

SEPM Assignment 2

Q.1 Differentiate b/w CPM & PERT

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PERT

CPM

1) It stands for Project eval. Review technique.	2) It stands for Critical path method.
2) It is a technique of project management which is used to manage uncertain activities of any project.	2) It is a technique of project management used to only certain activities of any project.
3) It is a probability model.	3) It is a deterministic model.
4) Appropriate for high precision time estimation.	4) Appropriate for reasonable time estimation.
5) Non repetitive nature of job.	5) Repetitive nature of job.

Q.2 Explain the difference b/w

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1) Total Slack

1) It is the amount of time a task can be delayed without delaying overall completion date.

2) It is calculated as difference b/w late finish & early finish of a task.

Free Slack

1) It is the amount of time a task can be delayed without delaying successor task.

2) It is calculated as difference b/w successor task early start - early finish.

- 3) If total slack is negative, + 3) If free slack is 0, the means the project is behind task is on critical schedule & needs compression path tech
- 4) It affects the entire project 4) It only affects immediate completion successor task
- 5) It is always equal to 5) It is always less than or greater than free slack. or equal to total slack.

→ ii) AON & AOA diagrams:
(Activity on Node)

AON: In AON diagrams, activities are represented by nodes & dependencies b/w them are shown with arrows.

Key Characteristics:-

- Nodes represent project activities
- Arrows indicate dependencies b/w activities
- Used in precedence diagramming method which allows for different types of relationships.

Advantages:-

- Clearly shows dependencies & critical path
- Simpler for smaller projects

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

Characteristics:

- Arrows represent activities.
- Nodes represent centers.
- Uses only finish to start relationships.

Advantages:

- Clearly shows dependencies & critical path.
- Simplex for smaller projects.

Q3) Explain Risk identification, projection, & mitigation in detail.

→ Risk Identification is the process of recognizing potential risks that could negatively impact a project system or organization. Steps include:

- i) Understanding Project scope
- ii) Brainstorming & Expert Consultation
- iii) SWOT analysis
- iv) Checklist based approach
- v) Historical data analysis
- vi) Categorizing risks like technical, financial, operational, external

Risk Projection also

Risk Projection also known as risk estimation or risk assessment involves analyzing the identified risks in terms of likelihood, impact & priority. This helps in decision making regarding mitigation strategies that include Probability assessment, Impact analysis & Risk exposure Calculation.

Risk Mitigation, Monitoring & Management (RMM)

- Mitigation: Defined as strategies to prevent risks from occurring.
- Monitoring: Continuous tracking of risk indicators or signals.
- Management: Developing response plans for different risk scenarios.

(Q. 8)

Explain Software Configuration Management.

- 1) Configuration Management is the process of identifying & defining the configuration items in a system controlling the release & change of these items throughout the system lifecycle.
- 2) CM is practised in form of another as part of any software engineering project where several individuals or organizations have to coordinate their activities.
- 3) While the basic disciplines of CM are common to both hardware + software engineering projects, there are some differences in emphasis due to nature of products.
- 4) SCM is a system for managing the evolution of software products both during initial and all other stages.
- 5) A software product encompasses the complete set of computer programs, procedures & associated documentation & data designated for delivery.
- 6) All supporting software used in development

Over thought not part of the software product,
should also be maintained by SCM

7] Advantages:-

- i) It provides significant benefits to all projects regardless of size, scope & complexity
- ii) Tracks concurrent development of modules or components of overall system
- iii) Organizes all concurrently developing code & associated documents

Q.6 Explain the significance of Gantt chart in project management.

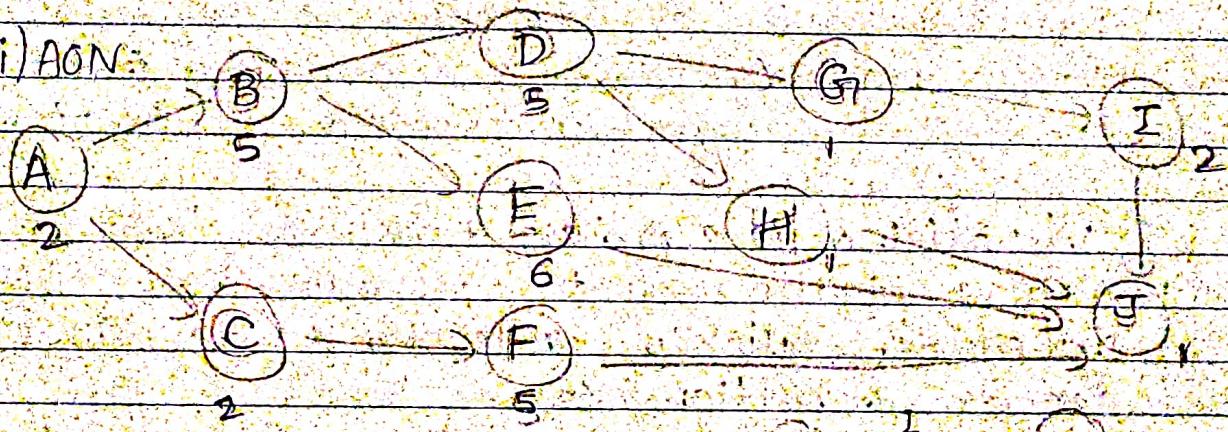
- 1] A Gantt chart is a visual project management tool that represents the schedule of tasks over time. It helps in planning, tracking & managing tasks efficiently.
- 2] Some of the significant points of Gantt chart are:

- i) Visualizing the project timeline: Provides a clear picture of the project's progress & structure. Helps stakeholders quickly understand deadlines, dependencies & bottlenecks.
- ii) Task scheduling & deadlines: Ensures that tasks are completed on time by setting clear start & end dates. Helps managers allocate resources efficiently & avoid scheduling conflicts.
- iii) Managing Task Dependencies: Identifies which task relies on others, preventing delays in sequential tasks. Helps in adjusting schedules when dependencies shift.

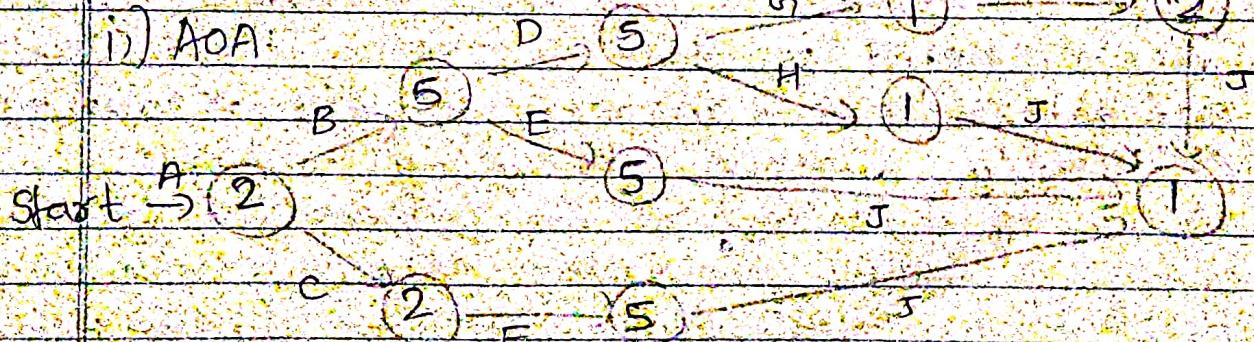
- iv) Tracking Progress in real time: Project managers can monitor completed, ongoing & pending tasks. Progress bars update dynamically to reflect the work done.
- v) Improving Team Collaboration: Teams can see who is responsible for which tasks. Reduces confusion & enhances accountability.
- vi) Risk Identification & Mitigation: Highlights potential bottlenecks in the schedule. Helps in developing contingency plan for delays.

Q.6) Draw the AON & AOA network diagram for the following project & show critical path.

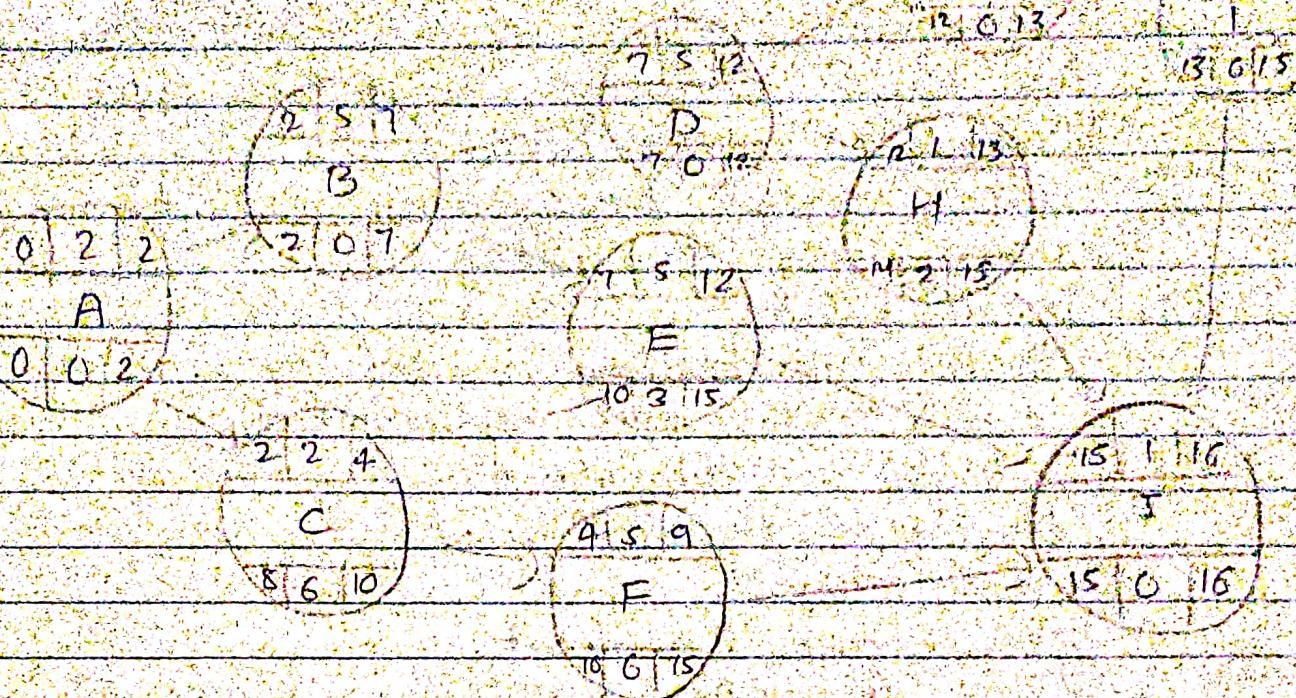
i) AON:



ii) AOA:



Now, for critical Path.



Critical Path : A → B → D → G → I → J

- Q.4 Consider XYZ company undertake a project to computerize working of ABC city Bank then
- Develop WBS for some project
 - Develop Responsibility matrix

→ i) Work Breakdown structure : It is a hierarchical decomposition of tasks required to complete a project.

A) Requirement Analysis & Planning :

- Gather business requirements & identify hardware & software needs.

B) System Design & Architecture :

- Database design, UI/UX design, security & backend architecture.

C) Software development & Integration:

- Develop core software & implement atm, net banking & integrate 3rd party apps.

D) Hardware & Infra setup:

- Install servers, branch computers & workstations & cybersecurity measures.

E) Testing & Q.A.

- Perform unit testing, integration & system testing
- Load & performance testing & fixing bugs

F) Training & Deployment:

- Employee training, conduct user acceptance testing, etc.

G) Maintenance & Support:

- Continuous system monitoring, implement software updates & patches.

II) Responsibility Matrix: It is a matrix that defines roles & responsibilities of team members for tasks. The keys are: R (Responsible) → Performs task, A (Accountable) → Approves task, C (Consulted) → Provides input, guidance, I (Informed) → Needs update.

Task	Project Manager	Business Analyst	Devops	IT security	Testers	Bank staff
Req. Gathering	A	R	C	I	I	C
Sys Design	A	C	R	C	I	I
Software dev	I	I	R	C	I	I
Security Imple.	I	I	C	R	I	I
Testing & QA	I	C	C	R	R	I
Deployment	A	C	R	R	C	I
Training & support	A	R	C	C	L	R