SPM

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Assignment-3

1) What is scheduling? Compare it with sequencing.

Ans ↳ Project scheduling is the process of breaking down a project into activities/ taskes, resources, deliverables and milesto
↳ This means, dividing a project into phases.
↳ Then plotting these phases on a timelin along with milestones and dependencies.
↳ While a project plan provides a compre-hensive overview of the project, i.e., a blueprint, a project schedule gives a step-by-step walkthrough of the project using a Gantt chart.

- A project schedule helps managers:
  ↳ Understand what tasks need to be prioritized
  ↳ Assign them to the right team members
  ↳ Moniter and manage team workload
  ↳ And keep the project from going over-budget.

2) Write about critical chain scheduling.

Ans ↳ The CPM calculates the minimum and maximum time required to complete a project.
↳ Also, it helps identify the critical tasks, dependencies and bottlenecks in a project's schedule.

↳ It was basically developed with the objective of reducing duration and cost of the project.

↳ Critical path method is a special application of network analysis.

↳ It uses network analysis for scheduling production, construction projects as well as research and development activities.

↳ It is also useful in situations which require estimates of time and performance.

↳ Identification of the critical path:

- Earliest start time for activity (ES): It is the earliest possible time at which the activity should start if only the ongoing activities are first completed.

- Earliest finish time (EF): It is equal to the earliest start time for activity plus the time required completing the activity.

- Latest possible finish time for activity (LF): It is the latest time at which the activity can be completing without any postpone or within the time framework

- Latest possible start time for activity (LS): It is the latest start time for an activity and equal to the latest finish time minus

the time required to complete the activity.

- **Slack time** : It is the difference between earliest start time for activity and latest start time for activity or between earliest finish time for activity and latest time for activity.

3) Explain PERT & CPM techniques in brief?

Ans • **PERT**

↳ It helps visualize tasks and milestone in a chronological order. But instead of estimating effort, it considers the optimistic, pessimistic and most-likely time required to complete a project.

↳ It is based on the assumption that an activity's duration follows a probability distribution:

$$\text{Mean (expected time)} = \frac{(t_p + 4t_m + t_o)}{6}$$

$$\text{variance } (\sigma^2) = \left(\frac{t_p - t_o}{6}\right)^2$$

↳ Hence, is knowns as PERT ~~chart~~ technique

- **CPM**

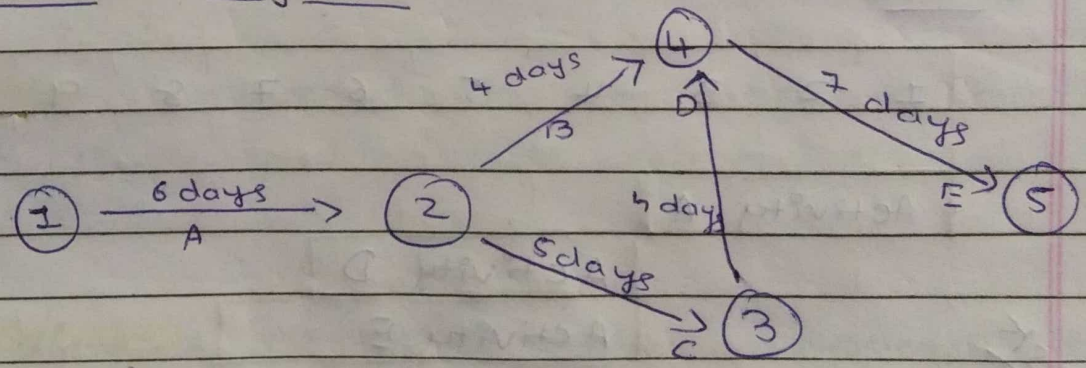
↳ It calculates the max and min time required to complete a project

↳ Also, it helps identify the critical tasks, dependencies and bottlenecks in a project's schedule.

⇒ Example:

Job	Activity	Time duration
A	1-2	6 days
B	2-4	4 days
C	2-3	5 days
D	3-4	4 days
E	4-5	7 days
	Total	26.

- Network diagram:



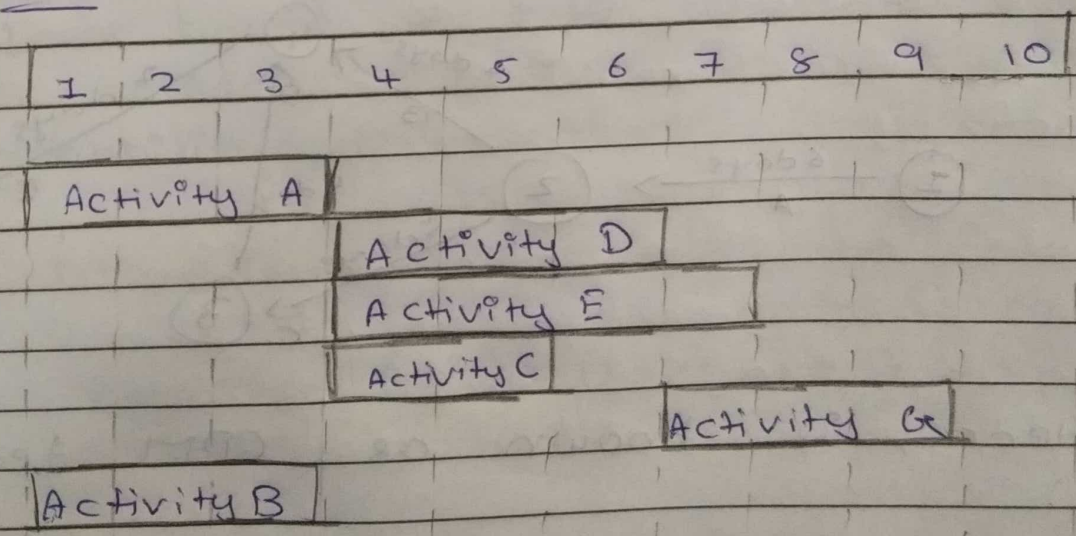
↳ Hence, is known as CPM techniques

4) ~~Write~~ Explain the following:
[a] Gantt chart
[b] RAG reporting

Ans • Gantt Chart

↳ This is horizontal bar chart plotted over time. Each activity is shown as a bar.
↳ Depending a task dependencies and resource availability, these bars may be sequential or run in parallel.
↳ Each bar is plotted to start at the earlier possible start date.
↳ The plan laid out when the Gantt Chart was created can be compared with actual times taken.

Example:



RAG Reporting

↳ A project status report is a document that summarizes a project's overall progress against the projected project plan

↳ A RAG report (RAG rating, RAG status or Delivery Confidence Assessment) present a status assessment using the traffic light colour designations; Red, Amber or Green.

↳ This gives a very visual and immediate way of identifying problem areas and potential program areas

- **Red**: Successful delivery of the project appears to be unachievable.
- **Amber/Red**: Successful delivery of the project is in doubt with major risks or issues apparent in a number of key areas.
- **Amber**: Successful delivery appears feasible but significant issues already exist requiring management attention.
- **Amber/Green**: Successful delivery appears probable.
- **Green**: Successful delivery of the project to time, cost and quality appears highly likely and there are no major outstanding issues that at this stage appear to threaten delivery.