

SEPM Assignment 02

Q.1] Differentiate between CPM & PERT

PERT	CPM
i) PERT stands for Project eval. and review technique	i) CPM stands for critical Path Method.
ii) It is a technique of project management which is used to manage uncertain activities of any project.	ii) It is a technique of project management used to only certain (i.e. time is known) activities of any project.
iii) It is a probability model	iii) It is a deterministic model
iv) Appropriate for high precision time estimation.	iv) Appropriate for reasonable time estimation
v) Non repetitive nature of job	v) Repetitive nature of job.
vi) No chance of crashing as there is no certainty of time	vi) May crash because of certainty time bound.

Q.2] Explain the difference between Total Slack and Free Slack.

Sol: Total slack:

It is the amount of times a task can be delayed without delaying the project overall completion date.

It is calculated as the difference b/w late finish and early finish of a task.

If total Slack is negative it means the project is behind schedule and needs compression techniques like crashing or fast tracking.

If total Slack is zero, the task is on the critical path.

Free slack:

It is the amount of time the task can be delayed without delaying the start of any successor task.

It is useful for identifying tasks that can be postponed without affecting dependent activities.

If the free slack is zero, any delay in the task will immediately affect atleast one successor task.

Key difference:

Total slack affects the entire project completion, whereas free slack only affects immediate successor task.

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 diagrams:

Activity on Node (AON) diagram:

In AON diagrams, activities are represented by nodes (boxes) and dependencies between them are shown with arrows.

Key characteristics:

- Nodes (rectangles) represent project activities.
- Arrows indicate dependencies b/w activities
- Used in precedence diagramming method which allows for different types of relationships.
 - Finish to start
 - Start to start
 - Finish to start
- Start to finish

Advantages:

More flexible and widely used

Can represent lead and lag times effectively.

Activity on Arrow (AOA) :

AOA In AOA, activities are represented by arrows, while nodes (circles) represent the start & end points of activities.

Key characteristics:

- Arrows represent activities
- Nodes represent center
- Uses only finish to start relationship.

Advantages:

Clearly shows dependencies & the critical part

Simpler for smaller projects

Q.03] Explain risk identification, risk projection, RMMM plan in detail.

Sol: Risk identification is the process of recognizing potential risks that could negatively impact a project.

Key steps include:

- Understanding project scope
- Brainstorming & expert consultation
- SWOT analysis
- Checklist based approach
- Historical data analysis.
- Categorising risks:
 - a) Technical risks
 - b) Financial risks
 - c) Operational risks
 - d) External risks

Risk projection also known as risk estimation or risk involves analysing the risks in terms of impact and priority.

This helps in decision making regarding migration strategy
 key aspects include:

- Probability assessment : Estimate the chances of risk occurring
- Impact analysis : Determine the severity of consequences if the risk occurs.
- Risk expo exposure calculation : $RE^2 PX I$.

RMMM stands for Risk mitigation, monitoring & management

- Risk Mitigation : It is defined as strategies to prevent risks from occurring or reduce their impact.
- Risk Monitoring : Continuous tracking of risk indicators & warning signs
- Risk Management : Developing response plans for different risks scenarios.

Q.04] consider a XYZ company undertake a project to computerized working of ABC city Bank, then,

i) Develop WBS for the same project

Sol: 1. The Project Planning & Requirement Analysis

- Define objectives, scope, and feasibility
- Gather banking requirements
- Allocate budget & resources

2. System Design & Infrastructure setup

- Design software architecture & database
- set up servers, networks & security
- Procure & install necessary hardware

3. Software Development

- Develop core banking system
- Implement internet & mobile banking
- Integrate ATM & security features.

4. Data Migration & Integration

- Collect, clean & validate data
- Migrate data from old system
- Ensure smooth integration with new software

5. Testing & Employee Training

- Conduct unit, integration & UAT testing
- Develop training materials
- Train bank staff on new system

6. Deployment & Maintenance

- Deploy the system in phases
- Provide post-deployment support
- conduct regular maintenance & upgrades

ii] Responsibility Matrix

- R (Responsible): Performs the task
- A (Accountable): Approves the work, ensures completion
- C (consulted): Provides input, export guidance.
- I (Informed): Needs updates but not actually involved

Task	Project Manager	Business Analyst	Developers	IT Support	Bank Staff	Security Team
1. Requirement analysis	A	R	C	I	C	I
2. System design & setup	A	C	R	R	I	C
3. Software development	A	I	R	C	I	C
4. Data Migration	A	C	R	C	I	C
5. Test & Training	A	C	R	I	R	C
6. Deployment & Maintenance	A	I	R	R	I	R

Q.05] Explain Software Configuration Management..

- Ans.
- i) Configuration management is a process of identifying & defining the configuration items in a system, controlling the release & change of these items throughout the system lifecycle, recording & reporting the status of configuration items & change requests and verifying the completeness of configuration items.
 - ii) Configuration is practised in form or another as part of any software engineering project where several individuals have to co-ordinate their activities.
 - iii) While the basic disciplines of configuration management are common to hardware & software engineering projects, there are some differences in emphasizing due to the nature of products.
 - iv) SCM is a system for managing the evolution of software engineering projects, there are some differences in emphasis due to the nature of software products.
 - v) A software product encompasses the complete set of computer programs, procedures and associated documentation & data designed for delivery to end user.
 - vi) Advantages of SCM:
 - i) SCM provides significant benefits to all projects regardless of size, scope & complexity.
 - ii) Provides a snapshot of dynamically changing software
 - iii) Tracks concurrent development of modules or components of overall systems.

Q.06] Explain the significance of Gantt Charts in project Management.

- Ans.
- A Gantt chart is a visual project management tool that represents the schedule of tasks one time. It helps in planning, tracking &

managing task efficiently ensuring that project stay on schedule.

Some of the significance of Gantt Chart:

i) Visualizing the product project timeline:

Provides a clean picture of the projects progress and structure, helps stakeholders quickly understand deadlines dependencies & bottlenecks.

ii) Task scheduling & deadlines:

Ensures that tasks are completed on time by setting clean start & end dates. Helps managers allocate resources effectively and avoid scheduling conflicts.

iii) Managing Task Dependencies:

Identifies which task rely on others, preventing delays in sequential tasks. Helps in adjusting schedules when dependencies shift.

iv) Tracking program in Real-Time:

Project managers can monitor completed, ongoing & pending tasks. Programs bars update dynamically to repeat the work done.

v) Improving Team Collaboration:

Teams can see who is responsible for which tasks. Reduces confusion & enhances accountability.

vi) Risk Identification & Mitigation:

Highlights potential bottlenecks in the schedule.

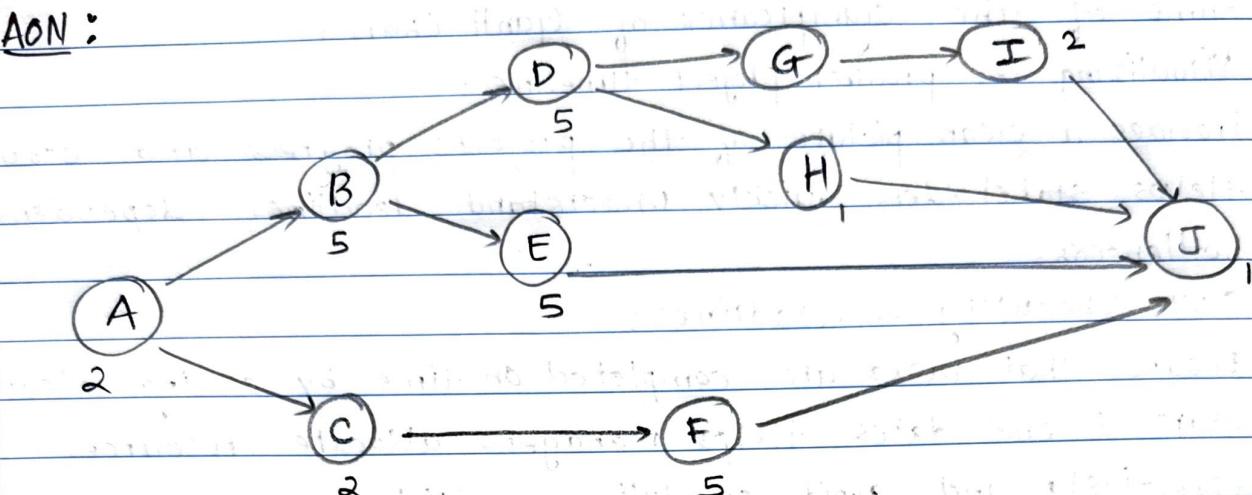
Helps in developing contingency plan for delays.

Q.07] Draw the AON & AOA network diagrams for the following projects & show critical path.

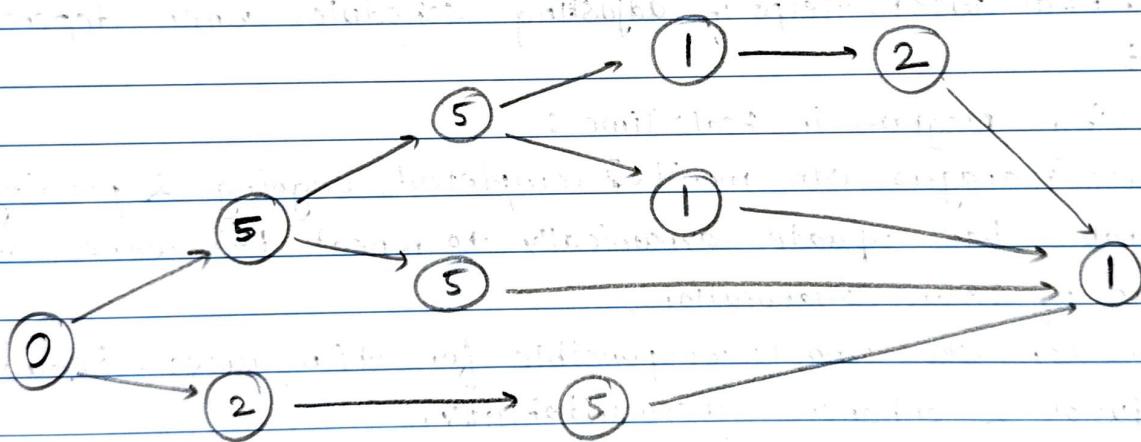
Ahs.

Sol:

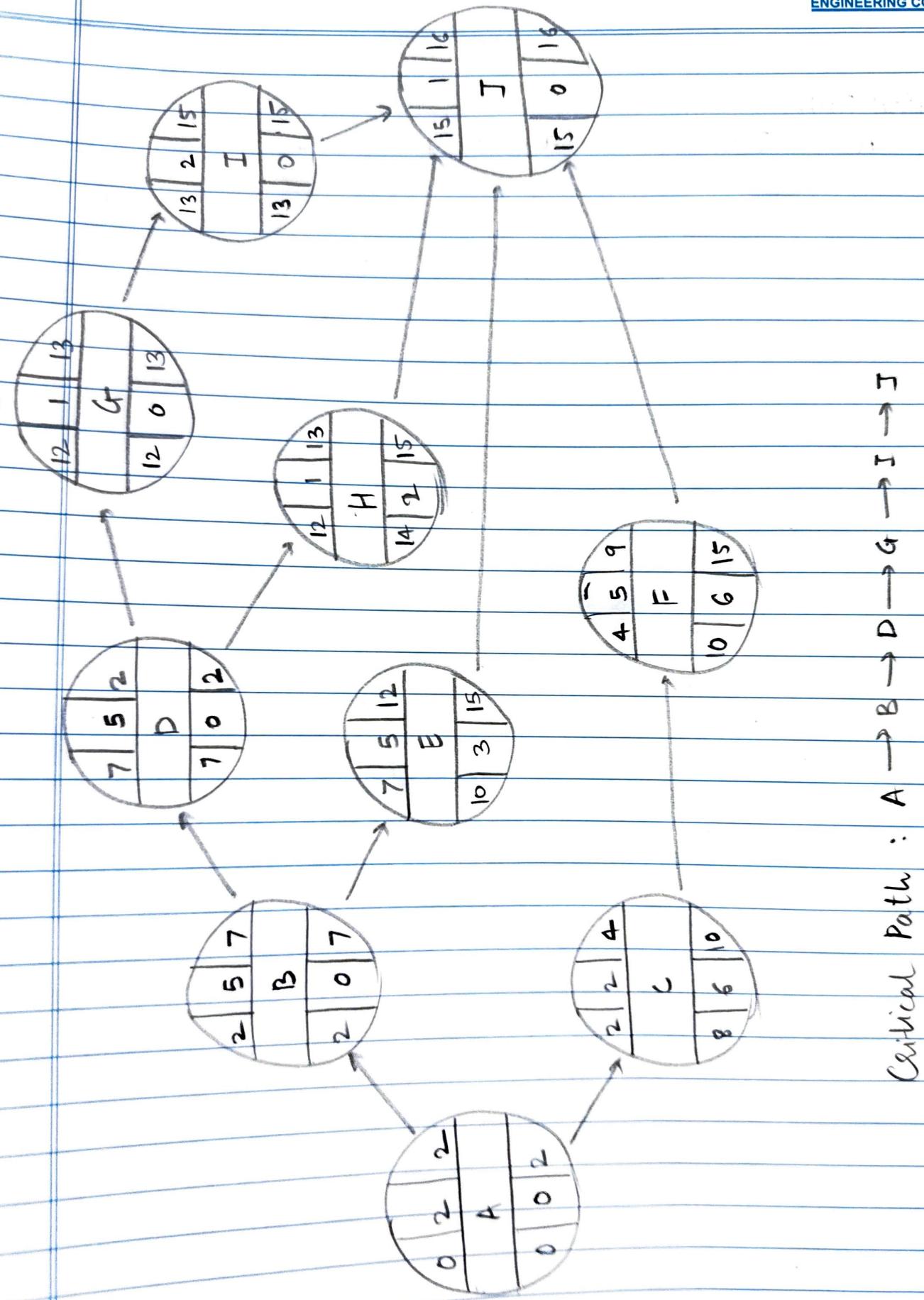
AON :



AON



AoA



Critical Path:

A → B → D → G → I → J