What is Production Scheduling and Planning?

Worksheet

Production scheduling assigns tasks to resources and timelines to meet demand. Critical path analysis identifies bottlenecks; Gantt charts visualize dependencies and progress.

Questions

1. A Gantt chart primarily shows

A) budget breakdown
B) task timeline and dependencies
C) product specifications
D) org chart

2. Critical path in a project means

A) the cheapest route
B) the fastest or longest dependent sequence
C) the safest path
D) all tasks combined

3. If Task A takes 2 weeks and Task B (dependent on A) takes 3 weeks, total minimum time?

A) 2 weeks
B) 3 weeks
C) 5 weeks
D) 1.5 weeks

4. Resource allocation in scheduling means

A) choosing the cheapest supplier
B) assigning labor, machines, materials to tasks
C) ignoring constraints
D) hiring more staff

5. A manufacturer has orders for 1000 units. Design: 3 weeks, prototyping: 2 weeks, production: 4 weeks. What's the minimum timeline?

6. A bakery needs to produce 500 cakes by Friday. Tasks: mix batter (2h), bake (1h), cool (4h), frost (2h), box (1h). Deadline?

7. A construction project: foundation (4w), framing (3w), wiring (2w), drywall (2w), finishing (3w). All sequential, one crew. Timeline?

8. Define: What is production scheduling?

9. Define: What is a Gantt chart?

10. Define: What is the critical path?

Answer Key

1. B) task timeline and dependencies - Gantt charts visualize when tasks happen, how long they take, and what must finish before others start.

2. B) the fastest or longest dependent sequence - The critical path is tasks in sequence where delay ripples; it determines overall project duration.

3. C) 5 weeks - A must finish before B starts: 2+3 = 5 weeks minimum.

4. B) assigning labor, machines, materials to tasks - Resource allocation ensures tasks have what they need (people, equipment, materials) without overloading.

5. Design (weeks 1-3) is prerequisite. Prototyping (weeks 4-5) starts after design. Production (weeks 6-9) starts after prototyping - parallel batches not possible. Minimum: 9 weeks total. Note: If two production lines exist, partial parallelization could shorten timeline.

6. Sequential timeline: 2+1+4+2+1 = 10 hours total. If starts Monday 8am: finishes Tuesday 6pm. Friday deadline easily met - could start Wednesday and finish Thursday. With 2 ovens, baking parallelizes: 2+0.5+4+2+1 = 9.5h (1 hour saving).

7. Foundation Framing Wiring (parallel) + Drywall Finishing. Critical path: foundation (4w) + framing (3w) + drywall (2w) + finishing (3w) = 12 weeks. Wiring (2w) runs during framing, so no extra time. Minimum: 12 weeks.

8. Organizing tasks, resources, and timelines to produce goods on time and within budget.

9. Visual timeline showing tasks, their start/end dates, and dependencies - named after Henry Gantt.

10. The longest sequence of dependent tasks; any delay on the critical path delays the entire project.