metrics
2. **Execution**: Collect actual performance data
3. **Analysis**: Compare actual vs. planned performance
4. **Corrective Action**: Implement necessary adjustments
5. **Communication**: Report status and issues

Control Through Monitoring:

- Regular data collection and analysis
- Variance identification and investigation
- Trend analysis and forecasting
- Preventive and corrective actions

4.3 Reporting Types and Hierarchy

Report Types:

- **Progress/Checkpoint Reports**: Regular status updates
- **Exception Reports**: Issues and deviations requiring attention
- **Management/Highlight Reports**: Executive summaries for senior management

Reporting Considerations:

- Audience-appropriate content and format
- Frequency and timing of reports
- Clear and actionable information
- Visual aids and dashboards

4.4 Financial Monitoring

Budget Control Activities:

- Regular cost tracking and reporting
- Variance analysis and investigation
- Cash flow management
- Change control impact on budget
- Forecasting final project costs

4.5 Earned Value Analysis

Key Components:

- **Planned Value (PV)**: Budgeted cost of scheduled work
- **Earned Value (EV)**: Budgeted cost of completed work
- **Actual Cost (AC)**: Actual cost of completed work

Performance Indicators:

- **Cost Performance Index (CPI)**: EV/AC
- **Schedule Performance Index (SPI)**: EV/PV
- **Cost Variance (CV)**: EV - AC
- **Schedule Variance (SV)**: EV - PV

4.6 Impact of Deviations

Assessment Considerations:

- Impact on project objectives
- Resource implications
- Schedule consequences
- Quality effects

- Stakeholder implications
- Risk to project success

Chapter 4 Review Questions

Multiple Choice Questions

1. In Earned Value Analysis, what does CPI stand for? a) Cost Performance Index b) Critical Performance Indicator c) Cost Progress Index d) Current Performance Index

2. If a project has an EV of $100,000 and AC of $120,000, what is the Cost Variance? a) +$20,000 b) -$20,000 c) $220,000 d) 0.83

3. Which type of report focuses on issues and deviations requiring immediate attention? a) Progress report b) Exception report c) Management report d) Checkpoint report

4. A Schedule Performance Index (SPI) of 0.8 indicates: a) Project is ahead of schedule b) Project is on schedule c) Project is behind schedule d) Insufficient information

5. Which earned value component represents the budgeted cost of completed work? a) Planned Value (PV) b) Earned Value (EV) c) Actual Cost (AC) d) Budget at Completion (BAC)

6. The project control lifecycle stage that involves collecting actual performance data is: a) Planning b) Execution c) Analysis d) Communication

7. Which metric would be most appropriate for measuring software development progress? a) Lines of code completed b) Function points delivered c) Number of error reports d) All of the above

8. Regular status updates provided to stakeholders are called: a) Exception reports b) Progress reports c) Management reports d) Financial reports

9. If EV = $50,000 and PV = $60,000, the Schedule Variance is: a) +$10,000 b) -$10,000 c) $110,000 d) 0.83

10. Budget control activities include all of the following EXCEPT: a) Regular cost tracking b) Variance analysis c) Staff performance reviews d) Cash flow management

Answer Key:

1. a) Cost Performance Index
2. b) -$20,000
3. b) Exception report

4. c) Project is behind schedule
5. b) Earned Value (EV)
6. b) Execution
7. d) All of the above
8. b) Progress reports
9. b) -$10,000
10. c) Staff performance reviews

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5. Risk Management

5.1 Types of Risk

Common IT Project Risks:

- **Technical Risks**: Technology failures, complexity, integration issues
- **Schedule Risks**: Delays, resource availability, dependencies
- **Cost Risks**: Budget overruns, scope creep, resource costs
- **Organizational Risks**: Change resistance, skill gaps, politics
- **External Risks**: Vendor issues, regulatory changes, market conditions

Risk Identification Methods:

- Brainstorming sessions
- Expert interviews
- Historical data analysis
- Risk checklists and templates
- SWOT analysis

5.2 Risk Prioritization

Assessment Dimensions:

- **Probability**: Likelihood of risk occurrence
- **Impact**: Consequences if risk materializes
- **Risk Exposure**: Probability × Impact

Assessment Methods:

- **Qualitative**: High/Medium/Low ratings, risk matrices
- **Quantitative**: Numerical probability and impact values, Monte Carlo simulation
- **Risk Scoring**: Weighted scoring systems

5.3 Risk Management Tactics

Risk Response Strategies:

- **Risk Avoidance**: Eliminating risk by changing project approach
- **Risk Transfer**: Shifting risk to third parties (insurance, contracts)
- **Risk Reduction**: Reducing probability or impact through mitigation
- **Risk Mitigation**: Developing contingency plans for risk occurrence
- **Risk Acceptance**: Acknowledging risk and monitoring

Risk Management Tools:

- **Risk Registers**: Centralized documentation of risks and responses
- **Cost-Benefit Analysis**: Evaluating cost-effectiveness of risk responses
- **Contingency Planning**: Preparing alternative courses of action

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Chapter 5 Review Questions

Multiple Choice Questions

1. Which risk response strategy involves shifting risk to third parties? a) Risk Avoidance b) Risk Transfer c) Risk Reduction d) Risk Acceptance

2. Technology failures and integration issues are examples of: a) Schedule risks b) Technical risks c) Cost risks d) Organizational risks

3. In risk assessment, Risk Exposure is calculated as: a) Impact + Probability b) Impact - Probability c) Impact × Probability d) Impact ÷ Probability

4. Which risk identification method involves structured data collection from experts? a) Brainstorming b) SWOT analysis c) Expert interviews d) Historical data analysis

5. A risk register is primarily used for: a) Calculating risk exposure b) Documenting risks and responses c) Conducting risk assessments d) Training team members

6. Which type of risk assessment uses numerical values for probability and impact? a) Qualitative assessment b) Quantitative assessment c) Subjective assessment d) Comparative assessment

7. Developing contingency plans is an example of: a) Risk avoidance b) Risk transfer c) Risk mitigation d) Risk acceptance

8. Change resistance and skill gaps are examples of: a) Technical risks b) Schedule risks c) Organizational risks d) External risks

9. Which method uses High/Medium/Low ratings for risk assessment? a) Quantitative assessment b) Qualitative assessment c) Monte Carlo simulation d) Parametric assessment

10. Eliminating risk by changing the project approach is called: a) Risk mitigation b) Risk avoidance c) Risk transfer d) Risk reduction

Answer Key:

1. b) Risk Transfer
2. b) Technical risks
3. c) Impact × Probability
4. c) Expert interviews
5. b) Documenting risks and responses
6. b) Quantitative assessment
7. c) Risk mitigation
8. c) Organizational risks
9. b) Qualitative assessment
10. b) Risk avoidance

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6. Quality Management

6.1 Product and Software Quality

IT Product Quality:

- Functionality and performance
- Reliability and availability
- Usability and accessibility
- Maintainability and portability
- Security and compliance

Software Quality Characteristics:

- Correctness and completeness
- Efficiency and performance
- Reliability and robustness
- Usability and user experience
- Maintainability and extensibility

6.2 ISO 9001 Quality Management System

Core Principles:

- Customer focus
- Leadership commitment
- Engagement of people
- Process approach
- Improvement orientation
- Evidence-based decision making
- Relationship management

Key Features:

- Documented quality management system
- Process standardization and control
- Continuous improvement focus
- Customer satisfaction measurement

Limitations:

- Generic standards may not address specific industry needs
- Focus on process compliance rather than outcomes
- Does not guarantee product quality

6.3 ISO 25000 System Quality

Software Product Quality Model:

- **Functional Suitability**: Completeness, correctness, appropriateness
- **Performance Efficiency**: Time behavior, resource utilization, capacity
- **Compatibility**: Co-existence, interoperability

- **Usability**: Recognizability, learnability, operability, accessibility
- **Reliability**: Maturity, availability, fault tolerance, recoverability
- **Security**: Confidentiality, integrity, non-repudiation, accountability
- **Maintainability**: Modularity, reusability, analysability, modifiability, testability
- **Portability**: Adaptability, installability, replaceability

6.4 Capability Maturity Model (CMM)

Maturity Levels:

1. **Initial**: Ad hoc, chaotic processes
2. **Managed**: Project-level process management
3. **Defined**: Organization-wide standard processes
4. **Quantitatively Managed**: Measured and controlled processes
5. **Optimizing**: Continuous process improvement

6.5 Quality Assurance Control

Quality Assurance Activities:

- **Project Audits**: Independent review of project processes and deliverables
- **Quality Audits**: Systematic examination of quality system effectiveness
- **Process Compliance**: Ensuring adherence to defined procedures
- **Independent Verification**: Third-party validation of quality

Separation of Responsibilities:

- Quality assurance independent from project team
- Objective assessment and reporting
- Prevention-focused approach

6.6 Quality Enhancement Methods

Testing Types:

- **Unit Testing**: Individual component testing
- **Integration Testing**: Interface and interaction testing
- **System Testing**: Complete system functionality testing
- **Acceptance Testing**: User and business requirement validation

- **Performance Testing**: Load, stress, and scalability testing
- **Security Testing**: Vulnerability and threat assessment

Quality Review Methods:

- **Code Reviews**: Peer examination of source code
- **Design Reviews**: Architecture and design validation
- **Requirements Reviews**: Specification completeness and clarity
- **Documentation Reviews**: Technical and user documentation quality

Standards Application:

- Coding standards and conventions
- Documentation standards
- Process standards and procedures
- Industry best practices and guidelines

6.7 Quality Management Tools

Testing Management:

- Test planning and strategy development
- Test case design and execution
- Defect tracking and resolution
- Test metrics and reporting
- Test automation and tools

Quality Management System Components:

- Quality policy and objectives
- Process documentation and procedures
- Quality metrics and measurement
- Continuous improvement processes
- Training and competency management

Chapter 6 Review Questions

Multiple Choice Questions

1. Which ISO standard defines quality models for software product evaluation? a) ISO 9001 b) ISO 25000 c) ISO 27001 d) ISO 14001

2. In the Capability Maturity Model (CMM), which level represents "Quantitatively Managed" processes? a) Level 2 b) Level 3 c) Level 4 d) Level 5

3. Which core principle of ISO 9001 emphasizes basing decisions on data and information? a) Customer focus b) Process approach c) Evidence-based decision making d) Continuous improvement

4. Unit testing focuses on: a) Complete system functionality b) Individual component testing c) User requirement validation d) Interface testing

5. Which CMM level is characterized by "Organization-wide standard processes"? a) Initial b) Managed c) Defined d) Optimizing

6. Quality assurance activities should be: a) Performed by the project team b) Independent from project team procedures c) Done only at project completion d) Limited to testing activities

7. In ISO 25000, which characteristic relates to time behavior and resource utilization? a) Functional Suitability b) Performance Efficiency c) Compatibility d) Reliability

8. Which testing type assesses vulnerability and threats? a) Performance testing b) Integration testing c) Security testing d) Acceptance testing

9. The CMM level that represents "Ad hoc, chaotic processes" is: a) Level 1 - Initial b) Level 2 - Managed c) Level 3 - Defined d) Level 4 - Quantitatively Managed

10. Code reviews and design reviews are examples of: a) Testing methods b) Quality enhancement methods c) Risk management techniques d) Project monitoring activities

Answer Key:

1. b) ISO 25000
2. c) Level 4
3. c) Evidence-based decision making
4. b) Individual component testing
5. c) Defined
6. b) Independent from project team procedures
7. b) Performance Efficiency
8. c) Security testing
9. a) Level 1 - Initial

10. b) Quality enhancement methods

Comprehensive Practice Test

Multiple Choice Questions (Mixed Topics)

1. Which project management approach emphasizes responding to change over following plans?
a) Waterfall b) Agile c) Spiral d) V-Model

2. A project with EV=$80,000, PV=$100,000, and AC=$75,000 has a CPI of: a) 0.75 b) 0.80 c) 1.07 d) 1.33

3. In Belbin's team roles, who ensures thorough completion of tasks? a) Implementer b) Completer Finisher c) Monitor Evaluator d) Coordinator

4. Technical feasibility assesses whether: a) The project is cost-effective b) The project can be technically accomplished c) There are legal obstacles d) The organization can use the system

5. Which risk response involves preparing alternative courses of action? a) Risk avoidance b) Risk transfer c) Contingency planning d) Risk acceptance

6. The 'M' in MoSCoW prioritization stands for: a) Mandatory b) Must have c) Major d) Minimal

7. Which stage in Tuckman-Jensen model shows team working effectively toward goals? a) Forming b) Norming c) Performing d) Storming

8. A Gantt chart primarily shows: a) Project costs b) Team responsibilities c) Project timeline and tasks d) Risk assessments

9. ISO 9001 focuses on: a) Software product quality b) Quality management systems c) Project management d) Risk management

10. Exception reports are used for: a) Regular status updates b) Issues requiring attention c) Financial summaries d) Team performance reviews

Answer Key:

1. b) Agile
2. c) 1.07 (EV/AC = 80,000/75,000)
3. b) Completer Finisher
4. b) The project can be technically accomplished
5. c) Contingency planning

6. b) Must have
7. c) Performing
8. c) Project timeline and tasks
9. b) Quality management systems
10. b) Issues requiring attention

Key Focus Areas

1. **Understand the complete project lifecycle** from feasibility through closure
2. **Master different project management approaches** including traditional and agile methods
3. **Learn team dynamics and leadership skills** for effective people management
4. **Practice risk identification and management techniques**
5. **Understand quality frameworks and standards** (ISO 9001, ISO 25000, CMM)
6. **Study monitoring techniques and earned value analysis**

Exam Preparation

- Review case studies and real-world examples
- Practice drawing project diagrams (Gantt charts, network diagrams)
- Understand the relationships between different project management concepts
- Be prepared to analyze advantages and disadvantages of different approaches
- Focus on practical application rather than just theoretical knowledge

Additional Resources

- Project Management Body of Knowledge (PMBOK)
- Agile and Scrum methodologies
- ISO quality standards documentation
- Case studies from IT project implementations
- Practice exercises and mock examinations

This study guide provides comprehensive coverage of all topics in the Certified Ekasi IT Project Manager syllabus. Focus on understanding concepts deeply and their practical applications in real-world IT project scenarios.