

ARIZONA STATE UNIVERSITY (ASU) CON 495 CONSTRUCTION PLANNING AND SCHEDULING EXAM 1 PRACTICE (SAMPLE)

STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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Introduction

Preparing for a certification exam can feel overwhelming, but with the right tools, it becomes an opportunity to build confidence, sharpen your skills, and move one step closer to your goals. At Examzify, we believe that effective exam preparation isn't just about memorization, it's about understanding the material, identifying knowledge gaps, and building the test-taking strategies that lead to success.

This guide was designed to help you do exactly that.

Whether you're preparing for a licensing exam, professional certification, or entry-level qualification, this book offers structured practice to reinforce key concepts. You'll find a wide range of multiple-choice questions, each followed by clear explanations to help you understand not just the right answer, but why it's correct.

The content in this guide is based on real-world exam objectives and aligned with the types of questions and topics commonly found on official tests. It's ideal for learners who want to:

- Practice answering questions under realistic conditions,
- Improve accuracy and speed,
- Review explanations to strengthen weak areas, and
- Approach the exam with greater confidence.

We recommend using this book not as a stand-alone study tool, but alongside other resources like flashcards, textbooks, or hands-on training. For best results, we recommend working through each question, reflecting on the explanation provided, and revisiting the topics that challenge you most.

Remember: successful test preparation isn't about getting every question right the first time, it's about learning from your mistakes and improving over time. Stay focused, trust the process, and know that every page you turn brings you closer to success.

Let's begin.

How to Use This Guide

This guide is designed to help you study more effectively and approach your exam with confidence. Whether you're reviewing for the first time or doing a final refresh, here's how to get the most out of your Examzify study guide:

1. Start with a Diagnostic Review

Skim through the questions to get a sense of what you know and what you need to focus on. Your goal is to identify knowledge gaps early.

2. Study in Short, Focused Sessions

Break your study time into manageable blocks (e.g. 30 – 45 minutes). Review a handful of questions, reflect on the explanations.

3. Learn from the Explanations

After answering a question, always read the explanation, even if you got it right. It reinforces key points, corrects misunderstandings, and teaches subtle distinctions between similar answers.

4. Track Your Progress

Use bookmarks or notes (if reading digitally) to mark difficult questions. Revisit these regularly and track improvements over time.

5. Simulate the Real Exam

Once you're comfortable, try taking a full set of questions without pausing. Set a timer and simulate test-day conditions to build confidence and time management skills.

6. Repeat and Review

Don't just study once, repetition builds retention. Re-attempt questions after a few days and revisit explanations to reinforce learning. Pair this guide with other Examzify tools like flashcards, and digital practice tests to strengthen your preparation across formats.

There's no single right way to study, but consistent, thoughtful effort always wins. Use this guide flexibly, adapt the tips above to fit your pace and learning style. You've got this!

Questions

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1. Which equation defines VAC?

- A. $BAC - EAC$
- B. $EV - PV$
- C. $EV - AC$
- D. $PV - EV$

2. In schedule delay analysis, what is essential to attribute delay reliably to a change?

- A. The exact cost impact of the change.
- B. A qualitative assessment of delays without numbers.
- C. Attribute the observed delay to the change by comparing the updated model to baseline and isolating the effect.
- D. Re-run the schedule with the change and hope for improvement.

3. Which statement best describes the main difference between resource leveling and resource smoothing?

- A. Smoothing flattens resource use without noticeably affecting the project end date or major path.
- B. Leveling delays activities to satisfy resource limits, possibly changing the critical path.
- C. Leveling compresses the project duration to finish early.
- D. Smoothing reallocates resources to maximize resource utilization at all times.

4. How do hard and soft constraints differ in scheduling?

- A. Hard constraints are desirable orderings that can be adjusted with approval.
- B. Hard constraints are easily moved to meet dates.
- C. Soft constraints are non-violable.
- D. Hard constraints are non-violable date or dependency; soft constraints are desirable orderings that can be adjusted with approval.

5. If a successor is Finish-to-Start with a predecessor, and the successor has 2 days of free float, the predecessor's free float is?

- A. 0 days
- B. 1 day
- C. Information given is inadequate to determine
- D. 2 days

6. In a simple chain A (3 days) B (4 days) C (2 days) with a single path, what are the ES, EF, LS, LF, and total float for Activity B?

- A. ES 3, EF 7, LS 3, LF 7, TF 0
- B. ES 0, EF 3, LS 0, LF 3, TF 0
- C. ES 7, EF 9, LS 7, LF 9, TF 0
- D. ES 1, EF 4, LS 1, LF 4, TF 0

7. How can you identify a near-critical path in a CPM network?

- A. Look for paths with small positive floats close to zero and components on or near the current critical path.
- B. Paths with large positive floats.
- C. Paths not on the critical path.
- D. Any path with the most number of activities.

8. Vac equals

- A. BAC - EV
- B. BAC - EAC
- C. EV - AC
- D. PV - EV

9. Given ES = 5 days, EF = 6 days, LS = 9 days, and LF = 10 days, what is the total float of the activity?

- A. 4 days
- B. 1 day
- C. 2 days
- D. 0 days

10. How do you compute ES and EF for an activity with multiple predecessors?

- A. $ES = \min(\text{EF of all predecessors})$; $EF = ES + \text{duration}$
- B. $ES = \max(\text{EF of all predecessors})$; $EF = ES + \text{duration}$
- C. $ES = \text{latest start among predecessors}$; $EF = ES + \text{duration}$
- D. $ES = \text{earliest finish among predecessors}$; $EF = ES + \text{duration}$

Answers

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1. A
2. C
3. B
4. D
5. C
6. A
7. A
8. B
9. A
10. B

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Explanations

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1. Which equation defines VAC?

- A. BAC – EAC**
- B. EV – PV
- C. EV – AC
- D. PV – EV

VAC is the Variance at Completion, showing how much budget you have left or are forecast to overspend when the project finishes. It's defined by the difference between Budget at Completion (the total planned cost for the project) and Estimate at Completion (the forecasted total cost to finish). So $VAC = BAC - EAC$. If this value is positive, you're under budget at completion; if it's negative, you're forecast to exceed the budget. This aligns with the concept because VAC specifically looks at the ultimate cost outcome, not how you're performing against the schedule or current costs. Other common EV metrics measure different things: a schedule variance uses $EV - PV$, and a cost variance uses $EV - AC$. $PV - EV$ just reflects the opposite sign of a schedule variance.

2. In schedule delay analysis, what is essential to attribute delay reliably to a change?

- A. The exact cost impact of the change.
- B. A qualitative assessment of delays without numbers.
- C. Attribute the observed delay to the change by comparing the updated model to baseline and isolating the effect.**
- D. Re-run the schedule with the change and hope for improvement.

Isolating the effect of a change on schedule delay hinges on a clean comparison between what was planned and what happened after the change. To attribute delay reliably, you take the baseline schedule (the plan before the change) and the updated schedule that includes the change, then compare them and separate the change's impact from other factors. This means identifying the portion of delay that remains after accounting for other influences (like weather, productivity, or other concurrent changes) and linking that remaining portion specifically to the change. This approach gives a quantitative attribution of how much delay the change caused, rather than guessing based on cost or qualitative impressions. Relying on the exact cost impact doesn't directly indicate timing, a qualitative assessment without numbers lacks the necessary precision, and simply re-running the schedule hoping for improvement isn't a rigorous way to isolate the change's effect.

3. Which statement best describes the main difference between resource leveling and resource smoothing?

- A. Smoothing flattens resource use without noticeably affecting the project end date or major path.
- B. Leveling delays activities to satisfy resource limits, possibly changing the critical path.**
- C. Leveling compresses the project duration to finish early.
- D. Smoothing reallocates resources to maximize resource utilization at all times.

Resource leveling and resource smoothing both address over-allocations, but they handle timing differently. Leveling delays activities to satisfy resource limits, and in doing so it can push the project finish date and even change which path is critical. Smoothing, on the other hand, adjusts start and finish times within each activity's available slack to flatten resource usage without necessarily changing the overall project completion date or the critical path (as long as there is slack to use). So the statement that best captures the main difference is that leveling delays activities to meet resource limits and may modify the critical path.

4. How do hard and soft constraints differ in scheduling?

- A. Hard constraints are desirable orderings that can be adjusted with approval.
- B. Hard constraints are easily moved to meet dates.
- C. Soft constraints are non-violable.
- D. Hard constraints are non-violable date or dependency; soft constraints are desirable orderings that can be adjusted with approval.**

In scheduling, understand that some rules are binding while others are flexible. Hard constraints are non-violable requirements—dates or dependencies you cannot break. For example, a fixed project delivery date or a dependency like “A must finish before B starts” must be respected no matter what. Soft constraints are preferences or ideal sequences that you'd like to meet, but they can be adjusted if needed, typically with approval and potential tradeoffs in cost or time. So the statement that hard constraints are non-violable date or dependency, and soft constraints are desirable orderings that can be adjusted with approval, correctly captures the distinction. The other ideas mix up which type is binding versus negotiable. For instance, hard constraints are not easily moved, and soft constraints are not non-violable.

5. If a successor is Finish-to-Start with a predecessor, and the successor has 2 days of free float, the predecessor's free float is?

- A. 0 days
- B. 1 day
- C. Information given is inadequate to determine**
- D. 2 days

Free float is the amount you can delay an activity without delaying any of its immediate successors. For a Finish-to-Start link, the predecessor's free float depends on when its successor is allowed to start. Knowing that the successor has 2 days of free float tells you about the successor's own slack, not about the exact start time of the successor relative to the predecessor. The successor could be able to start immediately after the predecessor finishes, or there could be a gap due to other constraints; either way, the predecessor's free float could be zero or some positive amount depending on those constraints. Without the actual finish time of the predecessor, the successor's start time, and any other linking constraints, you cannot determine the predecessor's free float from this information alone.

6. In a simple chain A (3 days) B (4 days) C (2 days) with a single path, what are the ES, EF, LS, LF, and total float for Activity B?

- A. ES 3, EF 7, LS 3, LF 7, TF 0**
- B. ES 0, EF 3, LS 0, LF 3, TF 0
- C. ES 7, EF 9, LS 7, LF 9, TF 0
- D. ES 1, EF 4, LS 1, LF 4, TF 0

In a simple chain, there's no flexibility: the start of each activity is fixed by the finish of its predecessor, so there's no float on the path. Do a forward pass to see the earliest times: the first activity starts at 0 and takes 3 days, so it finishes at 3. The next activity then starts at 3 and, duration 4, finishes at 7. The last one starts at 7 and finishes at 9. So for Activity B, the earliest start is 3 and the earliest finish is 7. Do a backward pass from the project duration (9 days): the last activity must finish by 9, so it starts at 7. The preceding activity must finish by 7, so it starts at 3. This gives the latest times for B: latest finish 7 and latest start 3. Since B's earliest times were ES 3 and EF 7, the latest times match exactly, giving zero total float. Thus, for Activity B: ES 3, EF 7, LS 3, LF 7, TF 0.

7. How can you identify a near-critical path in a CPM network?

- A. Look for paths with small positive floats close to zero and components on or near the current critical path.
- B. Paths with large positive floats.
- C. Paths not on the critical path.
- D. Any path with the most number of activities.

Near-critical paths are the ones that are almost as tight as the critical path. In CPM, the critical path has zero total float, meaning any delay along that path pushes the project finish date. A near-critical path has a small positive total float, so a short delay on that path could still push the project date if conditions change. To identify them, you examine the total float for each feasible path and look for those values that are close to zero. These paths usually include activities that are on the current critical path or are closely connected to it, so delays in these activities can move the overall finish date just enough to become critical. Large positive floats indicate slack and aren't near critical, while being not on the critical path or simply having many activities doesn't by itself define near-critical status.

8. Vac equals

- A. $BAC - EV$
- B. $BAC - EAC$
- C. $EV - AC$
- D. $PV - EV$

Variances at completion show how much the project is expected to differ from the original budget when it finishes. The key relationship is between the Budget at Completion (BAC) and the Estimate at Completion (EAC). $VAC = BAC - EAC$. If the forecasted total cost to finish is less than the budget, VAC is positive, indicating you're expected to finish under budget. If the forecasted total cost is higher than the budget, VAC is negative, indicating an overrun. For example, with BAC of 1,000 and EAC of 900, $VAC = 100$ (under budget by 100). If EAC is 1,100, $VAC = -100$ (over budget by 100). Using BAC with EV would yield a different metric, not VAC. $EV - AC$ is the Cost Variance (CV), comparing earned value to actual cost, while $PV - EV$ is a Schedule Variance (SV), focusing on schedule performance. VAC specifically uses BAC and EAC to express the final budget delta.

9. Given $ES = 5$ days, $EF = 6$ days, $LS = 9$ days, and $LF = 10$ days, what is the total float of the activity?

- A. 4 days
- B. 1 day
- C. 2 days
- D. 0 days

Total float is the amount of time an activity can be delayed without delaying the project completion. It can be found as LS minus ES , or LF minus EF , or LF minus ES ; all give the same result when the data are consistent. Here, the duration is EF minus $ES = 1$ day. Then LS minus $ES = 9$ minus 5 equals 4 days, and LF minus $EF = 10$ minus 6 also equals 4 days. Since the activity can slip up to 4 days without affecting the finish, the total float is 4 days.

10. How do you compute ES and EF for an activity with multiple predecessors?

- A. $ES = \min(EF \text{ of all predecessors}); EF = ES + \text{duration}$
- B. $ES = \max(EF \text{ of all predecessors}); EF = ES + \text{duration}$**
- C. $ES = \text{latest start among predecessors}; EF = ES + \text{duration}$
- D. $ES = \text{earliest finish among predecessors}; EF = ES + \text{duration}$

When an activity has several immediate predecessors, you can start it only after all of them are finished. The earliest you can begin is the latest finish among those predecessors. So the rule is: $ES = \max(EF \text{ of all predecessors})$, and $EF = ES + \text{duration}$. For example, if one predecessor finishes on day 5 and another on day 9, the earliest start is day 9; with a 4-day duration, the finish would be day 13. This reflects the need to wait for the slowest predecessor. Choosing the minimum finish or the earliest finish among predecessors would allow starting before some predecessors are done, which isn't allowed, and using a latest start concept doesn't align with how start times are constrained by predecessor finishes.

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Next Steps

Congratulations on reaching the final section of this guide. You've taken a meaningful step toward passing your certification exam and advancing your career.

As you continue preparing, remember that consistent practice, review, and self-reflection are key to success. Make time to revisit difficult topics, simulate exam conditions, and track your progress along the way.

If you need help, have suggestions, or want to share feedback, we'd love to hear from you. Reach out to our team at hello@examzify.com.

Or visit your dedicated course page for more study tools and resources:

<https://asu-con495exam1.examzify.com>

We wish you the very best on your exam journey. You've got this!

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