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SEPM

Assignment NO1-2

Q. Differentiate b/w CPM & PERT

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PERT	CPM
1) PERT stands for Project eval & review technique	1) CPM stands for critical Path method.
2) It is a technique of proj management which is used to manage uncertain activities of any project.	2) It is a technique of proj management used to only certain (i.e time is known) activities of any project
3) It is a probability model	3) It is deterministic model
4) Appropriate for high precision time estimations	4) Appropriate for reasonable time estimation.
5) Non repititive nature of job	5) Repititive nature of job
6) No chance of crashing as there is no certainity of time	6) May crash because of cer -tain time bound.

Q. Explain the diff b/w Total Slack & free slack.

→ Total Slack :-

- It is the amount of time a task can be delayed without delaying the project overall completion date
- It is calculated as the difference b/w late finish & 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 a task can be delayed without delaying the start of any succeson tasks.
- It is useful for identifying tasks that can be postponed without affecting dependent activities.
- If free slack is zero, any delay in the task will immediately affect atleast one succesor task.

key diffuence :-

- Total slack affects the entire project completion, where as free slack only affects immediate succesor 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 (bones) and dependencies b/w them are shown with arrows.

key characteristics :-

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

Advantages :-

- More flexible & widely used
- Can represent lead & lag times effectively.

Activity on Arrow (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 relationships.
Advantages :-
- 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
- Categorising risks :-
  a) Technical risks
  b) Financial risks
  c) Operational risks
  d) External risks.

Risk projection also known as risk estimation or risk assesement involves analysing the identified risks in terms of thier likelihood, impact & priority

(2)

Critical Path :- A → B → D → G → I → J

This helps in decision making regarding mitigation strateg
key aspects include :-
- Probability assessment :- Estimate the chances of risk occuring
- Impact analysis :- Determine the severity of consequences if the risk occurs
- Risk exposure Calculation :- RE = P x I.

Risk Mitigation, Monitoring & Management (RMMM) stands for :-
- Risk mitigation :- It is defined as strategies to prevent risks from occuring or reduce thier impact. Example :- using automated testing to prevent software defects.
- Risk Monitoring :- Continuous tracking of risk indicators & warning signs. Example :- Monitoring system logs for potential security threats.
- Risk Management :- Developing response plans for diffent risk scenarios. Example :- Having a backup API provider in case the primary API fails.

Q. Explain Software Configuration Management.

→ 1) Configuration Management is the process of identifying & defining the configuration items in a system, controlling the release and change of these items throughout the system lifecycle, recording & reporting the status of configuration items & change requests, and verifying the completeness & correctness of configuration items.
2) Configuration management is practiced in form or another as part of any software engineering project where several individuals or organisations have to coordinate thier activities.

3) While the basic disciplines of configuration management are common to both hardware & software engineering projects, there are some differences in emphasis due to the nature of software products.

4) SCM is a system for manging the evolution of software products, both during the initial stages of development & during all stages of maintainence.

5) A software product encompases the complete set of computer programs, procedures, and associated documentation & data designated for delivery to end user.

6) All supporting software used in development even though not part of the software product, should also be controlled by SCM.

7) Advantages of SCM:-

i) SCM provides significant benifits to all projects regardless of size, scope and complexity.

ii) ~~Some of the~~ Provides a snapshot of dynamically changing software.

iii) Tracks concurrent development of modules or components of overall system.

iv) Organizes all concurrently developing code & associated documents.

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.

Critical Path :- A → B → D → G → I → J

Some of the significance of Gantt charts :-
i) Visualizing the project timeline :-
Provides a clear picture of the projects 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 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 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.

8. Draw the AON & AOA network diagram for the following project & show critical path.

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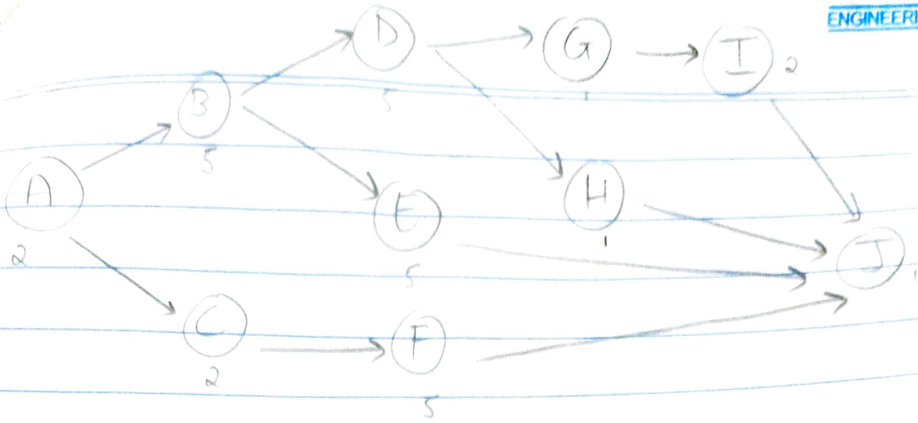
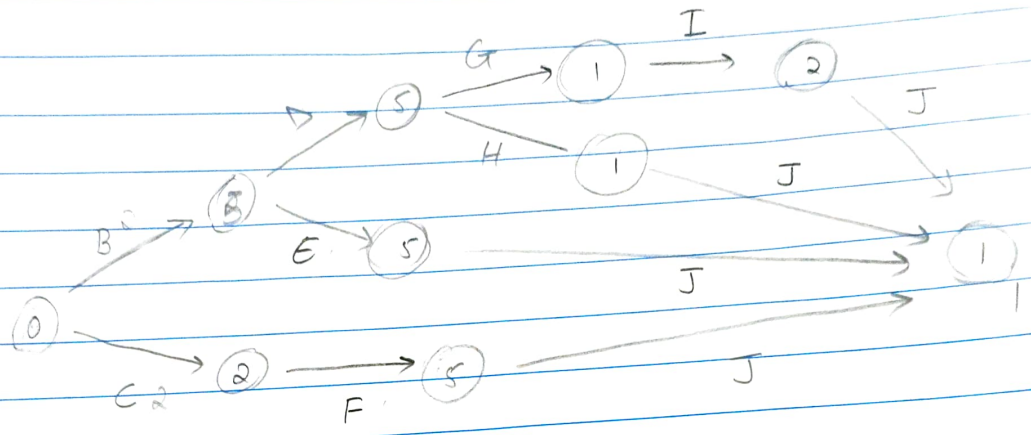
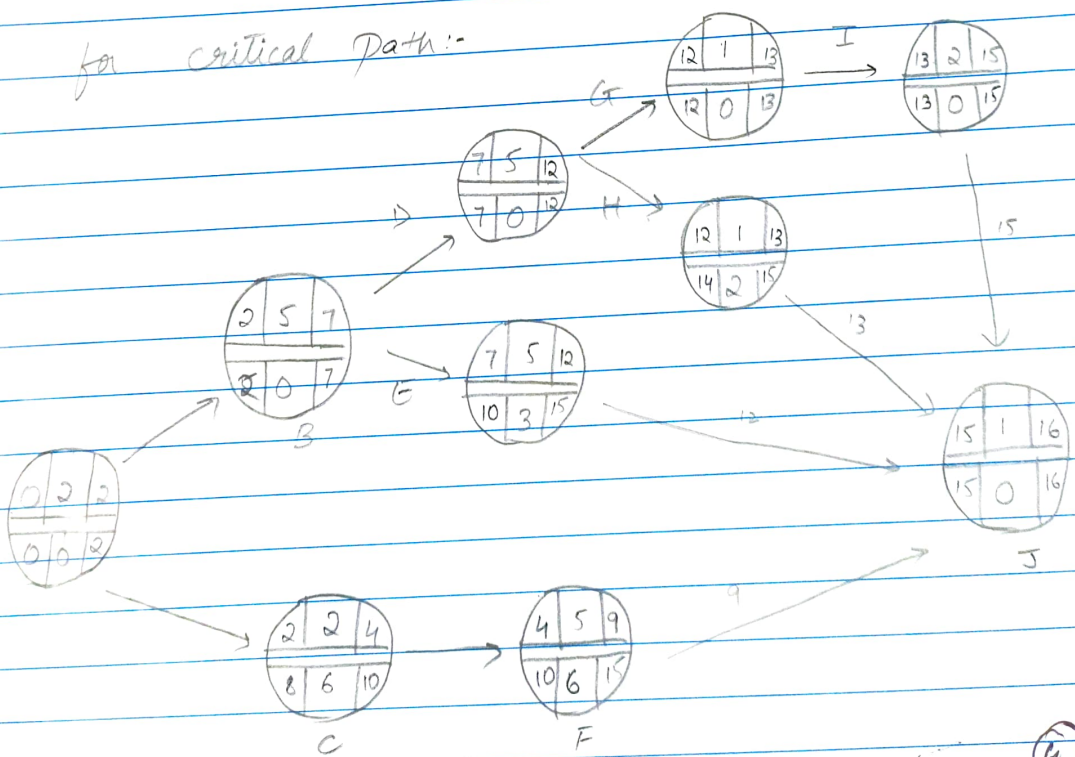


AON



AOA

for critical Path:-



Critical Path :- A → B → D → G → I → J