SRM VALLIAMMAI ENGINEERING COLLEGE

(An Autonomous Institution)

SRM Nagar, Kattankulathur – 603 203

DEPARTMENT OF MANAGEMENT STUDIES

QUESTION BANK

III SEMESTER

PBA404 – Software Project Management and Quality

Regulation – 2023

Academic Year 2025 – 2026 (ODD SEMESTER)

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DEPARTMENT OF MANAGEMENT STUDIES

QUESTION BANK

SUBJECT: PBA404 – Software Project Management and Quality

SEM / YEAR: III SEM / II Year

UNIT I

What is Project and Project Management, Various phase of Project Management – Project Stakeholders – Roles and Responsibilities of Project Manager – Brief introduction to various process models: Waterfall, RAD, V, Spiral, Incremental, Prototyping, Extreme Programming (XP) and Kanban Project Initiation – Project Charter – Statement of Work (SoW). Artificial intelligence and Automation in project management.

Q.No	Questions	BT Level	Competence
1.	Define project management.	BTL 1	Remembering
2.	What is a project?	BTL 1	Remembering
3.	List the phases of project management.	BTL 1	Remembering
4.	Who are project stakeholders?	BTL 1	Remembering
5.	State the role of a project manager.	BTL 1	Remembering
6.	What is the purpose of a project charter?	BTL-2	Understanding
7.	What is the Spiral model?	BTL 1	Remembering
8.	Define Statement of Work (SoW).	BTL 1	Remembering
9.	Mention any two characteristics of a project.	BTL 1	Remembering
10.	Differentiate between RAD and Waterfall models.	BTL 4	Analyzing
11.	What is the role of automation in project management?	BTL 2	Understanding
12.	Write any two features of Extreme Programming.	BTL 1	Remembering
13.	State one advantage of Kanban.	BTL 2	Understanding
14.	What is a prototype in software development?	BTL-1	Remembering
15.	Define Incremental model.	BTL-1	Remembering
16.	What is the V model?	BTL-1	Remembering
17.	State two objectives of project initiation.	BTL-2	Understanding

18.	What is AI's role in project management?	BTL-2	Understanding
19.	List any two artifacts in project planning.	BTL-1	Remembering
20.	Mention two tools used in project initiation.	BTL-1	Remembering
21.	What are traditional process models?	BTL-1	Remembering
22	State one difference between project and operations.	BTL-2	Understanding
23	Define software process model.	BTL-1	Remembering

Q.No	Part B	Marks	BTLs	Competence
1	Compare the Spiral and Incremental models in real-time usage.	(16)	BTL4	Analyzing
2	Prepare a sample project charter for a software system.	(16)	BTL3	Applying
3	Analyze the responsibilities of a project manager in a cloud-based Project.	(16)	BTL4	Analyzing
4	Analyze the strengths and weaknesses of the V-model.	(16)	BTL4	Analyzing
5	Apply Kanban in a real-world software support project.	(16)	BTL3	Applying
6	Compare RAD with Extreme Programming.	(16)	BTL4	Analyzing
7	Develop an approach using AI for automating project scheduling.	(16)	BTL3	Applying
8	Analyze the impact of project stakeholders on success.	(16)	BTL4	Analyzing
9	Analyze the impact of project stakeholders on success.	(16)	BTL4	Analyzing
10	Create a stakeholder management matrix.	(16)	BTL3	Applying
11	Evaluate how digital automation tools improve project initiation.	(16)	BTL4	Analyzing
12	Prepare a report on process model selection for a small-scale app.	(16)	BTL3	Applying
13	Compare and contrast project and operations with case examples.	(16)	BTL4	Analyzing
14	Design a hybrid process model combining RAD and Waterfall.	(16)	BTL3	Applying
15	Analyze the effectiveness of prototyping in requirement gathering.	(16)	BTL4	Analyzing
16	Implement the phases of project management for an online course system.	(16)	BTL3	Applying
17	Analyze the feasibility of using Spiral model for government IT projects.	(16)	BTL4	Analyzing
18	Develop a basic Kanban board for a final-year project.	(16)	BTL3	Applying
19	Evaluate various process models for e-commerce development.	(16)	BTL4	Analyzing
20	(i) Analyze the responsibilities of a project manager in a cloud-based project. (ii) Compare and contrast project and operations with case examples.	(8) (8)	BTL4 BTL4	Analyzing Analyzing

Unit II

Project Planning Activities – Project Scope, Work Breakdown Structures (WBS), Software estimation methodologies – COCOMO Model and Function Point Project Scheduling Techniques – Hybrid Project Management.

Q.No	Part B	BTL	Competence
1	Define project planning.	BTL 1	Remembering
2	What is Work Breakdown Structure (WBS)?	BTL 1	Remembering
3	Define the COCOMO model.	BTL 1	Remembering
4	What is Function Point Analysis?	BTL 1	Remembering
5	State any two components of a project plan.	BTL 1	Remembering
6	What is project scope?	BTL 2	Understanding
7	Define estimation in software project planning.	BTL 1	Remembering
8	Mention the purpose of scheduling.	BTL 2	Understanding
9	What is top-down estimation?	BTL 1	Remembering
10	Define milestone in project planning.	BTL 1	Remembering
11	Differentiate between Gantt chart and network diagram.	BTL 2	Understanding
12	What is activity sequencing?	BTL 1	Remembering
13	State two limitations of the COCOMO model.	BTL 1	Remembering
14	What is scheduling slack?	BTL 2	Understanding
15	Define bottom-up estimation.	BTL 1	Remembering
16	What is hybrid project management?	BTL 2	Understanding
17	Mention tools used for project scheduling.	BTL 1	Remembering
18	Define critical path.	BTL 1	Remembering
19	What is resource allocation?	BTL 2	Understanding
20	List benefits of using Function Point over LOC.	BTL 2	Understanding

Q.No	Part B	Marks	BTL	Competence
1	Apply the COCOMO model to estimate effort for a web application.	(16)	BTL 3	Applying
2	Analyze the advantages of Function Point Analysis over LOC.	(16)	BTL4	Analyzing
3	Develop a WBS for an online library system.	(16)	BTL 3	Applying
4	Compare top-down and bottom-up estimation techniques.	(16)	BTL4	Analyzing
5	Design a Gantt chart for a 3-month software project.	(16)	BTL 3	Applying
6	Analyze how milestones aid in project planning.	(16)	BTL4	Analyzing
7	(i) Prepare a project schedule using a network diagram. (ii) Analyze the critical path method in a project scenario.	(8) (8)	BTL 3 BTL4	Applying Analyzing

8	Evaluate different tools used in project scheduling.	(16)	BTL4	Analyzing
9	Apply hybrid project management to a healthcare app project.	(16)	BTL 3	Applying
10	Analyze the critical path method in a project scenario.	(16)	BTL4	Analyzing
11	Construct a detailed WBS for an inventory management system.	(16)	BTL 3	Applying
12	Examine the role of estimation in project success.	(16)	BTL4	Analyzing
13	Develop a resource allocation plan for a team of 5 developers.	(16)	BTL 3	Applying
14	Compare the output of COCOMO I and COCOMO II.	(16)	BTL4	Analyzing
15	Apply Function Point Analysis to estimate a student management system.	(16)	BTL 3	Applying
16	Analyze the effectiveness of scheduling slack in planning.	(16)	BTL4	Analyzing
17	Design a hybrid model combining Agile and Waterfall.	(16)	BTL 3	Applying
18	Evaluate project scope in mobile application development.	(16)	BTL4	Analyzing
19	(i) Create a scheduling template using MS Project. (ii) Analyze time estimation challenges in large software projects.	(8) (8)	BTL 3 BTL4	Applying Analyzing

Unit III

Monitoring and Control, Project Status Reporting – Project Metrics, Earned Value Analysis (EVA), Project Communication Plan & Techniques – Steps for Process Improvement – Risk Management, Concepts of Risks and Risk Management, Risk Management Activities, Effective Risk Management, Aids for Risk Identification, Potential Risk Treatments, Risk Components and Drivers, Risk Prioritization - PMO Strategy.

Q.No	Part A	BTLs	Competence
1	Define project tracking.	BTL 1	Remembering
2	What is monitoring in project management?	BTL 1	Remembering
3	List two project metrics.	BTL 1	Remembering
4	Define Earned Value Analysis (EVA).	BTL 1	Remembering
5	What is schedule variance?	BTL 1	Remembering
6	What is project status reporting?	BTL 1	Remembering
7	What is risk prioritization?	BTL 2	Understanding
8	Define project risk.	BTL 1	Remembering
9	What are risk drivers?	BTL 1	Remembering
10	Define communication plan.	BTL 1	Remembering
11	What is process improvement?	BTL 2	Understanding
12	State the purpose of project control.	BTL 2	Understanding
13	Mention two types of risks.	BTL 1	Remembering
14	Define potential risk treatment.	BTL 1	Remembering
15	What is cost variance?	BTL 1	Remembering
16	Define performance index.	BTL 1	Remembering
17	List two aids for risk identification.	BTL 2	Understanding

18	What is PMO?	BTL 2	Understanding
19	What is meant by project communication?	BTL 2	Understanding
20	Define project baseline.	BTL 1	Remembering

Q.No	**Part B**	**Marks**	**BTLs**	**Competence**
1	Apply earned value analysis to monitor a software project.	(16)	BTL 3	Applying
2	Analyze project deviation using status reports.	(16)	BTL4	Analyzing
3	Develop a communication plan for a distributed team.	(16)	BTL 3	Applying
4	Analyze metrics used in project tracking.	(16)	BTL4	Analyzing
5	Create a risk management plan for a mid-size IT project.	(16)	BTL 3	Applying
6	Evaluate risk drivers in software projects.	(16)	BTL4	Analyzing
7	Apply steps for process improvement in a sample project.	(16)	BTL 3	Applying
8	Analyze how communication affects project outcomes.	(16)	BTL4	Analyzing
9	Prepare a risk prioritization strategy.	(16)	BTL 3	Applying
10	Analyze the effectiveness of earned value metrics like SPI and CPI.	(16)	BTL4	Analyzing
11	Create a project metric dashboard.	(16)	BTL 3	Applying
12	Assess the impact of PMO strategy on tracking.	(16)	BTL4	Analyzing
13	Apply deviation analysis for schedule variance.	(16)	BTL 3	Applying
14	Examine potential risk treatments and their outcomes.	(16)	BTL 3	Applying
15	(i) Construct a communication technique model in tracking (ii) Prepare a detailed cost performance report using EVA.	(8) (8)	BTL 3 BTL 3	Applying Applying
16	Develop a risk identification checklist for agile teams.	(16)	BTL 3	Applying
17	Analyze project control techniques in hybrid models.	(16)	BTL4	Analyzing
18	Evaluate process improvement tools like Six Sigma.	(16)	BTL 3	Applying
19	Build a risk register and assess criticality.	(16)	BTL4	Analyzing

Unit IV

Project Closure Analysis, Lesson Learnt Software Quality Assurance – Software Quality Assurance Activities, ISO Standards for Software Organization, Capability Maturity Model (CMM), Comparison between ISO 9001 & SEI CMM, Other Standards. Cybersecurity – Digital Disruption.

Q.No	**Part A**	**BTLs**	**Competence**
1	Define software quality.	BTL 1	Remembering
2	What is Software Quality Assurance (SQA)?	BTL 1	Remembering
3	What is project closure?	BTL 1	Remembering

4	List two SQA activities.	BTL 2	Understanding
5	Define ISO 9001.	BTL 1	Remembering
6	What is SEI CMM?	BTL 1	Remembering
7	What is the purpose of project audit?	BTL 2	Understanding
8	List any two cybersecurity threats.	BTL 1	Remembering
9	Define digital disruption.	BTL 1	Remembering
10	What is quality assurance review?	BTL 1	Remembering
11	Define CMM Level 3.	BTL 1	Remembering
12	What is the difference between validation and verification?	BTL 2	Understanding
13	Define quality metrics.	BTL 1	Remembering
14	What is the role of documentation in SQA?	BTL 2	Understanding
15	List two objectives of project closure analysis.	BTL 1	Remembering
16	Define internal quality audit.	BTL 1	Remembering
17	Mention two quality standards for software.	BTL 2	Understanding
18	What is quality planning?	BTL 2	Understanding
19	Define quality control.	BTL 1	Remembering
20	What is the purpose of the lessons learned document?	BTL 2	Understanding

Q.No	Part B	Marks	BTLs	Competence
1	Apply ISO standards in software project quality.	(16)	BTL 3	Applying
2	Analyze SQA activities in a software development lifecycle.	(16)	BTL4	Analyzing
3	Develop a project closure report template.	(16)	BTL 3	Applying
4	Compare ISO 9001 and SEI CMM.	(16)	BTL4	Analyzing
5	Analyze SQA activities in a software development lifecycle.	(16)	BTL 3	Applying
6	Examine how cybersecurity supports quality in software projects.	(16)	BTL4	Analyzing
7	Apply quality audit processes to a project case study.	(16)	BTL 3	Applying
8	Analyze the effectiveness of quality reviews.	(16)		
9	Prepare a checklist for software quality assurance.	(16)	BTL 3	Applying
10	Compare the levels of Capability Maturity Model.	(16)	BTL4	Analyzing
11	Apply digital disruption examples in quality policy updates.	(16)	BTL 3	Applying
12	Analyze compliance requirements in a tech startup.	(16)	BTL4	Analyzing
13	Create an internal quality metric system.	(16)	BTL 3	Applying
14	Assess SQA techniques in agile environments.	(16)	BTL4	Analyzing
15	Construct a process improvement plan.	(16)	BTL 3	Applying
16	Analyze the role of digital transformation in enhancing SQA.	(16)	BTL4	Analyzing
17	Apply quality gates in a CI/CD pipeline project.	(16)	BTL 3	Applying

18	Evaluate software quality through defect metrics.	(16)	BTL4	Analyzing
19	Design an SQA policy for a university management system.	(16)	BTL 3	Applying
20	Analyze the impact of ISO/CMM compliance on software product quality.	(16)	BTL4	Analyzing

Unit V

Agile Manifesto and Agile Principles Agile Scrum – Purpose, Values, Scrum Framework, Scrum Roles – Product Owner, Scrum Master & Team, Scrum Events – Sprint Planning, Daily Scrum/Stand-up Meeting – Sprint Review, Sprint Retrospective, Scrum Artefacts – Product Backlog, Sprint Backlog, Increment and Definition of Done (DoD), Agile estimation – Story Point.

Q.No	Part A	BTLs	Competence
1	What is Agile Manifesto?	BTL 1	Remembering
2	Define Agile principles.	BTL 1	Remembering
3	What is Scrum?	BTL 1	Remembering
4	List two values of Scrum.	BTL 1	Remembering
5	Who is a Scrum Master?	BTL 1	Remembering
6	What is the role of a Product Owner?	BTL 1	Remembering
7	What is a Sprint?	BTL 1	Remembering
8	Define Daily Scrum.	BTL 1	Remembering
9	What is Sprint Planning?	BTL 2	Understanding
10	Define Sprint Review.	BTL 2	Understanding
11	What is Sprint Retrospective?	BTL 2	Understanding
12	Define Product Backlog.	BTL 1	Remembering
13	What is Sprint Backlog?	BTL 1	Remembering
14	Define Increment in Scrum.	BTL 2	Understanding
15	What is DoD (Definition of Done)?	BTL 1	Remembering
16	What are story points in Agile?	BTL 2	Understanding
17	List any two benefits of Agile methodology.	BTL 1	Remembering
18	Differentiate Agile from Waterfall.	BTL 2	Understanding
19	What is the significance of Agile estimation?	BTL 2	Understanding
20	Define cross-functional team.	BTL 1	Remembering

Q.No	Part b	Marks	BTLs	Competence
1	Apply Agile principles to a software development project.	(15)	BTL 3	Applying
2	Analyze the Scrum framework and its phases.	(15)	BTL4	Analyzing
3	Develop a product backlog for an e-commerce application.	(15)	BTL 3	Applying
4	Compare Scrum and Waterfall methodologies.	(15)	BTL4	Analyzing
5	Apply Scrum roles in a college management system.	(15)	BTL 3	Applying

6	Analyze the role of Sprint Retrospective in continuous improvement.	(16)	BTL4	Analyzing
7	Design a Sprint plan for a mobile app project.	(16)	BTL 3	Applying
8	Compare Agile estimation techniques.	(16)	BTL4	Analyzing
9	Create a Sprint Backlog and explain its components.	(16)	BTL 3	Applying
10	Evaluate the effectiveness of Scrum events.	(16)	BTL4	Analyzing
11	Apply story point estimation for a new feature.	(16)	BTL 3	Applying
12	Analyze the responsibilities of Product Owner.	(16)	BTL4	Analyzing
13	Construct a Scrum board for a team project.	(16)	BTL 3	Applying
14	Examine challenges in adopting Agile in large organizations.	(16)	BTL4	Analyzing
15	Apply Agile principles to non-software projects.	(16)	BTL 3	Applying
16	Analyze team collaboration in Agile environments.	(16)	BTL4	Analyzing
17	Design a DoD checklist for a blog development project.	(16)	BTL 3	Applying
18	Compare Agile Scrum with Kanban.	(16)	BTL4	Analyzing
19	Create a story map for a food delivery app.	(16)	BTL 3	Applying
20	Analyze how Agile supports fast delivery with quality.	(16)	BTL4	Analyzing

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