

Project Finance & Control — Practice Questions and Explained Answers

Liam Smith · Version 1.1 · 5 October 2026

Based on all five September 2026 course recordings, workbook v8.0 and the supplied module reviews. **64 study questions: 60 original plus four adapted from the Module 3 review**, not recalled exam questions. Use the complete guide and quick review after attempting each block. Citations in the answer key use PDF-viewer pages, recording timestamps and review body-block locators. Unless a question says otherwise, use the course's formulas and reserve model, with unrounded intermediate values.

Questions

A. Financial purpose and selection

1. State the four financial-management processes in the course.
2. An objective targets the share of sales from recently introduced products. Is it necessarily financial merely because it includes sales figures? Explain.
3. Distinguish the project sponsor's funding role from the PM's financial-control role.
4. A project has 30% debt at 10%, 70% equity at 15% and a 50% tax rate. Calculate WACC and the capital charge on \$100,000.
5. Recalculate WACC for 40% debt at 6%, 60% equity at 9%, tax 35%. What is the charge on \$100m?
6. At a 10% required rate, what are the present value of \$110,000 in one year and the NPV if \$100,000 is invested today?
7. A \$100m initial investment returns \$53.5m at year 1 and \$54m at year 2. At 10%, calculate discounted inflows and NPV.
8. What is missing from $=NPV(10\%, 53500000, 54000000)$ if the initial investment was \$100m at time zero?
9. The school CBA sample has benefits \$18.50m and costs \$5.36m. Calculate net benefit, benefit/cost ratio and net benefit per dollar of cost.
10. Why should a CBA identify the funding perspective and avoid counting a financing charge twice?

B. Estimates, quality and reserves

11. Explain analogous, parametric and bottom-up estimating in one sentence each.
12. What makes modified Delphi more than an ordinary group discussion?
13. For $O=\$4$, $M=\$20$ and $P=\$30$, calculate triangular and PERT means and the conventional PERT SD approximation.

14. What are the course ROM limits around a \$7,000 base estimate?
15. Calculate budgetary and definitive ranges around a \$5,000 base using the workbook's ranges.
16. Does displaying an estimate to two decimal places prove high accuracy? Explain.
17. Classify training, acceptance inspection, pre-delivery rework and warranty repair by quality-cost category.
18. Why check the cost base of an overhead rate before applying it to a supplier's quote?
19. Residual risks have probabilities/impacts 10%/\$100,000, 20%/\$50,000 and 35%/\$20,000. Calculate each expected cost and the course contingency total.
20. Work costs \$50,000, contingency \$5,000 and management reserve \$2,000. State the baseline and total project budget. Is the \$2,000 in baseline BAC?
21. Is a sum-of-expected-values contingency enough to guarantee funding for every adverse risk outcome?
22. Monthly spending plans are \$7,500, \$7,500, \$8,500, \$11,000 and \$7,000. Give the cumulative series and explain what it represents.

C. Earned value and forecasting

23. Define PV, EV and AC at a status date.
24. Three widgets are complete, each budgeted at \$1,000. What is EV? Does that determine AC?
25. Write all six EVM formulas used in the course and their units.
26. With $PV=\$5,000$, $EV=\$3,000$, $AC=\$7,000$, $BAC=\$10,000$ and $BD=10$ weeks, calculate SV, SPI, CV, CPI, EAC and RTD.
27. In question 26, what do the 40% work-progress shortfall and the 66.67% duration extension describe?
28. In question 26, calculate $(AC-EV)/AC$ and $(AC-EV)/EV$. Why do they differ?
29. Using question 26, calculate remaining forecast cost and remaining duration after five elapsed weeks under the simple continuation assumptions.
30. Interpret $SPI=.95$, $CPI=1.10$.
31. Interpret $SPI=1$, $CPI=.93$.
32. On a graph at one status date, EV is below PV but above AC. Interpret both dimensions.
33. $EV=\$65m$, $PV=\$50m$, $AC=\$45m$, $BAC=\$100m$, $BD=100$ weeks. Calculate six EVM measures and identify the workbook's Practice 5 error.
34. Repeat for $EV=\$45m$, $PV=\$50m$, $AC=\$55m$, same BAC and BD.
35. State the assumption behind $EAC=BAC/CPI$. Why retain unrounded CPI?
36. Why does $RTD=BD/SPI$ need critical-path and remaining-work analysis before becoming a firm finish forecast?
37. A project has planned spending \$143,000 and actual spending \$145,000, but no EV. What can you calculate, and what EVM conclusions are unavailable?
38. Is low spending alone proof of successful project management?
39. What should you do if $PV=0$ and you are asked for SPI?
40. Risk expected value and EVM earned value both appear as "EV." Distinguish them.

D. Project control, change and trade-offs

41. State the five steps for establishing project control.
42. Improve the statement "our control factor is budget" into a usable metric, threshold and measurement point.
43. An allowed band is $\pm 5\%$; actual deviation is $+7\%$. By how many percentage points is it outside? For a \$1,000 plan, what is the upper allowed value?
44. A phase is planned to be 40% complete, with tolerance ± 5 percentage points. Give its acceptable band. How does a relative $\pm 5\%$ band differ?
45. Explain measurable effort and levels of control. Are warning/critical severity tiers the levels requested in the course exercise?
46. Distinguish executing, monitoring and controlling using one installation-project example.
47. Describe the change-request workflow and the role of a CCB.
48. Is deferring a change the same as escalating it? What does configuration management add to change control?
49. A \$750,000, 8.5-month project loses qualified staff. Contractors add \$50,000; internal replacements cause a one-month delay. Time is high priority, cost low. Compare the options and quantify the increments.
50. A sponsor wants to skip UAT on a troubled project, but time and quality both have high priority and earlier stakeholder agreement is weak. What should the PM do first, and what must the recommendation protect?

E. Procurement

51. Name the two procurement parties, three procurement processes and the purpose of make/buy analysis.
52. What belongs in a SOW? Is the SOW automatically the complete contract?
53. For defined website specifications, uncertain research effort and uncertain plumbing repair, suggest a plausible contract family and explain the cost-risk reasoning.
54. Distinguish FFP, FPIF and FP-EPA.
55. Distinguish CPFF, CPIF, CPAF and cost-plus-percentage. Which form does the US federal FAR prohibit?
56. A CPFF contract has \$80,000 allowable costs and a \$10,000 fixed fee. If allowable costs become \$100,000 without a scope-driven fee adjustment, what happens to total payment and fee? In T&M, does a fixed \$100/hour rate fix the total bill?
57. Distinguish IFB, RFP, RFQ and RFI. Does an RFP always require a cost-reimbursement contract?
58. Who leads a bidder conference, when is it held, and why is it different from seller proposal presentations?
59. Define BATNA and contract privity. Give a BATNA example and explain why it is not simply a concession list.
60. State the main procurement-control and contract-closeout checks.

F. New module-review practice

61. A charter uses a \$100,000 base estimate. Give the course's ROM, budgetary and definitive ranges.
62. A gym member goes at least twice a week, most often three times, and on the best weeks five times. Calculate the triangular and PERT weighted mean visits per week.
63. A headquarters project has \$200m planned work before reserve. Residual risks have probability/impact pairs 10%/\$100m, 2%/\$30m, 15%/\$2m, 25%/\$10m and 5%/\$50m. Calculate expected costs, total contingency and

cost baseline. Is a total project budget including management reserve available?

64. Residual risks A, B and C have pairs 10%/\$200,000, 20%/\$100,000 and 35%/\$40,000. Calculate each expected cost and total contingency.

Explained answer key

A. Financial purpose and selection

1. Plan financial management, estimate costs, develop the budget, monitor/control finances. The processes establish methods, expected costs, an approved baseline and ongoing decision support. (*Workbook, PDF p. 19.*)
2. No. A share of sales generated by new products can measure innovation and future positioning. Interpret the objective's purpose; a number is not enough to classify it. (*Sep 16, 01:10:01–01:28:32; segments 98–106.*) (*Workbook, PDF pp. 36–41.*)
3. The sponsor supports/authorizes resources and funding through the organization; the PM leads estimates, budgets and control within delegated authority, with specialist support. (*Sep 16, 00:16:24–00:23:23; segments 20–37.*)
4. $.30 \times .10 \times (1 - .50) + .70 \times .15 = .12 = 12\%$. Capital charge = $\$100,000 \times .12 = \$12,000$. This is cost/required return, not proof of actual ROI. (*Workbook, PDF p. 44.*)
5. $.40 \times .06 \times .65 + .60 \times .09 = .0696 = 6.96\%$. Charge = **\$6.96m**. The workbook's 7% is rounded. (*Workbook, PDF pp. 45–46.*)
6. Present value = $\$110,000 / 1.10 = \$100,000$; NPV = $\$100,000 - \$100,000 = \$0$. Discounted receipts alone are not the net result. (*Workbook, PDF pp. 29, 48.*)
7. Discounted inflows = **\$93,264,462.81**. NPV = **-\$6,735,537.19**. The \$100m time-zero outflow must be subtracted. (*Workbook, PDF p. 49.*)
8. Subtract the time-zero investment separately: $=NPV(10\%, 53500000, 54000000) - 100000000$. The listed flows are discounted as end-of-period flows. [Microsoft NPV documentation](#).
9. Net = **\$13.14m**; benefit/cost = $18.50 / 5.36 = 3.45$; net per cost = $13.14 / 5.36 = 2.45$. The 3.45 ratio is benefits per dollar, not net profit per dollar. (*Workbook, PDF p. 240.*)
10. Costs to a local funder, a federal funder and society need not be the same. A grant changes who pays without eliminating resources consumed. If discounting already accounts for capital cost, adding an overlapping capital charge can overstate costs. Document assumptions and use a consistent model. (*Workbook, PDF pp. 30, 50, 203, 238–240.*)

B. Estimates, quality and reserves

11. Analogous compares previous similar work using judgment; parametric applies a calibrated quantity/rate or model; bottom-up estimates components and aggregates them. Relevant data and complete scope matter for all three. (*Workbook, PDF pp. 60, 76.*)
12. Experts estimate independently first, discuss differences, and revise toward consensus; the initial independence distinguishes it from immediate group guessing. (*Workbook, PDF p. 60.*)

- 13.** $\text{Triangular} = (4 + 20 + 30) / 3 = \18 . $\text{PERT} = (4 + 80 + 30) / 6 = \19 . $\text{SD} = (30 - 4) / 6 = \4.33 , an approximation. (*Workbook, PDF pp. 61, 76.*) (Sep 21, 02:04:12–02:24:23; segments 175–192.)
- 14.** $\text{Lower} = .50 \times 7,000 = \$3,500$; $\text{upper} = 2 \times 7,000 = \$14,000$. (*Workbook, PDF p. 77.*) (Sep 21, 01:03:56–01:05:22; segments 65–78.)
- 15.** Budgetary: **\$4,500–\$6,250**. Definitive: **\$4,750–\$5,500**. These use the course's $-10/+25\%$ and $-5/+10\%$ conventions. (*Workbook, PDF p. 77.*)
- 16.** No. Precision concerns detail/rounding; accuracy concerns how close the estimate is to the eventual value and its uncertainty. (*Workbook, PDF pp. 54, 68.*)
- 17.** Training=prevention; inspection=appraisal; pre-delivery rework=internal failure; warranty repair=external failure. The first two are conformance; the latter two nonconformance. (Sep 21, 02:07:07–03:00:51; segments 192–203.)
- 18.** The quote may already include overhead, or the rate may apply only to a specific base. Applying it indiscriminately can double count or misallocate costs. (*Workbook, PDF p. 75.*) (Sep 21, 01:53:17–01:56:51; segments 131–150.)
- 19.** \$10,000, \$10,000 and \$7,000; total **\$27,000**. Use residual risks after planned responses for this exercise. (*Workbook, PDF p. 80.*)
- 20.** Baseline=**\$55,000**; total project budget=**\$57,000**. Management reserve is outside baseline BAC in the course model. (*Workbook, PDF pp. 62, 79.*)
- 21.** No. Expected cost is not the maximum or a guaranteed confidence-level amount. A large loss can occur despite a low probability. (*Workbook, PDF pp. 63, 80–81, 206.*)
- 22.** **\$7,500; \$15,000; \$23,500; \$34,500; \$41,500**. This is cumulative planned spending, not actual cost or automatically earned value. (*Workbook, PDF p. 84.*)

C. Earned value and forecasting

- 23.** PV=budget for work scheduled; EV=budget for work performed; AC=actual cost incurred for that performed work. Use a common date and measurement scope. (*Workbook, PDF pp. 89–91.*)
- 24.** EV=**\$3,000**. AC could differ; it must be collected from actual-cost information. (Sep 23, 00:20:27–00:46:03; segments 56–79.)
- 25.** $\text{SV} = \text{EV} - \text{PV}$ (currency); $\text{SPI} = \text{EV} / \text{PV}$ (ratio); $\text{RTD} = \text{BD} / \text{SPI}$ (time); $\text{CV} = \text{EV} - \text{AC}$ (currency); $\text{CPI} = \text{EV} / \text{AC}$ (ratio); $\text{EAC} = \text{BAC} / \text{CPI}$ (currency). (*Workbook, PDF pp. 111–113.*)
- 26.** $\text{SV} = -\$2,000$; $\text{SPI} = .60$; $\text{CV} = -\$4,000$; $\text{CPI} = 3/7 \approx .428571$; $\text{EAC} = \$23,333.33$; $\text{RTD} = 16.67$ weeks total. Both status dimensions are unfavorable. (Sep 23, 00:10:35–01:10:22; segments 41–89.)
- 27.** $(\text{PV} - \text{EV}) / \text{PV} = .40$ describes budgeted-work shortfall against scheduled work. $(\text{RTD} - \text{BD}) / \text{BD} = 2/3$ describes the forecast's extension beyond total baseline duration. They answer different questions.
- 28.** **57.14%** and **133.33%**. One divides the \$4,000 gap by \$7,000 AC, the other by \$3,000 EV. Do not call both "percent over budget" without defining the basis.
- 29.** Remaining forecast cost = $23,333.33 - 7,000 = \$16,333.33$; remaining duration = $16.6667 - 5 = 11.67$ weeks. These are arithmetic extensions of the course's forecasts, contingent on their assumptions.

- 30.** Behind schedule; favorable cost efficiency. The indices describe separate dimensions. (*Workbook, PDF p. 107.*)
- 31.** On schedule; unfavorable cost efficiency. (*Workbook, PDF p. 107.*)
- 32.** Behind schedule because EVAC. (*Workbook, PDF pp. 112–113.*)
- 33.** $SV=+\$15m$; $SPI=1.30$; $CV=+\$20m$; $CPI=65/45 \approx 1.444444$; $EAC=\$69.23m$; $RTD=76.92$ weeks. The printed key incorrectly substitutes PV40 in the SPI denominator; the stated PV is 50. (*Workbook, PDF p. 105.*)
- 34.** $SV=-\$5m$; $SPI=.90$; $CV=-\$10m$; $CPI=45/55 \approx .818182$; $EAC=\$122.22m$; $RTD=111.11$ weeks. (*Workbook, PDF p. 106.*)
- 35.** Remaining work is assumed to continue at the cumulative efficiency measured so far. Premature rounding of CPI changes the forecast; round at the end. (*Workbook, PDF pp. 111–112.*) (*Sep 23, 00:51:51–01:10:22; segment 89.*)
- 36.** Budget-weighted progress does not by itself show which tasks drive the finish or whether remaining resources/dependencies permit continuation at that rate. RTD is a simplified forecast, not a substitute for the schedule model. (*Workbook, PDF pp. 111–112, 228.*)
- 37.** Spending is \$2,000 or **1.3986% above its plan**, approximately 1.40%. Without EV, you cannot calculate SV, SPI, CV or CPI or classify EVM progress/cost efficiency. (*Workbook, PDF p. 213.*)
- 38.** No. Check scope delivered, acceptance/quality, actual-cost completeness, estimate quality and benefits. Genuine savings are possible, but incomplete delivery is not success. (*Workbook, PDF pp. 93, 115.*)
- 39.** $SPI=EV/0$ is undefined. Check whether no work was planned yet, the measurement date is appropriate or the data is wrong; do not report an invented ratio or forecast.
- 40.** Risk expected value= $P \times \text{monetary impact}$; EVM earned value=budget authorized for achieved work. Label the context. (*Workbook, PDF p. 229.*) (*Sep 23, 01:13:50–01:22:00; segments 90–97.*)

D. Project control, change and trade-offs

- 41.** Identify factors/thresholds; establish actual-data collection; establish change control; assign roles; document/communicate. (*Workbook, PDF p. 139.*)
- 42.** Example: "At each weekly cutoff, compare cumulative actual spending with cumulative planned spending; investigate deviations above +5%, using accounting records owned by the cost lead." Other well-defined choices are valid. (*Workbook, PDF pp. 128–130.*) (*Sep 21, 01:07:40–01:11:38; segments 89–106.*)
- 43.** **2 percentage points** outside; upper allowed value=**\$1,050**. Actual at +7% would be \$1,070. (*Sep 28, 00:18:09–00:34:43; segment 37.*)
- 44.** **35–45%** with percentage-point tolerance. Relative $\pm 5\%$ of 40% gives **38–42%**. Specify which units the tolerance uses. (*Sep 28, 01:14:24–01:16:58; segments 74–77.*)
- 45.** Measurable effort is tangible scheduled work. Levels mean tracking activities/work, deliverables, milestones and phases. Severity tiers alone do not meet that instruction. (*Workbook, PDF pp. 129, 140.*) (*Sep 28, 01:10:01–01:13:45; segments 44–59.*)
- 46.** Installing the machine=executing; recording completed work and cost=monitoring; comparing it with plan and deciding an authorized response=controlling. They interact. (*Workbook, PDF pp. 150, 157.*)

47. Log and assess need; analyze impacts; have authorized approval/rejection/deferral; notify; integrate approved changes; implement, verify and close. The CCB supplies assigned decision authority and can be small or tiered. *(Workbook, PDF pp. 134, 144–145.)*

48. No. Deferral postpones a decision/implementation; escalation seeks higher-level authority. Configuration management maintains controlled characteristics, versions, approved-change records and conformance. *(Workbook, PDF pp. 132, 144–145.)*

49. Contracting is **6.67%** extra relative to the \$750k baseline; one month is **11.76%** of 8.5 months. If qualified contractors can protect the finish, make that case because schedule has higher priority, while checking feasibility, risk and funding approval. Do not assume percentage magnitudes alone determine value. *(Workbook, PDF pp. 217–218, 247.)*

50. Quickly clarify current stakeholder needs, risks and agreed priorities; assess feasible recovery before recommending a change. Preserve essential acceptance validation and quality, consider suitable resources/schedule options, and obtain authorization. The workbook sample recommends a stakeholder meeting because information/consensus is weak. *(Workbook, PDF pp. 219–220, 247.) (Sep 28, 02:58:38–03:05:09; segments 130–157.)*

E. Procurement

51. Buyer and seller. Plan, conduct and control procurements. Make/buy compares in-house and outsourced options considering costs, benefits, capability, time and risk. *(Workbook, PDF pp. 168–170, 179–183.)*

52. Clear scope, measurable requirements/results, specifications or drawings as appropriate, and acceptance expectations. It may be a contract component; it does not automatically supply every contract term or authorization. *(Workbook, PDF pp. 170, 181.)*

53. Defined website: fixed price, because scope is clear and seller can price agreed work. Uncertain research: cost reimbursement with suitable limits/controls. Plumbing repair: T&M can fit uncertain effort, but control rates, hours, materials and authorization. These are plausible examples, not compulsory selections. *(Sep 30, 01:14:57–01:45:49; segments 68–92.)*

54. FFP fixes price for agreed scope; FPIF uses agreed incentive provisions; FP-EPA allows defined economic adjustments. Inflation alone does not automatically rewrite every FFP price. *(Workbook, PDF p. 186.)*

55. CPFF fixes the fee; CPIF varies fee through agreed formula/objective incentives; CPAF bases an award on evaluated performance; CPP/CPPC ties fee to a percentage of cost. FAR prohibits cost-plus-percentage-of-cost, not all cost reimbursement. *(Workbook, PDF pp. 172, 185.) [FAR 16.102](#).*

56. CPFF payment rises from **\$90,000 to \$110,000**, while the fee stays **\$10,000** under the assumptions. T&M's fixed \$100/hour rate does not fix total payment: 20 hours alone costs \$2,000 and 30 costs \$3,000 before materials. *(Workbook, PDF pp. 171–172, 185.)*

57. IFB requests comparable bids; RFP requests proposed approaches; RFQ requests quotations; RFI gathers market/capability information. The workbook's common contract associations are not mandatory universal pairings. *(Workbook, PDF pp. 173, 188.)*

58. The buyer leads clarification before bid submission; all sellers receive consistent information. Seller proposal presentations are sellers explaining their own offers. *(Workbook, PDF p. 190.) (Sep 30, 01:46:19–02:10:38; segment 96.)*

59. BATNA is the best alternative if no negotiated agreement occurs, e.g., using a qualified alternate supplier under an acceptable offer. Privity identifies the direct contractual relationship. A concession list concerns terms within a potential deal; BATNA concerns what you can do outside it. (*Workbook, PDF pp. 174, 192, 197.*)

60. Track measurable performance, coordinate authorized amendments with project control, and involve appropriate specialists for disputes. At closeout verify acceptance, settle financial matters, complete reports/records, review performance and archive lessons. (*Workbook, PDF pp. 176, 194–196.*) (*Sep 30, 02:33:18–02:44:49; segment 129.*)

F. New module-review practice

61. ROM **\$50,000–\$200,000**; budgetary **\$90,000–\$125,000**; definitive **\$95,000–\$110,000**. Multiply the base by 0.50/2.00, 0.90/1.25 and 0.95/1.10. These are course conventions, not universal guarantees. (*Module review: Finance M3 Review MASTER.docx, body blocks 50–54.*) (*Workbook, PDF p. 77.*)

62. Triangular= $(2+3+5)/3=3.33$ visits/week; PERT= $(2+4\times3+5)/6=3.17$ visits/week. Use minimum/most likely/maximum labels because more visits describes the favorable endpoint here. (*Module review: Finance M3 Review MASTER.docx, body blocks 58.*)

63. Expected costs **\$10m, \$0.6m, \$0.3m, \$2.5m, \$2.5m**. Sum=**\$15.9m contingency**; baseline= $200+15.9=\$215.9m$. Management reserve is unspecified, so an all-in budget including it cannot be determined. (*Module review: Finance M3 Review MASTER.docx, body blocks 62–72.*)

64. A= $.10\times200,000=\$20,000$; B= $.20\times100,000=\$20,000$; C= $.35\times40,000=\$14,000$. Total=**\$54,000**. These inputs differ from the guide's earlier \$27,000 example. (*Module review: Finance M3 Review MASTER.docx, body blocks 76–81.*)

Using your results

Review by topic rather than by raw score: selection (1–10), estimating/reserves (11–22), EVM (23–40), controls (41–50), procurement (51–60), additional estimating/reserve review (61–64). Rework calculation errors from a blank page and explain why each denominator or budget layer is correct. A score on this study set is not a predicted certification-exam result.