

SEPM Assignment - 2

Q.1. Diff. between CPM & PERT

CPM

- CPM stands for critical method
- CPM is a technique of project management which is used to manage only certain activities of a project.
- It is a determined model
- It has repetitive nature of job.
- There may be crashing because of certain time bound
- It is appropriate for reasonable time estimation
- It is dummy activities for representing sequence of activity

PERT

- PERT stands for Project eval. & Review technique.
- PERT is a technique of project management which is used to manage uncertain activities of a project.
- It is probability model
- It has non repetitive nature of job.
- There is no chance of crashing as there is no certainty of time.
- It is appropriate for high precision time estimation
- It doesn't use any dummy activity.

Q.2. Explain the difference between: total float and free float.

(i) Total Slack and Free Slack

Total Slack:

- Total Slack is the amount of time a task can be delayed without delaying the project's overall completion date.
- It is estimated as the difference between the task finish & early finish of a task.
- ~~It is~~
- If the total slack is zero, the task is on the critical path.
- If the total slack is negative, it means the project is behind schedule and needs compression techniques like crashing or fast tracking.

Free Slack:

- If the total slack is zero, the task is on the critical path.
- ~~If the total slack is negative, it means the project is behind schedule & needs compression~~
- It is used for identifying tasks that can be postponed without affecting dependent activities.
- If free slack is zero, any delay in the task will immediately affect the one successor task.

Key differences:

- Total slack affects the entire project completion, whereas free slack only affects immediate successor tasks.
- A task can have free slack but still have total slack, but not vice versa.
- Free slack is always equal to or less than total slack.

ii) AON & AOA

AON

AOA

- In AON (Activity on Node) diagram, activities are represented as nodes and arrows show the dependencies between them.

In AOA (Activity on Arrow) diagram, activities are represented as arrows and nodes represent events.

- It is more commonly used in modern project management software (such as MS Project & Primavera).

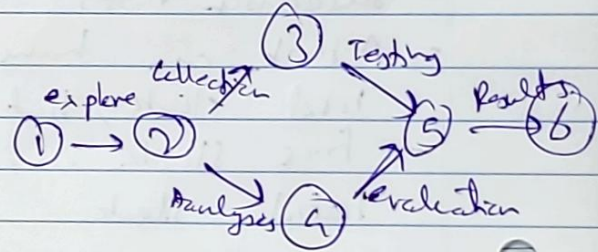
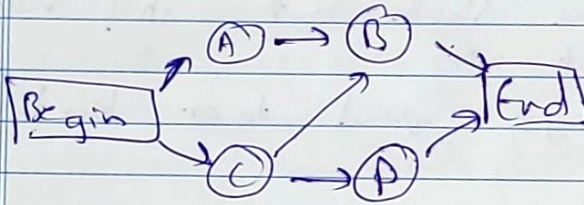
It was traditionally used in PERT & CPM networks and is less common now.

AON does not require dummy activities since dependencies are directly shown by arrows.

AOA may require dummy activities to maintain correct logical relationships.

It is easier to understand and interpret to AOA dig.

eg: AON dig.



Q.3. Explain Risk Identification, Risk Projection, and PMM plans in detail.

Risk Identification:

→ That could negatively is the process of recognizing potential risks that could negatively impact a project. It involves systematically identifying sources of risk, analyzing past exp. and brainstorming possible threats.

→ Steps in Risk Identification:

- i. Review Project Scope & Objectives
- ii. Identify Risk categories as technical, financial, operational, external or managerial.
- iii. Use Risk Identification Techniques:
 - Brainstorming: Gather team to list potential risks.
 - SWOT Analysis: Identify strengths, weaknesses, opportunities and threats.

Expert Judgement: Consult experienced professionals for insights.

Checklist method: Use a pre defined risk checklist.

Historized Data Analysis: Learn from prev. projects.

iv. Document Risk: Create a risk register listing identified risks with detail.

Risk Projection (Estimation / Assessment):

→ Risk ~~p~~ It involves analyzing identified risks to estimate their likelihood, impact and severity. The goal is to prioritize risks and develop mitigation strategies.

→ Aspects of Risk ~~Ass~~ Projection:

i) Likelihood Assessment:

- Assign a probability score (low, med, high)

ii) Impact Analysis:

Evaluate how much damage the risk can cause (minor, moderate, severe)

iii) Risk Exposure Calculation:

→ Risk Exposure = Probability × Impact

iv) Risk prioritization:

- High-Exposure risks require immediate action

- Low-exposure risks can be monitored with minimal intervention

RMM Plan:

→ This is a structured approach to handling risks by reducing their probability and impact, monitoring their status, and defining management strategies.

It stands for Risk Mitigation, Monitoring and Management Plan.

→ Components of an RMM Plan.

i) Risk Mitigation:

i) Risk mitigation:

→ Strategies to reduce or prevent risks before they occur.

→ eg: use automated backup systems to ~~mitigate~~ ~~mitigate~~ data loss.

ii) Risk Monitoring

→ ongoing tracking of risks to detect changes.

→ eg. Conduct regular performance audits to monitor budget risks.

iii) Risk Management:

→ Defines what actions to take if a risk materializes.

→ eg. if a key dev leaves, assign a backup resource.

- Q.4. Consider an XYZ company undertake a project to computerized working of ABC City Bank. they.
- Develop W.B.S. for the same project.
 - Develop responsibility matrix.

i) WBS (Work Break Down Structure)
divides the project into manageable sections, ensuring a ~~hand~~ structured approach to implementation.

level-wise WBS for the Project.

- Project Initiation and Planning
 - Requirement Analysis.
 - Feasibility Study.
 - Risk Assessment and Planning
 - Project schedule and Budgeting.
- System Design & Architecture.
 - Database Design
 - Software Architecture
 - Security Architecture
 - Hardware and Network Infrastructure.
- Software Development.
 - Core Banking Sys. Development
 - Customer Management Module
 - Transaction Processing System.
 - Online and Mobile Banking.

4. Integration & Testing

- 4.1 System Integration
- 4.2 Functional testing
- 4.3 Security & Performance testing
- 4.4 User acceptance Testing (UAT)

5. Deployment and Implementation:

- 5.1 Server and Database setup
- 5.2 Software Installation
- 5.3 Data Migration from legacy systems.
- 5.4 Go-live and Monitoring

6. Training & Documentation

- 6.1 Employee Training session
- 6.2 User ~~Test~~ Manual & Technical Documentation
- 6.3 Customer Support Training
- 6.4 Troubleshooting Guide

7. Maintenance and Support

- 7.1 Bug fixed and Updates
- 7.2 System Performance Monitoring
- 7.3 Customer support and Helpdesk
- 7.4 Future Enhancements & Upgrades

ii) 

Responsibility Assignment Matrix (RAM)

The responsibility matrix (RACI matrix)

define roles and responsibilities of diff. team members for each major task in the project

Task/ Activity	Project Managers	Business Analysis	Software Developers	Testers	IT Support	Bank Staff
Requirement Analysis	R	A	C	-	-	I
System Design	R	C	A	-	I	I
Software Development	C	I	A	-	-	I
Testing	I	C	C	A	-	R
Integration & Deployment	R	C	A	C	I	I
Training & Documentation	R	A	C	-	I	C
Maintenance & Support	R	C	C	-	A	I

Q5. Explain software configuration management in detail.

Software configuration management (SCM) is the process of tracking and controlling changes in software development.

- Version control: managing different versions of the software using tools like Git.

Change Management: Documenting and tracking changes to ensure consistency.

Build Management: Automating software compiling & packaging.

Release Management: Managing software releases efficiently.

Audit & Reporting: ensuring compliance with standards and project goals.

Q6. Explain the significance

A Gantt chart is a visual tool used to plan & schedule projects. Its significance includes:

- Task scheduling: helps in organizing tasks with start and end dates.
- Resource ~~scheduling~~ allocation: assigns resources efficiently.
- Tracking Progress: compare planned vs actual progress.
- Critical path Identification: highlight tasks that impact project completion.
- Dependency visualization: shows task inter-dependencies.

Q.7. Draw the AON & AOA network diagram & show the critical path.

Step 1: Identify dependencies.

Activity - Time - Predecessors.

A	2	-
B	5	A
C	5	B
D	5	C
E	5	B
F	1	D
G	1	D
H	1	D
I	2	G
J	1	E, F, H, I.

Step 2: Identify paths & calculate Duration

- $A \rightarrow B \rightarrow C \rightarrow D \rightarrow F \rightarrow J = 2 + 5 + 5 + 5 + 1 + 1 = 19$
- $A \rightarrow B \rightarrow C \rightarrow D \rightarrow G \rightarrow I \rightarrow J = 2 + 5 + 5 + 5 + 1 + 2 + 1 = 21$
- $A \rightarrow B \rightarrow E \rightarrow J = 2 + 5 + 5 + 1 = 13$
- $A \rightarrow B \rightarrow C \rightarrow D \rightarrow H \rightarrow J = 2 + 5 + 5 + 5 + 1 + 1 = 19$

Step 3: Identify the critical path

Largest path: $A \rightarrow B \rightarrow C \rightarrow D \rightarrow G \rightarrow I \rightarrow J$, total 21 days
Critical path is: $A \rightarrow B \rightarrow C \rightarrow D \rightarrow G \rightarrow I \rightarrow J$.

Q: Draw diagram

