Certified Associate in Project Management (CAPM)® Exam Prep
Chapter 06 – Project Time Management

Workbook
Time Management

- All the processes required to ensure timely completion of the project
- The major output of these processes is the project schedule
6.1 Plan Schedule Management

- Defines the “rules” for developing & managing the schedule.
- The benefit of this process is that it provides guidance & direction on how the schedule will be managed.
Time Management

6.1 Plan Schedule Management

Inputs
1. Project management plan
2. Project charter
3. Enterprise environmental factors
4. Organizational process assets

Tools & Techniques
1. Expert judgment
2. Analytical techniques
3. Meetings

Outputs
1. Schedule Management plan
Time Management
6.2 Define Activities

- Creating a “list” of all the work that needs to be done to produce the project deliverables
- Work packages are decomposed into schedule activities
- These schedule activities provide a basis for estimating, scheduling, executing, and monitoring and controlling
Time Management
Rolling Wave Planning

- Project Initiation
- Analyze Existing Situation
- Define New System Requirements
- Purchase and Install Package
- Construct & Test System Components
- Test & Implement System

More Details
Planning Details
Less Details

Project Start
Time →
Time Management

6.2 Define Activities

**Inputs**
1. Schedule management plan
2. Scope baseline
3. Enterprise environmental factors
4. Organizational process assets

**Tools & Techniques**
1. Decomposition
2. Rolling wave planning
3. Expert judgment

**Outputs**
1. Activity list
2. Activity attributes
3. Milestone list
Time Management
6.3 Sequence Activities

- Ordering the activities that have been defined and assigning logical dependencies
Time Management

PDM

- Finish to Start
- Start to Start
- Finish to Finish
- Start to Finish

F - S is not common
Time Management
Conditional Diagramming

- GERT is most common
- Allows for probability
- Allow for looping

Eyeball Diagram

A → B (80%) → C

20%
Time Management

Types of Dependencies

- Mandatory *(hard logic)* – inherent in the work
- Discretionary *(soft logic)* – from best practices or as desired
- External
**Time Management**

**Other Terms**

- **Lead Time** – Dependency relationship which allows the second task to start prior to the completion of the first.
- **Lag Time** – Dependency relationship which requires the second task to wait.
- **One-Point Estimate** – A single value estimate.
- **Regression Analysis** – A graphic analysis to track if two variables are related.
- **Heuristic** – A rule of thumb.
- **Learning Curve** – The improvement achieved by doing an activity more than once.
- **Monte Carlo Simulation** – A computer model which allows the analyst to simulate an activity 1,000 or more times to achieve a probability of a result.
**Time Management**

**6.3 Sequence Activities**

**Inputs**
1. Schedule management plan
2. Activity list
3. Activity attributes
4. Milestone list
5. Project scope statement
6. Enterprise environmental factors
7. Organizational process assets

**Tools & Techniques**
1. Precedence diagramming method (PDM)
2. Dependency determination
3. Applying leads and lags

**Outputs**
1. Project schedule network diagrams
2. Project document updates
6.4 Estimate Activity Resources

**Inputs**
1. Schedule management plan
2. Activity list
3. Activity attributes
4. Resource calendars
5. Risk register
6. Activity cost estimates
7. Enterprise environmental factors
8. Organizational process assets

**Tools & Techniques**
1. Expert judgment
2. Alternatives analysis
3. Published estimating data
4. Bottom-up estimating
5. Project management software

**Outputs**
1. Activity resource requirements
2. Resource breakdown structure
3. Project document updates
Time Management

6.5 Estimate Activity Durations

- Compilation (not the sum) of activity duration estimates results in the project duration
- All supporting data is documented
- Uses identified risks & cost estimates
- Accuracy improves over time
- Ranges, e.g. 280 days ± 10%
## Time Management
### 6.5 Estimating Activity Duration

**Inputs**
- 1. Schedule management plan
- 2. Activity list
- 3. Activity attributes
- 4. Activity resource requirements
- 5. Resource calendars
- 6. Project scope statement
- 7. Risk register
- 8. Resource breakdown structure
- 9. Enterprise environmental factors
- 10. Organizational process assets

**Tools & Techniques**
- 1. Expert judgment
- 2. Analogous estimating
- 3. Parametric estimating
- 4. Three point estimating
- 5. Group decision-making techniques
- 6. Reserve analysis

**Outputs**
- 1. Activity duration estimates
- 2. Project document updates
Time Management

6.6 Develop Schedule

- Iterative
- Determines planned start and end dates for activities and the whole project.
- Baseline for measuring progress.
Time Management

CPM

- The Critical Path is the project path which will be the longest duration or where all activities have zero float
- The Critical Path does not necessarily have the greatest risk
- The Critical Path determines the earliest completion of the project
The Critical Path Method

- **EF** = **ES** + **DUR**
- **LS** = **LF** - **DUR**
- **Float** = **LF** - **EF** or **LS** - **ES**
Time Management

6.6 Develop Schedule

**Inputs**
- 1. Schedule management plan
- 2. Activity list
- 3. Activity attributes
- 4. Project schedule network diagram
- 5. Activity resource requirements
- 6. Resource calendars
- 7. Activity duration estimates
- 8. Project scope statement
- 9. Risk register
- 10. Project staff assignments
- 11. Resource breakdown structure
- 12. Enterprise environmental factors
- 13. Organizational process assets

**Tools & Techniques**
- 1. Schedule network analysis
- 2. Critical path method
- 3. Critical chain method
- 4. Resource optimization techniques
- 5. Modeling techniques
- 6. Leads and lags
- 7. Schedule compression
- 8. Scheduling tool

**Outputs**
- 1. Schedule baseline
- 2. Project schedule
- 3. Schedule data
- 4. Project calendars
- 5. Project management plan updates
- 6. Project document updates
Time Management
6.7 Control Schedule

- Part of Integrated Change Control
- Determine the current status of the project schedule
- Influence the factors that create schedule changes.
- Determine that the project schedule has changed.
- Manage the changes as they occur.
Time Management
6.7 Control Schedule

Inputs
.1 Project management plan
.2 Project schedule
.3 Work performance data
.4 Project calendars
.5 Schedule data
.6 Organizational process assets

Tools & Techniques
.1 Performance reviews
.2 PM software
.3 Resource optimization techniques
.4 Modeling techniques
.5 Leads & lags
.6 Schedule compression
.7 Scheduling tool

Outputs
.1 Work performance information
.2 Schedule forecasts
.3 Change requests
.4 Project management plan updates
.5 Project documents updates
.6 Organizational process assets updates

6.7 Control Schedule
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Time Management

Project Time Management – Summary

- Seven (7) processes
- PERT, GERT, PDM, CPM, CCPM
- Crashing, fast tracking
- Decomposition, baseline, float or slack
- Schedule development is iterative
Questions and Answers
Review Questions:

PDM Lab Quiz:

1. Which of the diagrams best represents the diagram described in the image using PDM?

<table>
<thead>
<tr>
<th>Task</th>
<th>Predecessor</th>
</tr>
</thead>
<tbody>
<tr>
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<td>E</td>
<td>C</td>
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<tr>
<td>F</td>
<td>D, E</td>
</tr>
</tbody>
</table>

Option A

Option B

Option C

Option D

A. Option A
B. Option B
C. Option C
D. Option D
2. Which of the diagrams best represents the diagram described in the image using PDM?

<table>
<thead>
<tr>
<th>Task</th>
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</thead>
<tbody>
<tr>
<td>1</td>
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<td>7</td>
<td>5, 6</td>
</tr>
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</table>

A. Option A
B. Option B
C. Option C
D. Option D
3. Which of the diagrams best represents the diagram described in the image using PDM?

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<td>F, G</td>
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A. Option A
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C. Option C
D. Option D
4. Which of the diagrams best represents the diagram described in the image using PDM?

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A. Option A
B. Option B
C. Option C
D. Option D
5. Which of the diagrams best represents the diagram described in the image using PDM?

A. Option A
B. Option B
C. Option C
D. Option D
6. Which of the diagrams best represents the diagram described in the image using PDM?

A. Option A
B. Option B
C. Option C
D. Option D
7. Which of the diagrams best represents the diagram described in the image using PDM?

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<tr>
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A. Option A  
B. Option B  
C. Option C  
D. Option D
8. Which of the diagrams best represents the diagram described in the image using PDM?

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A. Option A
B. Option B
C. Option C
D. Option D
9. Which of the diagrams best represents the diagram described in the image using PDM?

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<th>Relationship</th>
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A. Option A  
B. Option B  
C. Option C  
D. Option D
10. Which of the diagrams best represents the diagram described in the image using PDM?

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<td>FF</td>
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<td>FS</td>
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</table>

Option A

Option B

Option C

Option D

A. Option A
B. Option B
C. Option C
D. Option D
11. Which of the diagrams best represents the diagram described in the image using PDM?

A. Option A
B. Option B
C. Option C
D. Option D
Critical Path Method Lab Quiz:

1. Using the included table, what is the critical path for the project?

<table>
<thead>
<tr>
<th>Task</th>
<th>Duration</th>
<th>Predecessor</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
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<td>G</td>
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<td>F</td>
</tr>
<tr>
<td>H</td>
<td>4</td>
<td>E, G</td>
</tr>
</tbody>
</table>

- A. B, C, D, F, G, H
- B. A, C, D, E, G, H
- C. A, B, C, D, E, F, G, H
- D. A, B, C, D, F, G, H

2. Using the included table, what is the project duration using CPM?

<table>
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<tr>
<th>Task</th>
<th>Duration</th>
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<td>E, G</td>
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</table>

- A. 35
- B. 38
- C. 34
- D. 37
3. Using CPM to evaluate the project represented by the included table, which of the following tasks are not on the critical path?

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<tr>
<th>Task</th>
<th>Duration</th>
<th>Predecessor</th>
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<td>E, G</td>
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</table>

A. A  
B. B  
C. D  
D. F

4. Using CPM to evaluate the project represented by the included table, which of the following tasks are not on the critical path?

<table>
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<th>Task</th>
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<th>Predecessor</th>
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A. B  
B. E  
C. F  
D. H
5. What is the critical path for the included table?

<table>
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<tr>
<th>Task</th>
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<td>7, 8, 10</td>
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</tbody>
</table>

A. 1, 2, 6, 8, 11  
B. 1, 3, 5, 7, 11  
C. 1, 4, 9, 7, 11  
D. 1, 4, 9, 10, 11

6. Using CPM and the included table, what is the project duration?

<table>
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A. 44  
B. 42  
C. 45  
D. 51
7. Based upon the included table and CPM, which of the following tasks is not critical?

<table>
<thead>
<tr>
<th>Task</th>
<th>Duration</th>
<th>Predecessor</th>
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</thead>
<tbody>
<tr>
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A. 1  
B. 2  
C. 4  
D. 10

8. Based upon the included table and CPM, which of the following tasks is not critical?

<table>
<thead>
<tr>
<th>Task</th>
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<th>Predecessor</th>
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</thead>
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</tr>
</tbody>
</table>

A. 4  
B. 9  
C. 6  
D. 10
9. Using CPM to evaluate the project represented by the included table, which of the following tasks are not on the critical path?

<table>
<thead>
<tr>
<th>Task</th>
<th>Duration</th>
<th>Predecessor</th>
</tr>
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<tbody>
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<td>7, 8, 10</td>
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</table>

A. 8  
B. 4  
C. 9  
D. 10

10. What is the critical path for the included table?

<table>
<thead>
<tr>
<th>Task</th>
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<th>Predecessor</th>
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<td>G</td>
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<tr>
<td>M</td>
<td>9</td>
<td>J, K, L</td>
</tr>
</tbody>
</table>

A. A, C, F, H, K, M  
B. A, D, G, L, M  
C. A, B, E, H, K, M  
D. A, B, E, I, J, M
11. Using the included table, what is the project duration using CPM?

<table>
<thead>
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<tr>
<td>M</td>
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<td>J, K, L</td>
</tr>
</tbody>
</table>

A. 59  
B. 63  
C. 67  
D. 61
Review Quiz:

1. Which of the following is the last process found in Time Management?
   A. Define activities
   B. Estimate activity durations
   C. Develop schedule
   D. Control schedule

2. Which of the following is not a process found in Time Management?
   A. Create WBS
   B. Estimate activity resources
   C. Develop schedule
   D. Estimate activity durations

3. Which of the following is the first process found in Time Management?
   A. Estimate activity durations
   B. Develop schedule
   C. Define activities
   D. Plan schedule management

4. What is the variance of a project that has a best case estimate of 6, most likely case estimate of 7, and a worst case estimate of 10?
   A. 2.08
   B. 0.44
   C. 0.67
   D. 7.33

5. What is the variance of a project that has a best case estimate of 15, most likely case estimate of 19, and a worst case estimate of 25?
   A. 2.78
   B. 1.67
   C. 5.03
   D. 19.33

6. What is the variance of a project that has a best case estimate of 17, most likely case estimate of 21, and a worst case estimate of 28?
   A. 1.83
   B. 5.57
   C. 21.50
   D. 3.36
7. What is the variance of a project that has a best case estimate of 12, most likely case estimate of 15, and a worst case estimate of 21?
   A. 4.58
   B. 2.25
   C. 1.50
   D. 15.50

8. What is the variance of a project that has a best case estimate of 36, most likely case estimate of 41, and a worst case estimate of 54?
   A. 9.00
   B. 9.29
   C. 3.00
   D. 42.33

9. What is the variance of a project that has a best case estimate of 19, most likely case estimate of 24, and a worst case estimate of 31?
   A. 6.03
   B. 2.00
   C. 24.33
   D. 4.00

10. Your project is significantly over budget and behind schedule. It is critical that you determine your projected duration. To gain a better understanding of the project you analyze the sequence of deliverables, activities or tasks to find the ones with the least amount of schedule flexibility. What technique are you using?
    A. GERT
    B. CPM
    C. PERT
    D. PDM

11. A project manager is discussing her project with her boss. They are concerned that the project might be falling behind schedule and decide they must determine the project’s likely completion date and where any flexibility exists. Which of the following tools would best provide this information?
    A. AOA
    B. PDM
    C. CPM
    D. Network Diagramming
12. You are the project manager for a new product. You are in the planning phase of your project and have just been told by one of your senior resources that they require the completed schematics before they can begin to build the product prototype. This is an example of what kind of dependency?
   A. Mandatory
   B. Discretionary
   C. Internal
   D. External

13. You are the project manager at a major pharmaceuticals company. You are planning the release of a new drug and must wait for regulatory approval before you can begin manufacture of the drug. This is an example of what kind of dependency?
   A. Discretionary
   B. Mandatory
   C. Internal
   D. External

14. Which of the following is a type of bar chart?
   A. Gaussian distribution
   B. Scatter plot
   C. Gantt chart
   D. Logit model

15. As a general rule, which of the following is better illustrated by network diagrams than bar charts?
   A. Project progress
   B. Logical relationships between activities
   C. The project’s critical chain
   D. Resource needs

16. Which of the following is not correct about PDM?
   A. The critical path always has dummy tasks
   B. Every network has at least one critical path
   C. The network displays all task interdependencies
   D. Tasks not on the critical path have slack or float
17. Which of the following is not an input to the define activities process?
   A. Milestone lists
   B. Scope baseline
   C. Enterprise environmental factors
   D. Organizational process assets

18. Which of the following is an input to the define activities process?
   A. Activity attributes
   B. Precedence diagram
   C. Rolling wave plan
   D. Scope baseline

19. Which of the following is not a tool or technique used in the define activities process?
   A. Decomposition
   B. Precedence Diagramming
   C. Rolling wave plan
   D. Expert judgment

20. Which of the following is a tool or technique for the define activities process?
   A. PDM
   B. Rolling wave plan
   C. GERT
   D. Dependency determination

21. Which of the following is an input to sequence activities?
   A. Project scope statement
   B. Schedule network templates
   C. Milestone management
   D. Activity attribute development

22. Which of the following is not an output of defining activities?
   A. Activity lists
   B. Activity attributes
   C. Project network diagrams
   D. Milestone lists
23. Which of the following is not an output of the define activities process?
   A. Activity attributes
   B. Activity list
   C. Milestone list
   D. Activity list updates

24. Which of the following is not an input to the sequence activities process?
   A. WBS
   B. Project scope statement
   C. Activity list
   D. Activity attributes

25. Which of the following is not an input to sequence activities?
   A. Organizational process assets
   B. Milestone list
   C. WBS
   D. Project scope statement

26. Which of the following is an input to sequence activities?
   A. Organizational process assets
   B. WBS dictionary
   C. Scope baseline
   D. Work breakdown structure

27. Which of the following is not a tool or technique for sequence activities?
   A. Precedence diagramming method
   B. Decomposition
   C. Applying leads and lags
   D. Dependency determination

28. Which of the following is not a tool or technique for activity sequencing?
   A. Precedence diagramming method
   B. Dependency determination
   C. Project schedule network diagrams
   D. Applying leads and lags
29. Which of the following is a tool or technique for activity sequencing?
   A. Dependency determination
   B. Decomposition
   C. WBS
   D. GERT

30. Which of the following is a tool or technique for activity sequencing?
   A. Expert judgment
   B. Applying leads and lags
   C. Alternatives analysis
   D. Decomposition

31. Which of the following is not an output from activity sequencing?
   A. Schedule network diagrams
   B. Milestone list
   C. Project document updates
   D. All of the above are outputs

32. Which of the following is an output from activity sequencing?
   A. RBS
   B. PERT estimate
   C. Network diagrams
   D. Approved changes

33. Which of the following is not an input to estimate activity resources?
   A. WBS dictionary
   B. Activity list
   C. Resource calendars
   D. Organizational process assets

34. Which of the following is an input to estimate activity resources?
   A. Precedence diagrams
   B. Requested changes
   C. Milestone lists
   D. Resource calendars
35. Which of the following is a tool or technique used to estimate activity resources?
   A. Alternatives analysis
   B. Precedence diagramming method
   C. GERT
   D. Dependency determination

36. Which of the following is a tool or technique used to estimate activity resources?
   A. Resource breakdown structure
   B. Planning component
   C. Published estimating data
   D. Rolling wave plan

37. Which of the following is not a tool or technique used to estimate activity resource?
   A. Expert judgment
   B. Templates
   C. Alternatives analysis
   D. Bottom-up estimating

38. Which of the following is not an output to estimate activity resource?
   A. Project document updates
   B. RBS
   C. Activity resource requirements
   D. Project schedule network diagrams

39. Which of the following is an output of the estimate activity resources process?
   A. Activity list
   B. RBS
   C. Milestone list
   D. Required changes

40. Which of the following is not an input to the estimate activity durations process?
   A. Milestone list
   B. Project scope statement
   C. Organizational process assets
   D. Resource calendars
41. Which of the following is not an input to the estimate activity durations process?
   A. Expert judgment
   B. Enterprise environmental factors
   C. Organizational process assets
   D. Activity attributes

42. Which of the following is not a tool or technique used in the estimate activity durations process?
   A. PDM
   B. Expert judgment
   C. Reserve analysis
   D. Parametric estimating

43. Which of the following is not a tool or technique used in the estimate activity durations process?
   A. Analogous estimating
   B. PERT Analysis
   C. Three-point estimating
   D. Parametric estimating

44. Which of the following is an output from the estimate activity durations process?
   A. Activity list updates
   B. Requested changes
   C. Milestone updates
   D. Activity duration estimates

45. Which of the following is not an input to the develop schedule process?
   A. Requested changes
   B. Resource calendars
   C. Project schedule network diagrams
   D. Activity attributes

46. Which of the following is not a tool or technique used in the develop schedule process?
   A. Critical path method
   B. Critical chain method
   C. Precedence diagramming method
   D. Resource leveling
47. Which of the following is not a tool or technique used in the develop schedule process?
   A. Schedule network analysis
   B. Project schedule modeling
   C. Lead and lags
   D. Resource optimization techniques

48. Which of the following is a tool or technique used in the develop schedule process?
   A. Project schedule modeling
   B. GERT
   C. Schedule compression
   D. RBS

49. Which of the following is not an output from the develop schedule process?
   A. Project schedule
   B. Schedule data
   C. Schedule baseline
   D. Activity list updates

50. Which of the following is not an output from the develop schedule process?
   A. Project schedule
   B. Project document updates
   C. Activity cost estimates
   D. Schedule data

51. Which of the following is an output from the develop schedule process?
   A. Activity cost estimate updates
   B. Project document updates
   C. Approved changes
   D. Activity duration estimates

52. Which of the following is not an input to the control schedule process?
   A. Project schedule
   B. Work performance data
   C. Organizational process assets
   D. Schedule management plan
53. Which of the following is not an input to the control schedule process?
   A. Performance reports
   B. Project schedule
   C. Project management plan
   D. Organizational process assets

54. Which of the following is not a tool or technique used for the control schedule process?
   A. Resource optimization techniques
   B. Schedule management
   C. Modeling techniques
   D. Schedule compression

55. Which of the following is not a tool or technique used in the control schedule process?
   A. Scheduling tool
   B. Schedule compression
   C. Project document updates
   D. Leads and lags

56. Which of the following is not an output from the control schedule process?
   A. Work performance information
   B. Change requests
   C. Project management plan updates
   D. What-if scenario updates

57. Which of the following is an output from schedule control?
   A. Recommended preventive actions
   B. Change requests
   C. Approved changes
   D. Project schedule updates

58. Which of the following terms represents a method of problem solving that relies on inductive reasoning from past experience or expert judgment when there is no relevant mathematical algorithm available?
   A. A heuristic
   B. A logit
   C. GERT
   D. Analogous estimating
59. Which of the following best describes the amount of time one activity can be delayed without impacting the early start of its succeeding task or activity?
   A. Lead time
   B. Float
   C. Lag time
   D. None of the above

60. Which of the following terms best represents the amount of time one activity can begin prior to the completion of its preceding dependent task?
   A. Lag time
   B. Lead time
   C. Float
   D. None of the above

61. Which of the following statements is correct?
   A. A network diagram allows you to determine the shortest time the project can take.
   B. A WBS allows you to determine the longest chain of dependent tasks.
   C. Changing the end date of the project will cause the network diagram to change.
   D. The critical path will always contain dummy tasks.

62. Which of the following statements about a milestone is true?
   A. A milestone can have any duration
   B. A milestone has the same duration as the task, activity or deliverable it represents
   C. A milestone always has zero duration
   D. None of the above

63. Which of the following best describes the relationship between standard deviation and risk?
   A. Standard deviation provides the level of uncertainty about the estimate
   B. Standard deviation defines whether or not safety is in the estimate
   C. Standard deviation defines the accuracy of the estimate
   D. There is no relationship between risk and standard deviation
64. Your boss asks you to use Monte Carlo Analysis to evaluate your project. For what purpose was this request most likely made?
   A. To create an activities estimated length
   B. To gain an indication of the risk in the project
   C. To define the order in which activities occur
   D. Define project resource requirement

65. On Monday morning your boss comes into your office and asks about the amount of slack you have on a specific activity in your project. This is determined by:
   A. Performing a PERT analysis
   B. Estimating the task or activity length
   C. Creating a PDM diagram
   D. Determining the total amount of time that a schedule activity may be delayed without impacting the project delivery

66. Your boss enters your office and is concerned that a particular activity will delay the delivery of the project. What is the best thing to do?
   A. Determine if the activity is on the critical path
   B. Explain why your boss should not worry
   C. Perform a GERT analysis
   D. Examine the activity’s risk triggers

67. You and your project team have obtained estimates for your project, assigned resources, and developed a precedence diagram of the project. Several of your resources are very concerned that two of the activities are not being focused on enough and will end up delaying the project as they are critical components of the project’s end product. What is the best thing to do?
   A. Sit down with the resources to discuss the project Gantt chart
   B. Determine if the activities in question are on the critical path
   C. Examine the project’s risk register
   D. Evaluate alternative project execution paths

68. Which of the following best describes the impact of multiple critical paths on a project?
   A. The project takes longer to complete
   B. The project is more expensive
   C. The project takes more resources to manage
   D. The project risk increases
69. You and your project team have just completed the development of your PDM diagram. The current diagram shows there are three (3) critical paths in your project. What is the best thing to do next?
   A. Re-evaluate the network for errors
   B. Develop the project schedule
   C. Examine the project risk register
   D. Discuss alternative networks with your team

70. In discussing your project with management you determine that the project schedule is the most flexible and the project scope is the least flexible. If the allowable monthly project expenditures are fixed, what is the best thing to do?
   A. Level the resources
   B. Examine the project’s critical path
   C. Analyze the project’s life cycle costs
   D. Crash the project

71. Your manager asks you to produce a report on your project for management. Which of the following would best meet the request?
   A. Bar chart
   B. PERT chart
   C. Milestone chart
   D. Gantt chart

72. You and your project team have just completed the development of your project schedule. Based on constraints provided by the project sponsor, the project is scheduled to be completed after the project deadline. Assuming that costs are the least important constraint and scope is the most important, which of the following is the best thing to do?
   A. Fast track the project
   B. Crash the project
   C. Reassess the critical path
   D. Develop a critical chain model for the project
73. You and your project team have just completed the development of your project schedule. Based on constraints provided by the project sponsor, the project is scheduled to be completed after the project deadline. Assuming that costs are the most important constraint and scope is the least important, which of the following is the best thing to do?
   A. Crash the project
   B. Reassess the critical path
   C. Develop a new project schedule
   D. Fast track the project

74. Your manager comes to you and demands that you complete your project three (3) weeks early. What is the best thing to do?
   A. Meet with your project team to examine alternatives for crashing and fast tracking
   B. Tell your boss the project critical path does not allow for a three week early completion
   C. Ask the project team to work overtime
   D. Ask your manager if you can reduce the scope of the project

75. When evaluating the impact on your project of crashing, which of the following should be included in the evaluation?
   A. The project sponsor’s interest
   B. Risks associated with the schedule changes
   C. The amount of overtime to be worked
   D. The impact of a reduction in project scope

76. Which of the following PM processes requires the project manager to reach an agreement with the activity resources on the calendar date for each activity?
   A. Sequence activities
   B. Estimate activity durations
   C. Estimate activity resources
   D. Develop schedule

77. It is late Friday afternoon when your project sponsor informs you that the project schedule has been reduced by two (2) weeks. What is the best thing to do?
   A. Meet with your project team to determine options for schedule compression
   B. Cut the project scope
   C. Crash the project
   D. Inform management that the date cannot be met
78. As the project manager you estimate the time that will be needed for each activity, assign tasks to specific resources and then add the estimates to create the project estimate. You then use this value to establish the project delivery date which you provide to the project sponsor. What is incorrect with this process?
   A. The project manager created the estimates without the team; additionally, summing the tasks will lead to a significantly longer project duration
   B. Project duration estimates should be developed by the project sponsor
   C. The project manager created the estimates without the project resources and did not use a network diagram to define the critical path
   D. The project completion date should be derived from an evaluation of the triple constraints

79. You are the project manager for a large construction project. It is early in the project lifecycle and you have completed the activity definition. In analyzing the activities you see a number of activities that are dependent on each other but can start at the same time. To properly evaluate this project, which methodology is best?
   A. CPM
   B. PDM
   C. AOA
   D. GERT

80. You are the project manager for a US $250,000 software development project. You are working with your project team and determine that the project has a number of project tasks that are dependent on each other. However, one of your team members also points out that the tasks can finish at the same time. Which of the following is the best technique to understand this situation?
   A. Critical path method
   B. Activity on arrow method
   C. Precedence diagramming method
   D. Program evaluation and review technique
81. You are the project manager for a large consulting company leading a process improvement project for your organization’s largest client. The project currently has a CPI of 1.04 and SPI of .98. Your customer has just asked if you can produce a diagram that shows probabilistic project paths. Which of the following tools would be best in this situation?
   A. Graphical evaluation and review technique
   B. Program evaluation and review technique
   C. Critical path method
   D. Precedence diagramming method

82. Which of the following is best suited to define a project network that has potential looping of the activities, deliverables or tasks?
   A. PERT
   B. CPM
   C. GERT
   D. PDM

83. You are the project manager for a software development project with an estimated budget of US $650,000. You have just completed the duration estimates, and activity sequencing for your project. Which of the following do you still need to complete the initial project schedule?
   A. Approved change request
   B. Contingency reserves
   C. Recommended change requests
   D. Schedule management plan

84. You are just taking over for a project manager who was forced to take a medical leave of absence. Your project has a CPI of 93 and an SPI of 89. To gain a better understanding of how the previous project manager was managing schedule changes, to which of the following would you turn?
   A. The project plan
   B. The project schedule
   C. The schedule management plan
   D. The project Gantt chart
85. You are taking over for a project manager who was terminated. The previous project manager was using weighted average duration estimates to develop the schedule network. What type of modeling are you using?
   A. Monte Carlo analysis
   B. Program evaluation and review technique analysis
   C. Critical chain analysis
   D. Critical path analysis

86. You are the project manager for a large mechanical engineering project. You have completed your scope statement, the WBS, the resource estimate, duration estimates, and the network diagram. Which of the following is the thing you should do next?
   A. Create the schedule
   B. Complete the cost estimates
   C. Define the project budget
   D. Solicit purchase
Answer Key:

PDM Lab Answers:

1. A
   PDM stands for Precedence Diagramming Method. In this method there are four (4) potential methods to relate tasks to one another: Finish to Start (FS) (the most common), Start to Start (SS), Finish to Finish (FF) and Start to Finish (SF) (seldom used). Before you can use the Critical Path Method (CPM) you must be able to create the correct network diagram for a list of tasks, activities, deliverables or work packages.

2. B
   PDM stands for Precedence Diagramming Method. In this method there are four (4) potential methods to relate tasks to one another: Finish to Start (FS) (the most common), Start to Start (SS), Finish to Finish (FF) and Start to Finish (SF) (seldom used). Before you can use the Critical Path Method (CPM) you must be able to create the correct network diagram for a list of tasks, activities, deliverables or work packages.

3. C
   PDM stands for Precedence Diagramming Method. In this method there are four (4) potential methods to relate tasks to one another: Finish to Start (FS) (the most common), Start to Start (SS), Finish to Finish (FF) and Start to Finish (SF) (seldom used). Before you can use the Critical Path Method (CPM) you must be able to create the correct network diagram for a list of tasks, activities, deliverables or work packages.

4. D
   PDM stands for Precedence Diagramming Method. In this method there are four (4) potential methods to relate tasks to one another: Finish to Start (FS) (the most common), Start to Start (SS), Finish to Finish (FF) and Start to Finish (SF) (seldom used). Before you can use the Critical Path Method (CPM) you must be able to create the correct network diagram for a list of tasks, activities, deliverables or work packages.
5. A
PDM stands for Precedence Diagramming Method. In this method there are four (4) potential methods to relate tasks to one another: Finish to Start (FS) (the most common), Start to Start (SS), Finish to Finish (FF) and Start to Finish (SF) (seldom used). Before you can use the Critical Path Method (CPM) you must be able to create the correct network diagram for a list of tasks, activities, deliverables or work packages.

6. B
PDM stands for Precedence Diagramming Method. In this method there are four (4) potential methods to relate tasks to one another: Finish to Start (FS) (the most common), Start to Start (SS), Finish to Finish (FF) and Start to Finish (SF) (seldom used). Before you can use the Critical Path Method (CPM) you must be able to create the correct network diagram for a list of tasks, activities, deliverables or work packages.

7. C
PDM stands for Precedence Diagramming Method. In this method there are four (4) potential methods to relate tasks to one another: Finish to Start (FS) (the most common), Start to Start (SS), Finish to Finish (FF) and Start to Finish (SF) (seldom used). Before you can use the Critical Path Method (CPM) you must be able to create the correct network diagram for a list of tasks, activities, deliverables or work packages.

8. D
PDM stands for Precedence Diagramming Method. In this method there are four (4) potential methods to relate tasks to one another: Finish to Start (FS) (the most common), Start to Start (SS), Finish to Finish (FF) and Start to Finish (SF) (seldom used). Before you can use the Critical Path Method (CPM) you must be able to create the correct network diagram for a list of tasks, activities, deliverables or work packages.

9. A
PDM stands for Precedence Diagramming Method. In this method there are four (4) potential methods to relate tasks to one another: Finish to Start (FS) (the most common), Start to Start (SS), Finish to Finish (FF) and Start to Finish (SF) (seldom used). Before you can use the Critical Path Method (CPM) you must be able to create the correct network diagram for a list of tasks, activities, deliverables or work packages.
10.B

PDM stands for Precedence Diagramming Method. In this method there are four (4) potential methods to relate tasks to one another: Finish to Start (FS) (the most common), Start to Start (SS), Finish to Finish (FF) and Start to Finish (SF) (seldom used). Before you can use the Critical Path Method (CPM) you must be able to create the correct network diagram for a list of tasks, activities, deliverables or work packages.

11.C

PDM stands for Precedence Diagramming Method. In this method there are four (4) potential methods to relate tasks to one another: Finish to Start (FS) (the most common), Start to Start (SS), Finish to Finish (FF) and Start to Finish (SF) (seldom used). Before you can use the Critical Path Method (CPM) you must be able to create the correct network diagram for a list of tasks, activities, deliverables or work packages.
Critical Path Method Lab Answers:

1. A
The critical path is the longest path of dependent tasks with no slack or float. It requires you to first do a forward pass and then a backward pass. Any task where the late start – early start or late finish – early finish equal zero is on the critical path.

2. B
Calculating the duration of the critical path is done by first building the Precedence Diagram. Once that is done, enter the task durations and complete the forward and backward pass by evaluating the differences between the late and early start or the late and early finish. The longest chain of dependent tasks with zero slack or float is the critical path.

3. A
Task A has slack or float of 3. By definition, any task or deliverable with float greater than zero is not on the critical path.
4. B
Task E has slack or float of 10. By definition, any task or deliverable with float greater than zero is not on the critical path.

5. D
Calculating the critical path is done by first building the Precedence Diagram. Once that is done, enter the task durations and complete the forward and backward pass by evaluating the differences between the late and early start or the late and early finish. The longest chain of dependent tasks with zero slack or float is the critical path.
6. Calculating the duration of the critical path is done by first building the Precedence Diagram. Once that is done, enter the task durations and complete the forward and backward pass by evaluating the differences between the late and early start or the late and early finish. The longest chain of dependent tasks with zero slack or float is the critical path. Summing this time provides the project duration.

7. Task 2 has slack or float of 1. By definition, any task or deliverable with float greater than zero is not on the critical path.
8. C
Task 6 has slack or float of 1. By definition, any task or deliverable with float greater than zero is not on the critical path.

9. A
Task 8 has slack or float of 1. By definition, any task or deliverable with float greater than zero is not on the critical path.

10. D
Determining the critical path is done by first building the Precedence Diagram. Once that is done, enter the task durations and complete the forward and backward pass by evaluating the differences between the late and early start or the late and early finish. The longest chain of dependent tasks with zero slack or float is the critical path.
11.B
Calculating the duration of the critical path is done by first building the Precedence Diagram. Once that is done, enter the task durations and complete the forward and backward pass by evaluating the differences between the late and early start or the late and early finish. The longest chain of dependent tasks with zero slack or float is the critical path.
Review Quiz Answers:

1. D
   PMBOK Guide – The last process of Time Management is control schedule.

2. A
   PMBOK Guide – Create WBS is section 5.4 and part of Scope Management.

3. D
   PMBOK Guide – Plan schedule management is the first process of Time Management.

4. B
   PERT Variance is calculated by first calculating the PERT Standard Deviation for the case using the formula of \((\text{pessimistic} - \text{optimistic}) / 6\). Once you have the PERT Standard Deviation you must square that result to obtain the PERT Variance.

5. A
   PERT Variance is calculated by first calculating the PERT Standard Deviation for the case using the formula of \((\text{pessimistic} - \text{optimistic}) / 6\). Once you have the PERT Standard Deviation you must square that result to obtain the PERT Variance.

6. D
   PERT Variance is calculated by first calculating the PERT Standard Deviation for the case using the formula of \((\text{pessimistic} - \text{optimistic}) / 6\). Once you have the PERT Standard Deviation you must square that result to obtain the PERT Variance.

7. B
   PERT Variance is calculated by first calculating the PERT Standard Deviation for the case using the formula of \((\text{pessimistic} - \text{optimistic}) / 6\). Once you have the PERT Standard Deviation you must square that result to obtain the PERT Variance.
8. A
PERT Variance is calculated by first calculating the PERT Standard Deviation for the case using the formula of (pessimistic – optimistic) / 6. Once you have the PERT Standard Deviation you must square that result to obtain the PERT Variance.

9. D
PERT Variance is calculated by first calculating the PERT Standard Deviation for the case using the formula of (pessimistic – optimistic) / 6. Once you have the PERT Standard Deviation you must square that result to obtain the PERT Variance.

10. B
Each of these methods provides an evaluation of the project in some way. However, only the Critical Path Method, or CPM, focuses in on the amount of slack or float contained by a task.

11. C
Each of these methods provides an evaluation of the project in some way. However, only the Critical Path Method, or CPM, focuses in on the amount of slack or float contained by a task.

12. A
PMBOK Guide - Internal dependencies are not a type defined by PMI. This is an example of a mandatory dependency because the question clearly states that the schematics are required to go the next step.

13. D
PMBOK Guide - Internal dependencies are not a type defined by PMI. This is an example of an external dependency. Neither the manufacturing nor the project management processes require the regulatory approval. However, governmental approval is required in order to sell the completed product.

14. C
A Gantt chart is a type of bar chart laid on its side that also shows a project calendar. The lengths of the bars reflect the length of time the task, deliverable or activity take.
15. B
Network diagrams are modeling methods that display the relationships between task, deliverable and activities. Since the bars in a bar chart are independent of each other, they cannot provide this information.

16. A
PDM, or Precedence Diagramming Method, is a method of network diagram designed to display task dependencies and relationships. One of its most valuable outputs is the critical path which is the longest chain of dependent tasks where there is no slack or float.

17. A
PMBOK Guide – The inputs for the define activities process include:
- Schedule management plan
- Scope baseline
- Enterprise environmental factors
- Organizational process assets

18. D
PMBOK Guide – The inputs for activity definition include:
- Schedule management plan
- Scope baseline
- Enterprise environmental factors
- Organizational process assets

19. B
PMBOK Guide – The tools and techniques for the define activities process include:
- Decomposition
- Rolling wave planning
- Expert judgment

20. B
PMBOK Guide – The tools and techniques for the define activities process include:
- Decomposition
- Rolling wave planning
- Expert judgment
21. A
PMBOK Guide – The inputs for activity sequence include:
- Schedule management plan
- Activity list
- Activity attributes
- Milestone list
- Project scope statement
- Enterprise environmental factors
- Organizational process assets

22. C
PMBOK Guide – The outputs from the define activities process include:
- Activity list
- Activity attributes
- Milestone list

23. D
PMBOK Guide – The outputs from the define activities process include:
- Activity list
- Activity attributes
- Milestone list

24. A
PMBOK Guide – The inputs for the sequence activities process include:
- Schedule management plan
- Activity list
- Activity attributes
- Milestone list
- Project scope statement
- Enterprise environmental factors
- Organizational process assets
25.C
PMBOK Guide – The inputs for activity sequence include:
- Schedule management plan
- Activity list
- Activity attributes
- Milestone list
- Project scope statement
- Enterprise environmental factors
- Organizational process assets

26.A
PMBOK Guide – The inputs for sequence activities include:
- Schedule management plan
- Activity list
- Activity attributes
- Milestone list
- Project scope statement
- Enterprise environmental factors
- Organizational process assets

27.B
PMBOK Guide – The tools and techniques used in the sequence activities process include:
- Precedence diagramming method
- Dependency determination
- Leads and lags

28.C
PMBOK Guide – The tools and techniques used in the sequence activities process include:
- Precedence diagramming method
- Dependency determination
- Leads and lags

29.A
PMBOK Guide – The tools and techniques used in the sequence activities process include:
- Precedence diagramming method
- Dependency determination
- Leads and lags
30. B
PMBOK Guide – The tools and techniques used in the sequence activities process include:
- Precedence diagramming method
- Dependency determination
- Leads and lags

31. B
PMBOK Guide – The outputs from activity sequencing include:
- Project schedule network diagrams
- Project document updates

32. C
PMBOK Guide – The outputs from activity sequencing include:
- Project schedule network diagrams
- Project document updates

33. A
PMBOK Guide – The inputs to estimate activity resources include:
- Schedule management plan
- Activity list
- Activity attributes
- Resource calendars
- Risk register
- Activity cost estimates
- Enterprise environmental factors
- Organizational process assets

34. D
PMBOK Guide – The inputs to estimate activity resources include:
- Schedule management plan
- Activity list
- Activity attributes
- Resource calendars
- Risk register
- Activity cost estimates
- Enterprise environmental factors
- Organizational process assets
35.A
PMBOK Guide – The tools and techniques used to estimate activity resources include:
- Expert judgment
- Alternatives analysis
- Published estimating data
- Bottom-up estimating
- Project management software

36.C
PMBOK Guide – The tools and techniques used to estimate activity resources include:
- Expert judgment
- Alternatives analysis
- Published estimating data
- Bottom-up estimating
- Project management software

37.B
PMBOK Guide – The tools and techniques used to estimate activity resources include:
- Expert judgment
- Alternatives analysis
- Published estimating data
- Project management software
- Bottom-up estimating

38.D
PMBOK Guide – The outputs from the estimate activity resource process include:
- Activity resource requirements
- Resource Breakdown Structure, or RBS
- Project document updates

39.B
PMBOK Guide – The outputs from the estimate activity resource process include:
- Activity resource requirements
- Resource Breakdown Structure, or RBS
- Project document updates
40. A
PMBOK Guide – The inputs to the estimate activity durations process include:
- Schedule management plan
- Activity lists
- Activity attributes
- Activity resource requirements
- Resource calendars
- Project scope statement
- Risk register
- Resource breakdown structure
- Enterprise environmental factors
- Organizational process assets

41. A
PMBOK Guide – The inputs to the estimate activity durations process include:
- Schedule management plan
- Activity lists
- Activity attributes
- Activity resource requirements
- Resource calendars
- Project scope statement
- Risk register
- Resource breakdown structure
- Enterprise environmental factors
- Organizational process assets

42. A
PMBOK Guide – The tools and techniques used in estimate activity durations include:
- Expert judgment
- Analogous estimating
- Parametric estimating
- Three-point estimates
- Group decision-making techniques
- Reserve analysis
43. B
	PMBOK Guide – The tools and techniques used in estimate activity durations include:
	- Expert judgment
	- Analogous estimating
	- Parametric estimating
	- Three-point estimates
	- Group decision-making techniques
	- Reserve analysis

44. D
	PMBOK Guide – The outputs from estimate activity durations process include:
	- Activity duration estimates
	- Project document updates

45. A
	PMBOK Guide – The inputs to the develop schedule process include:
	- Schedule management plan
	- Activity list
	- Activity attributes
	- Project schedule network diagrams
	- Activity resource requirements
	- Resource calendars
	- Activity duration estimates
	- Project scope statement
	- Risk register
	- Project staff assignments
	- Resource breakdown structure
	- Enterprise environmental factors
	- Organizational process assets
46.C
PMBOK Guide – The tools and techniques used in develop schedule process include:
- Schedule network analysis
- Critical path method
- Critical chain method
- Resource optimization techniques
- Leads and lags
- Schedule compression
- Scheduling tool

47.B
PMBOK Guide – The tools and techniques used in develop schedule process include:
- Schedule network analysis
- Critical path method
- Critical chain method
- Resource optimization techniques
- Leads and lags
- Schedule compression
- Scheduling tool

48.C
PMBOK Guide – The tools and techniques used in develop schedule process include:
- Schedule network analysis
- Critical path method
- Critical chain method
- Resource optimization techniques
- Leads and lags
- Schedule compression
- Scheduling tool
49.D
PMBOK Guide – The outputs from the develop schedule process include:
- Schedule baseline
- Project schedule
- Schedule data
- Project calendars
- Project management plan updates
- Project documents updates

50.C
PMBOK Guide – The outputs from the develop schedule process include:
- Schedule baseline
- Project schedule
- Schedule data
- Project calendars
- Project management plan updates
- Project documents updates

51.B
PMBOK Guide – The outputs from the develop schedule process include:
- Schedule baseline
- Project schedule
- Schedule data
- Project calendars
- Project management plan updates
- Project documents updates

52.D
PMBOK Guide – The inputs of schedule control include:
- Project management plan
- Project schedule
- Work performance data
- Project calendars
- Schedule data
- Organizational process assets
53. A
PMBOK Guide – The inputs of schedule control include:
- Project management plan
- Project schedule
- Work performance data
- Project calendars
- Schedule data
- Organizational process assets

54. B
PMBOK Guide – The tools and techniques of schedule control include:
- Performance reviews
- Project management software
- Resource optimization techniques
- Modeling techniques
- Leads and lags
- Schedule compression
- Scheduling tool

55. C
PMBOK Guide – The tools and techniques of schedule control include:
- Performance reviews
- Project management software
- Resource optimization techniques
- Modeling techniques
- Leads and lags
- Schedule compression
- Scheduling tool

56. D
PMBOK Guide – The outputs of the control schedule process include:
- Work performance information
- Schedule forecasts
- Change requests
- Project management plan updates
- Project documents updates
- Organizational process assets updates
57. B
PMBOK Guide – The outputs of the control schedule process include:
- Work performance information
- Schedule forecasts
- Change requests
- Project management plan updates
- Project documents updates
- Organizational process assets updates

58. A
A heuristic is a method of problem solving that relies on inductive reasoning from past (expert) judgment when there is no relevant mathematical algorithm.

59. C
Lag time represents the amount of time a task or activity can be delayed without impacting the early start of the next task or activity. Often, lag is added to a chain to produce a gap between tasks or activities.

60. B
Lead time represents the amount of time one activity can begin prior to the completion of its preceding dependent task. Lead time is used to compress a schedule and can run the risk of rework.

61. A
The network diagram is specifically designed to allow you to determine all the potential project paths and the longest time the project can take. A work breakdown structure is used to show the project deliverables. Changing the end date of a project does not necessarily change a network diagram and the critical path never contains dummy tasks.

62. C
PMBOK Guide - A milestone is a marker representing the completion of a task, activity or deliverable. It never has duration of any length.

63. A
Standard deviation allows you to determine the amount of dispersion from the mean your estimates have. The more dispersed the estimates the more variance exists between the estimates and therefore the greater the risk is.
64. B
Several of these answers are close, but the correct answer is to gain an
indication of the risk in the project. Monte Carlo simulations will not tell you about
specific risk, but the probabilistic nature of risk. A Monte Carlo simulation allows
the user to determine the probability that a result will occur within a given range.
The wider the range the greater the uncertainty or risk.

65. D
Slack or float represents the amount of time a specified activity may be delayed
without impacting the project’s critical path. Only items not on the critical path
have slack or float. It is the difference between the early finish and late finish or
the early and late start.

66. A
Slack or float represents the amount of time a specified activity may be delayed
without impacting the project’s critical path. Only items not on the critical path
have slack or float. It is the difference between the early finish and late finish or
the early and late start. In this case the best answer is to first determine if the
task is on the critical path and its slack or float.

67. B
Slack or float represents the amount of time a specified activity may be delayed
without impacting the project’s critical path. Only items not on the critical path
have slack or float. It is the difference between the early finish and late finish or
the early and late start. In this case the best answer is to first determine if the
tasks are on the critical path and its slack or float.

68. D
Multiple critical paths are not unusual in the real world. This simply means that if
any of the activities on any of the critical paths are delayed the entire project will
be delayed. This sometimes causes an increase in project resources or cost and
might cause the project to take longer. However, it is a guarantee that the
project has an increase in risk as the project now has more chance for an activity
delay to impact the delivery of the project.
69. B
Multiple critical paths are not unusual in the real world. This simply means that if any of the activities on any of the critical paths are delayed the entire project will be delayed. Therefore, the existence of multiple critical paths does not represent an error in your process. The development of the PDM diagram is part of activity sequencing. The next step in the process is developing the project schedule.

70. A
This is a triple constraints question. If the project schedule is the most flexible this means the project could continue several months past the original forecast. This is especially true as the project has an inflexible scope. Because the project cost is fixed on a monthly basis, but not on a total basis, the best thing to do is level the resources to ensure the monthly project costs do not exceed the allowable amount.

71. C
The best tool for reporting to management is a milestone report. This provides the correct level of information for management.

72. B
The best thing to do in this case is crash the project. This usually entails adding resources to the project to get project work done more quickly. This will cause a likely increase in project costs. Fast tracking is doing tasks in parallel which decreases the schedule, but often causes rework which in this case is unacceptable.

73. D
The best thing to do in this case is fast track the project. This is because you do not have the ability to increase the cost by adding resources (crashing). Reassessing the critical path and developing a new schedule are not preferred alternatives.

74. A
The first alternative whenever your due date is reduced is to evaluate the alternatives to crash or fast track the project.

75. B
Whenever doing any type of evaluation of a project it is always critical that you analyze the risks associated.
76. D
PMBOK Guide - Develop schedule is the process whereby the basic schedule is applied to a calendar.

77. A
The best alternative is always to determine alternatives before you do anything else.

78. C
Project estimates should always be developed by the project team and not just the project manager. Additionally, the project duration is never generated by simply summing the activity estimates as many activities are completed concurrently. Simply summing these values will cause an inflation of the estimate.

79. B
Only the precedence diagramming method, or PDM, allows for relationships other than finish to start. In this case, a start to start relationship is indicated by the fact that the tasks can begin at the same time. Therefore, PDM is the correct answer.

80. C
Only the precedence diagramming method or PDM allows for relationships other than finish to start. In this case a finish to finish relationship is indicated by the fact that the tasks can begin at the same time. Therefore PDM is the correct answer.

81. A
GERT or graphical evaluation and review technique allows for looping, alternative flows and probabilistic networks and is the only diagramming technique that does so.

82. C
GERT or graphical evaluation and review technique allows for looping, alternative flows and probabilistic networks and is the only diagramming technique that does so.
83. B
To complete the project schedule you also need to include your safety or contingency reserves. All the other alternatives are used in schedule control as inputs or are not applicable.

84. C
To understand how a project is managing schedule change you first look at the schedule management plan. This is a consistency for PMI. You always examine the topic area’s management plan first.

85. B
A weighted average is created when PERT or program evaluation and review technique is used.

86. A
Once you have completed the network diagram you need to create a schedule and get it approved by your team.