Chapter Questions

Question 1

- Describe why it is necessary to develop a baseline budget for a project.

- It is necessary to prepare a budget, or plan, for how and when funds will be spent over the duration of the project to ensure that everything is within budget.

Question 2

- List and describe items that should be included when estimating activity costs.

- Labor
  - Estimated hours and hourly rate for each person or classification
- Materials
  - Need to be purchased for the project
- Subcontractors and consultants
  - People who have the resources or experience to perform certain tasks that the project team cannot
- Equipment and facilities rental
  - Special equipment, tools, or facilities for the project
- Travel
  - If it is required during the project
- Reserves
  - Amount saved out to cover unexpected situations that may arise during the project

Question 3

- What does the term reserves mean?
- Should a reserve amount be included in a project proposal? Explain your answer.

- Reserves are funds to cover unexpected situations that may occur during the project.
- The contractor or project team may include an amount for contingencies to cover unexpected situations that may come up during the project within the estimated budget in the proposal.
- For example, items may have been overlooked when the project cost estimates were prepared, tasks may have to be redone because they did not work, or the costs of labor (wages, salaries) or materials may escalate during a multi-year project.

Question 4

- What is the problem with making cost estimates too conservative or too aggressive?

- Cost estimates should be aggressive yet realistic.
- If cost estimates are overly conservative, the total estimated cost for the project is likely to be more than the customer is willing to pay—and higher than competing contractors.
- On the other hand, if cost estimates are overly optimistic and some unexpected expenditures need to be made, the contractor is likely to either lose money or have to suffer the embarrassment of going back to the customer to request additional funds to cover cost overruns.

Question 5

- Describe the project budgeting process.

- The project budgeting process involves two steps.
  - First, the project cost estimate is allocated to the various work packages in the project work breakdown structure.
  - Second, the budget for each work package is distributed over the duration of the work package.

Question 6

- Define the following: TBC, CBC, CAC, CEV, CPI, CV, FCAC, and TCPI.
- How is each calculated?

- TBC: total budgeted cost
  - Top-down = a portion of the total project cost is allocated to each work package
  - Bottom-up = the sum of the costs of all the activities that make up that work package
- CBC: cumulative budgeted cost
  - The amount that was budgeted to accomplish the work that was schedule to be performed up to that point in time
- CAC: cumulative actual cost
  - The amount that was actually spent to accomplish the work that was scheduled to be performed up to that point in time
- CEV: cumulative earned value
  - = % complete X TBC (for the work package)
- CPI: cost performance index
  - = CEV/CAC
- CV: cost variance
  - = CEV – CAC
- FCAC: forecasted cost at completion
  - FCAC = TBC/CPI
  - FCAC = CAC + (TBC – CEV)
  - FCAC = CAC + Re-estimate of remaining work to do
- TCPI: to-complete performance index
  - = (TBC – CEV)/(TBC – CAC)

Question 7

- Why is it necessary to track actual and committed costs once a project starts?

- It is necessary to track actual and committed costs so that they can be compared to the CBC.
  - In order to take corrective action before it's too late.

Question 8

- Why is it necessary to calculate the earned value of work performed?
- How is this done?

- It is important to calculate the earned value of work performed so that if the work performed is not keeping up with the actual cost, corrective action can be taken.
  - Even if the actual cost is in line with the CBC
- Determining the earned value involves collecting data on the percent complete for each work package and then converting this percentage to a dollar amount by multiplying the TBC of the work package by the percent complete.

Question 9

- Give an example of calculating a cost performance index.
- What does it mean when the CPI is below 1.0?
- What does it mean when the CPI is above 1.0?

- Cost performance index = CEV/CAC
- If CPI is less than 1.0, it means that for every dollar expended, less than one dollar of earned value was received.
- If CPI is greater than 1.0, it means that for every dollar expended, more than one dollar of earned value was received.

Question 10

- What does it mean when cost variance is negative?
- What does it mean when cost variance is positive?
- When evaluating a work package with a negative cost variance, on what two types of activities should you focus? Why?

- Cost variance = Cumulative earned value – Cumulative actual cost
- If the CV is negative, it means that the value of the work performed is less than the amount actually expended.
- If the CV is positive, it means that the value of the work performed is more than the amount expended.
- One should focus on:
  - Activities that will be performed in the near term. If you put off corrective actions until some point in the distant future, the negative cost variance may deteriorate.
  - Activities that have a large cost estimate. Usually, the larger the estimated cost for an activity, the greater the opportunity for a large cost reduction.

Question 11

- What is the key to managing cash flow?
- How can this goal be accomplished?

- The key to managing cash flow is to ensure that cash comes in faster than it goes out.
- This can be accomplished by asking the customer to:
  - Provide a down payment at the start of the project
  - Make equal monthly payments based on the expected duration of the project
  - Provide frequent payments, such as weekly or monthly payments, rather than quarterly payments