VIBHAV RAI
T24 , 80

THADOMAL SHAHANI TSEC ENGINEERING COLLEGE



SEPM ASSIGNMENT-2

Q. Differentiate b/w ~~Cij~~ CPM & PERT

→

| | PERT | CPM |
|---|---|---|
| 1) | PERT stands for project eval and revies technique. | 2) CPM stands for critical path method. |
| 2) | It is a technique of project management which is used to manage uncertain activities of any project. | It is a technique of project management used to only certain activities of any project. |
| 3) | It is a probability model. | 3) It is deterministic model. |
| 4) | Appropriate for | 4) Appropriate for reasonable time ~~item~~ estimation. |
| 5) | Non-repetitive nature of job. | 5) Repetitive nature of job. |
| 6) | No change of crashing as there is no certainity of time. | 6) May crash because of on-train time bound. |

Q. Explain the diff b/w total slack and free slack.

→ Total slack:

- It is the amount of time a task can be delayed without delaying the project's overall completion data.
- If total slack is -ve 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 a 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.

key difference:
- total slack affects the entire project completion, where as 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) AOA & AON diagrams:
→ Activity on node diagram:
In AON, activities are represented as nodes (boxes) and dependencies betn them are shown with arrows.
key characteristics:
- Nodes: represent project activities.
- Arrows indicate dependencies b/w activities.
- Used in precedence diagrams which allows for diff types of relation ships.
- Finish to start. Start to start. Finish to finish. Start to finish.
- Adv: More flexible and widely used, can represent lead and lag times effectively.

Activity on Arrow (AOA):
- In AOA activities are represented by arrows, while (nodes) represent the start & end points of activities.
key characteristics:
- Arrow represent activities, Nodes represent center.
- uses only finish to start relationships.
Adv:
- Clearly shows dependencies & the critical path
- Simpler for smaller projects.

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

→ Risk identification is the process of recognizing potential risks that could negatively impact a project, system or organization. Key steps include:

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

Risk projection also known as risk estimation involves analyzing the identified risks in terms of their likelihood, impact & priority.

This helps in decision making regarding mitigation strategies.
key aspects include:

- Probability assessment: estimates the chances of risk occurring.
- Impact analysis: determines the severity of consequences if the risk occurs.
- Risk exposure calculation: $RE = P \times I$.
- RMMM:

⇒ Risk mitigation: defined as strategies to prevent risks from occurring.
⇒ Risk monitoring: continuous tracking of risk indicators and warnings.
⇒ Risk management: developing response plans for different risk scenarios.

Q. Explain software configuration management.

→ Configuration management is the process of identifying and defining the release and change of these items throughout the system

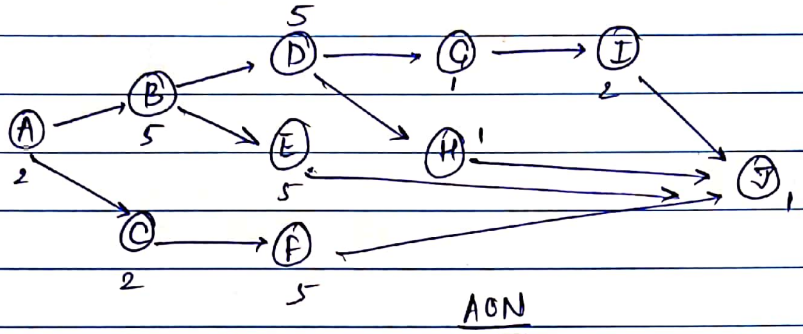
lifecycle recording and reporting the status of configuration items & change requests.
- Configuration management is practiced ~~from~~ in one form or another as part of an SE project where several individuals or organizations have to coordinate their activities.
- SCM is a system for managing the evolution of software products, both during the initial stages of development and all stages of maintenance.
- All supporting software used in dev even though not part of the soft-ware product, should also be controlled by SCM.
- Advantages:
i) SCM provides significant benefits to all projects regardless of size, scope and complexity.
ii) Provides a snapshot of dynamically changing software.
iii) Tracks concurrent development of modules or components of overall system.

Q. Explain the significance of Gantt charts in project management.
→ 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 ensuring that project stay on schedule.
- Some significance:
i) visualizing the project timeline: provides a clear picture of the projects progress & structure.
ii) Task scheduling & deadlines: ensures that tasks are completed on time by setting clear start and 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.

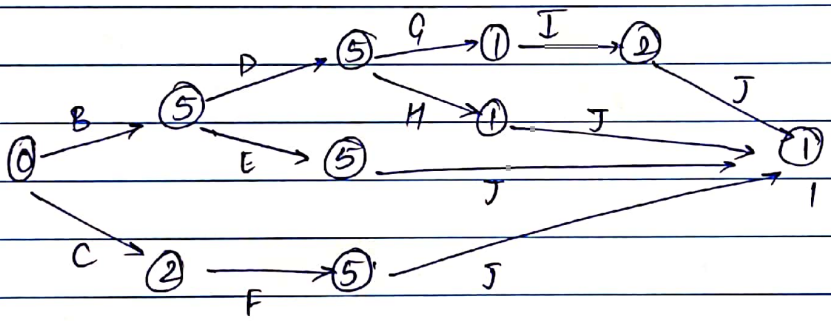
iv) Risk identification & mitigation: Highlights potential bottlenecks in the schedule. ~~Highlights potential~~.

Q. Draw the AOA and AON network diagrams for the following project & show critical path.

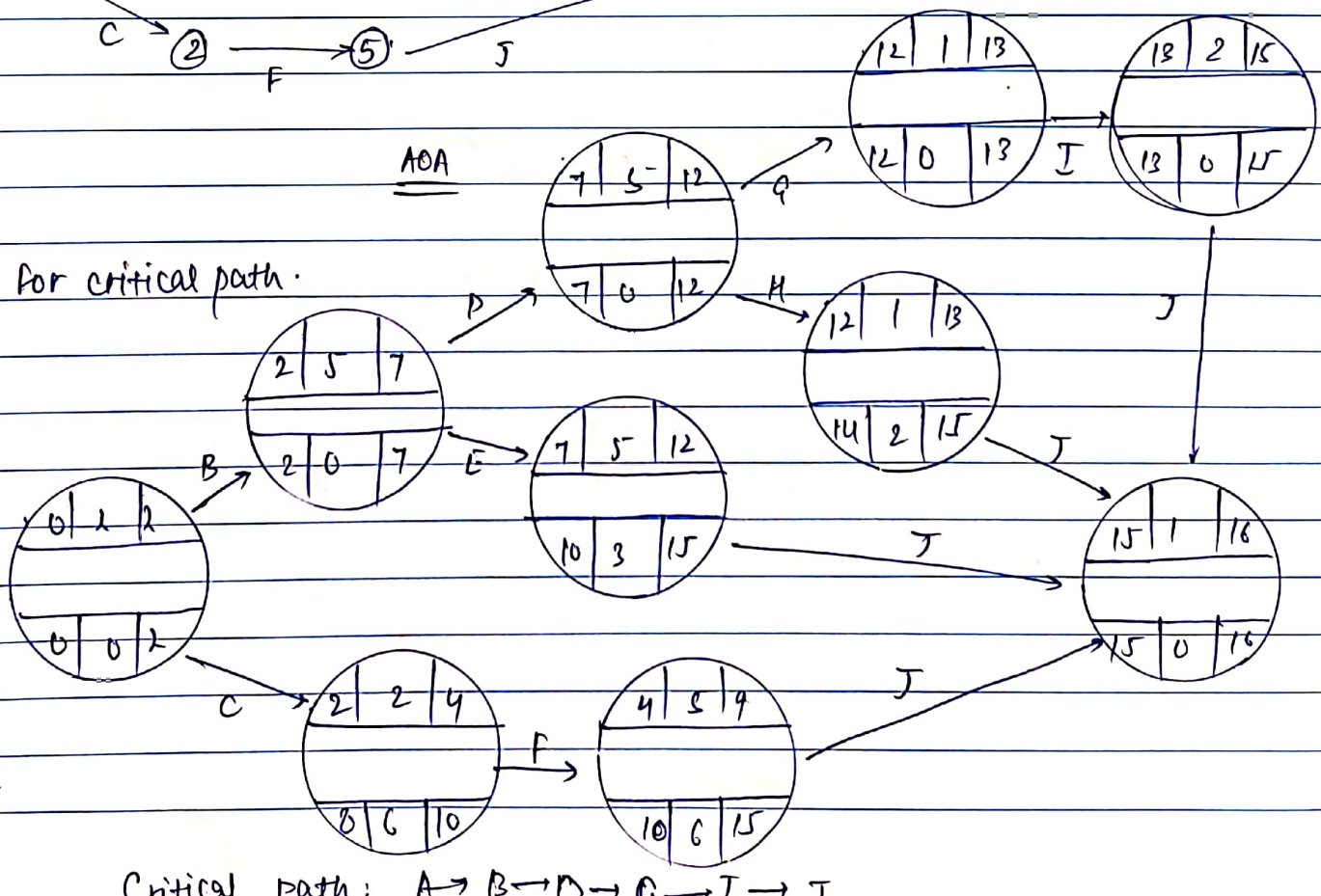
→




AON




AOA




For critical path.

Critical path: A → B → D → G → I → J.