Study and Test Taking Tips

Table of Contents

Exam Study Tips

Focus Your Study

You are already an experienced project manager, or you wouldn't be sitting for the certification exam. Your knowledge and experience will help you answer a number of questions correctly—perhaps up to 50 percent—without even studying! However, 50 percent is a failing score, so the key is to find out what you don't know (or know by a different name) and then focus your review on these areas. Areas to focus on fall into three categories:

- Things you need to memorize, such as the math formulas for earned value analysis; the names and sequence of the *PMBOK® Guide—Sixth Edition's* 49 processes; the *PMBOK® Guide—Seventh Edition's* Performance Domains, the principles from *The Standard for Project Management,* and a few key terms.
- Things you do on a regular basis but do differently than the *PMBOK® Guide* promotes (including the use of different names for things). Unlearn what you know and learn the PMI process and terminology in these areas, at least until you pass the exam.
- Things you do not do on a regular basis and need to learn or refresh.

This *Learning System* provides a number of ways to help focus your study time. The online pre-test provides a report that breaks down the areas on which to focus your attention. If you are taking a classroom training course, your instructor can also give you feedback on what to study. However, be sure to study everything at least once.

Develop a Study Plan and Pace Yourself

Developing a generic study plan involves determining when you want to take the certification exam and then giving yourself some daily reading goals and undertaking some daily activities so that you can study at an ordered pace rather than trying to "cram." A rule of thumb is to study 45 to 60 hours prior to sitting for the exam, which is often about two to three weeks of study. Since the exam requires some classroom (or virtual classroom) training, determine when you would benefit from this training the most if you haven't already satisfied this requirement. Some students learn best by taking the classroom training before doing much self-study, while others study up front and then take the training course as a refresher just before the exam. You will want to do significant self-study before sitting for the exam, before or after classroom training, or both. Self-study gives you time to learn the details, and the details are where the testable content is found.

Also, be sure to take the exam soon after your studies are complete. Waiting too long can dull your memory.

Most exam candidates find it helpful to be methodical in their study time. Figure out your reading pace and set aside some time every night to study. Flag areas in the text that you know you will want to revisit. Break up your learning by doing different things to keep your interest level high. For example, you could read a chapter and then go online and take the chapter quiz and review the flashcards, or you could complete one of the review worksheets included in the online materials. You could even write your own exam questions to help reinforce concepts and see how they might be tested.

Gain Confidence and Practice with Multiple-Choice Questions

Use Sample Test Questions

Essential to self-study is using sample test questions. Reviewing significant quantities of sample questions, answers, and explanations will help you prepare for the PMP exam. Going through questions will improve your confidence and give you a refresher on how questions are constructed, what might be used to distract you from the correct answer, and so on. This *Learning System* provides a number of different online tests, including a practice exam that is timed to determine whether you are answering questions at the pace needed to complete the certification examination within the time allotted. Go through all of these tests once or twice. Note that these tests are not designed to be a substitute for mastering the content on which they are based. Study the material first and then take the tests to see which concepts require further review.

You can find some additional exam questions online from various free sources. (However, quality levels may vary.)

Be careful not to take the same quiz too many times. You will start to memorize the correct answers and your score will artificially improve.

While it is not a good idea to study solely using exam questions, they are a critical component. Take the time to review why the correct answers are correct, especially for questions you get wrong.

Pay Attention to Details

A few tips on how to find the right answers for multiple-choice questions follow. Most of these tips involve paying attention to details. A question often hinges on a single word (e.g., if you think something says project but it actually says process, you could get that question wrong).

Often an incorrect answer will be mostly correct but there will be one part of the answer that is wrong. Learning to reject answers based on just one false component is a key test-taking skill. Look for the following key words on exams, as they are often used to make an otherwise correct answer incorrect:

- "Only," "always," "never": These convey an absolute that may have important exceptions.
- "First," "next": See where you are at in the process and then determine the next step. Some answers may be steps that should already be done and are therefore incorrect.

Logic can help you answer many questions. If the question is asking for a process, look for an answer that starts with an action verb and seems familiar. The exam will not test alternate or odd-sounding names for the same process. These will be incorrect answers. If the question is asking where to look for something and it is in a subplan or baseline of the project management plan, the project management plan might easily be the correct answer as it contains subcomponents. A project document might be listed and would be incorrect because project documents are not part of the project management plan.

Note that the PMP exam questions may have more than one correct answer. In these cases, you will need to select the **best** answer. This may be something that is most in line with PMP good practices or ethical conduct. Always assume that PMP-certified project managers never take shortcuts, always take the high road, document everything, and go through official channels, especially integrated change control. They also take ownership of their responsibilities, handling conflicts themselves first before escalating them.

When a question has a long introduction, a good practice is to read the final sentence of the question first to determine what is being asked and then read through the whole question. This will help you focus on relevant points while reading the longer part of the question. It may be that some of the information presented is irrelevant.

In addition, train yourself to read the questions a bit slowly. If you read a question too quickly and thus need to go back and reread it, you're losing valuable time. This exam is a marathon, not a sprint.

Practice Memorization Daily

Set aside some time every day for two to three weeks before the exam to write out the materials that require memorization. Everything you need to memorize is presented in these online study materials along with some worksheets to help with this activity.

Most people have some gaps when they first try to see what they have memorized. This is why making memorization practice a part of a regular routine is so helpful. Rather than this becoming a source of additional stress, you can think of the areas you put in the wrong

place or forgot as a useful way to see what you need to focus on the next day. Correct your study sheet by circling the things that you got wrong or forgot, but do not worry about gaps in your memory for the first full week. Each day you will see some improvement if you do it every day.

You can make this process easy at first and then harder. For example, start by using the workbook memorization study aids presented in these study materials, but get to the point where you are writing these things out on blank sheets of paper. As mentioned elsewhere in this course, it's a good idea to take some time at the beginning of the certification exam to write out all of the things you have memorized. Having these things written down can give you a boost of confidence and will be a useful reference throughout the exam. (Remember that the 15-minute orientation period prior to the exam cannot be used for this.)

Learn What Works for You and Do More of That

Remember that everyone learns differently and the best study plan is one that works for you. This might mean focusing on visual learning, learning by doing, developing a case study, inventing rhymes or other mnemonics, reading and taking practice exams, or forming a study group where each person takes turns teaching some content to the other person(s).

Take some time to see what is working for you and emphasize that. Mixing it up is also a good way to maintain your interest level.

Things You Need to Memorize

There are a few things you do need to memorize for the exam—for example, some math formulas and the Process Group and Knowledge Area mapping.

However, a general study tip is that you do not need to memorize the inputs, tools and techniques, and outputs for the processes. Rather, you can learn about these things and then use logic to figure out the correct answer to test questions that ask about them. For such questions, first determine what is being asked for and eliminate things that are not of that type. For example, if a tool or technique is asked for, eliminate answers that are inputs or outputs and then select the applicable tool. If it is an input/output, ask whether this should already be done or will be done later.

Memorizing the Process Group and Knowledge Area Mapping

A series of activities follow to help you memorize the Process Group and Knowledge Area map used in this *Learning System.* Memorizing this chart is just the start, however, as you also need to know the details and nuances of each process. Memorizing this map will help you put things in the right order overall.

The first memorization activity is to photocopy Exhibit 1-1, cut out the Process Groups, Knowledge Areas, and processes, and arrange them in the correct order. Do this activity once a day until you can do it without any errors. One of the items is titled "[Progressively Elaborate]." Use this to remind yourself that one pass through the planning process is never enough.

Exhibit 1-2, Exhibit 1-3, and Exhibit 1-4 are worksheets you can also photocopy and do daily. Each provides a little less help on filling out the Process Group and Knowledge Area map.

Memorizing Math

Exhibit 1-5 and Exhibit 1-6 provide two sheets for memorizing all of the formulas you will need to know for the exam. The first lists all of the formula names; the second lists nothing. Photocopy these sheets and fill the first out at least once a day until you can do so without referring to your notes. Once you are comfortable with this, write out both the formula names and the formulas each day. Exhibit 1-7 shows a completed sheet for your reference.

Exhibit 1-1: Cut Out Process Groups, Knowledge Areas, and Processes and Put in Order

Initiating	**Planning**	**Executing**
Monitoring and Controlling	**Closing**	**Integration Management**
Scope Management	**Schedule Management**	**Cost Management**
Quality Management	**Resource Management**	**Communications Management**
Risk Management	**Procurement Management**	**Stakeholder Management**
Develop Project Charter	*Identify Stakeholders*	*Develop Project Management Plan*
Plan Scope Management	*Collect Requirements*	*Define Scope*
Create WBS	*Plan Schedule Management*	*Define Activities*
Sequence Activities	*Estimate Activity Durations*	*Develop Schedule*
Plan Cost Management	*Estimate Costs*	*Determine Budget*
Plan Quality Management	*Plan Resource Management*	*Estimate Activity Resources*
Plan Communications Management	*Plan Risk Management*	*Identify Risks*
Perform Qualitative Analysis	*Perform Quantitative Analysis*	*Plan Risk Responses*
Plan Procurement Management	*Plan Stakeholder Engagement*	*[Progressively Elaborate]*
Direct and Manage Project Work	*Manage Project Knowledge*	*Manage Quality*
Acquire Resources	*Develop Team*	*Manage Team*
Manage Communications	*Implement Risk Responses*	*Conduct Procurements*
Manage Stakeholder Engagement	*Monitor and Control Project Work*	*Perform Integrated Change Control*
Validate Scope	*Control Scope*	*Control Schedule*
Control Costs	*Control Quality*	*Control Resources*
Monitor Communications	*Monitor Risks*	*Control Procurements*
Monitor Stakeholder Engagement	*Close Project or Phase*	

Exhibit 1-2: Fill in the Missing Processes Next to Each Bullet

KNOWLEDGE AREAS	PROCESS GROUPS				
	Initiating	**Planning**	**Executing**	**Monitoring and Controlling**	**Closing**
Project Integration Management	•	•	•	•	•
			•	•	
Project Scope Management		•		•	
		•		•	
		•			
		•			
Project Schedule Management		•		•	
		•			
		•			
		•			
		•			
Project Cost Management		•		•	
		•			
		•			
Project Quality Management		•	•	•	
Project Resource Management		•	•	•	
		•	•		
			•		
Project Communications Management		•	•	•	
Project Risk Management		•	•	•	
		•			
		•			
		•			
		•			
Project Procurement Management		•	•	•	
Project Stakeholder Management	•	•	•	•	

Exhibit 1-3: Fill in the Missing Processes

KNOWLEDGE AREAS	PROCESS GROUPS				
	Initiating	**Planning**	**Executing**	**Monitoring and Controlling**	**Closing**
Project Integration Management					
Project Scope Management					
Project Schedule Management					
Project Cost Management					
Project Quality Management					
Project Resource Management					
Project Communications Management					
Project Risk Management					
Project Procurement Management					
Project Stakeholder Management					

Exhibit 1-4: Fill in the Project Management Process Group and Knowledge Area Mapping

KNOWLEDGE AREAS	PROCESS GROUPS				

Exhibit 1-5: Blank Formula Sheet with Formula Names

Formula Name	Formula	Definition/Notes
Triangular distribution estimate		
Beta distribution estimate (PERT)		
Activity standard deviation (SD, sigma, or σ)		Normal distribution 1 SD = 2 SD = 3 SD = 6 SD =
Critical path		
Early finish (EF) (forward pass)		Ignore ±1 if *same* day (ES = 0).
Early start (ES)		1st activity = 0 if subsequent is *same* day; if *next* day, = 1.
Late start (LS) (backward pass)		
Late finish (LF)		
Total float (TF)		_____ on critical path
Free float		Usually 0
Planned value (PV)		
Earned value (EV)		
Actual cost (AC)		

Formula Name	Formula	Definition/Notes
Cost variance (CV)		A negative CV indicates that project is _____ budget.
Cost performance index (CPI)		<1 is _____ .
Schedule variance (SV)		A negative SV indicates that project is _____ schedule.
Schedule performance index (SPI)		<1 is _____ .
Estimate at completion (EAC)—redo all estimates		
EAC—using actual CPI		
EAC—using budgeted rates		
EAC—using actual CPI and SPI		
Estimate to complete (ETC)		Expected cost to finish project
Variance at completion (VAC)		
To-complete performance index (TCPI)—budget achievable		Default method
To-complete performance index (TCPI)—budget unachievable		
Communication channels		May need to add one for yourself as project manager
Expected monetary value (EMV)		
Point of total assumption (PTA)		

Exhibit 1-6: Blank Formula Sheet

Formula Name	Formula

Formula Name	Formula

Exhibit 1-7: Completed Formula Sheet

Formula Name	Formula	Definition/Notes
Triangular distribution estimate	$E = \frac{O + M + P}{3}$	Basic average
Beta distribution estimate (PERT)	$E = \frac{O + 4M + P}{6}$	Weighted average
Activity standard deviation (SD, sigma, or σ)	$SD = \frac{P - O}{6}$	Normal distribution 1 SD = 68.26% (confidence) 2 SD = 95.46% 3 SD = 99.73% 6 SD = 99.9997%
Critical path	Longest duration path sum	To find, sum all path durations.
Early finish (EF) (forward pass)	EF = ES + Duration – 1	Ignore ±1 if *same* day (ES = 0).
Early start (ES)	ES = Highest predecessor EF + 1	1st activity = 0 if subsequent is *same* day; if *next* day, = 1.
Late start (LS) (backward pass)	LS = LF – (Duration – 1)	For last activity, copy from top.
Late finish (LF)	LF = Lowest successor LS – 1	
Total float (TF)	TF = LS – ES or LF – EF	0 on critical path
Free float	Successor ES − Predecessor EF or Successor ES − Predecessor EF − 1	Usually 0
Planned value (PV) **4 weeks of 8-week US$100k project** **4/8 US$100k = US$50k or US$100k/8 = US$12.5k/wk 4 = US$50k**	$\frac{\text{Portion of Schedule Completed}}{\text{Total Planned Schedule}} \times \text{BAC}$ or BAC Rate × Schedule Used	Work planned to be completed BAC Rate (% complete) = Budget/Budgeted Periods
Earned value (EV) **30% complete US$100k = US$30k**	EV = BAC × Actual % Complete	Planned value of work actually completed by now
Actual cost (AC)	Actual expenditure	Actually spent currently
Cost variance (CV)	CV = EV - AC	A negative CV indicates that project is over budget.

Formula Name	Formula	Definition/Notes
Cost performance index (CPI)	$CPI = \frac{EV}{AC}$	<1 is rate to miss budget.
Schedule variance (SV)	$SV = EV - PV$	A negative SV indicates that project is behind schedule.
Schedule performance index (SPI)	$SPI = \frac{EV}{PV}$	<1 is rate to miss schedule.
Estimate at completion (EAC)—redo all estimates	$EAC_{New} = AC + \text{Bottom-Up ETC}$	Repeat with all new estimates.
EAC—using actual CPI	$EAC_{CPI} = \frac{BAC}{CPI}$	Variances are typical.
EAC—using budgeted rates	$EAC_{BAC} = AC + (BAC - EV)$	Variances are atypical.
EAC—using actual CPI and SPI	$EAC_{CPI \times SPI} = AC + \frac{BAC - EV}{CPI \times SPI}$	Poor cost performance but firm deadline
Estimate to complete (ETC)	$ETC = EAC - AC$	Expected cost to finish project
Variance at completion (VAC)	$VAC = BAC - EAC$	Negative is over budget.
To-complete performance index (TCPI)—budget achievable	$TCPI_{BAC} = \frac{BAC - EV}{BAC - AC}$	Default method
To-complete performance index (TCPI)—budget unachievable	$TCPI_{EAC} = \frac{BAC - EV}{EAC - AC}$	BAC is no longer viable.
Communication channels	$\text{Number of Channels} = \frac{n(n-1)}{2}$	May need to add one for yourself as project manager
Expected monetary value (EMV)	EMV = Probability × Impact or EMV = Probability × (Impact − Cost)	Find net impact (Impact – Cost) before multiplying by probability.
Point of total assumption (PTA)	$PTA = \text{Target Cost} + \frac{(\text{Ceiling Price} - \text{Target Price})}{\text{Buyer's Share Ratio}}$	Target Price = Target Cost + Target Profit

Study Worksheet

A worksheet with some alternative ways to test your knowledge is provided below as a study aid. These questions are drawn from a selection of the chapters in the course. An answer key follows.

1. List the three things that distinguish project management as a profession.

2. List the 12 principles of project management from *The Standard for Project Management.*

3. List four qualities of a good steward.

4. To ensure that value is realized from a project, teams should focus on _____ instead of on _____.

5. Building quality into processes and deliverables should focus on meeting _____ for deliverables.

6. List five qualities of optimized risk responses.

7. List the eight Performance Domains from the *PMBOK® Guide—Seventh Edition.*

8. List the six steps in the stakeholder engagement process.

9. Put the following elements in order from broadest to narrowest focus within the OPM hierarchy. (1 indicates broadest focus; 5 indicates narrowest focus.)
   a) Program management
   b) Portfolio management
   c) Organizational project management (OPM)
   d) Management of organizational strategy
   e) Project management

10. Number and write out the Knowledge Areas in the space below.

11. Write out the Process Groups in order.

12. Indicate the order of the following processes (from first to last) and indicate to which Knowledge Area (KA) and Process Group (PG) each belongs. A few have been filled in for you.

Process	KA	PG
Estimate Activity Resources		
Plan Scope Management		
Define Activities		
Create WBS		
Identify Stakeholders		
Develop Schedule		
Plan Cost Management	Cost	Planning
Develop Project Charter		
Plan Schedule Management	Schedule	Planning
Develop Project Management Plan		
Sequence Activities		
Determine Budget		
Estimate Activity Durations		
Estimate Costs		
Collect Requirements		
Define Scope		

13. Indicate the order of the following Project Risk Management processes and indicate to which Process Group each belongs.

Process	Order	PG
Monitor Risks		
Perform Qualitative Analysis		
Plan Risk Responses		
Identify Risks		
Implement Risk Responses		
Perform Quantitative Analysis		
Plan Risk Management		

14. Indicate the order of the following Project Scope Management processes and indicate to which Process Group each belongs.

Process	Order	PG
Create WBS		
Collect Requirements		
Validate Scope		
Define Scope		
Plan Scope Management		
Control Scope		

15. Indicate the order of the following Project Schedule Management processes and indicate to which Process Group each belongs.

Process	Order	PG
Sequence Activities		
Develop Schedule		
Control Schedule		
Define Activities		
Estimate Activity Durations		
Plan Schedule Management		

16. Describe some Project Integration Management tasks for each of the Process Groups.

17. A project has the following activities and dependencies:

Activity ID	Description	Predecessor
A	Research and design outline	None
B	Review and revise outline	A
C	Procure software platform	A
D	Write first draft	B
E	Review first draft	D
F	Write second draft	E
G	Review and revise second draft	F
H	Design online content	B
I	Write first draft online content	H
J	Review and revise online content	I
K	Develop online software	C, H
L	Test online software	K
M	Edit and control quality	G, J, L

Based only on the above information, other than the last activity, which activity likely has the most risk of schedule slippage?

a) A
b) B
c) K
d) J

18. Develop a project schedule network diagram using the information in question 17.

Based only on the above chart, what is the critical path?

a) A-B-D-E-F-G-M
b) A-B-H-I-J-M
c) A-C-K-L-M
d) There is not enough information to calculate the critical path.

19. Refer to the following duration information for the same project as in the last question:

Activity ID	Description	Duration (Weeks)	Predecessor
A	Research and design outline	4	None
B	Review and revise outline	3	A
C	Procure software platform	8	A
D	Write first draft	9	B
E	Review first draft	2	D
F	Write second draft	4	E
G	Review and revise second draft	3	F
H	Design online content	6	B
I	Write first draft online content	5	H
J	Review and revise online content	3	I
K	Develop online software	11	C, H
L	Test online software	3	K
M	Edit and control quality	3	G, J, L

List all possible project paths and their total durations in the space below. Use the diagram you created in question 18 to help determine the paths. Mark which one is the critical path on your diagram and below.

20. Use the information from the prior question to add just enough information to the diagram you created in question 18 to answer the following question: What is the earliest week that activity J can finish if activity A starts on week 1?
    a) 19
    b) 21
    c) 25
    d) 27

21. Use the information from question 19 to add just enough information to the diagram you created in question 18 to answer the following question: What is the latest week that activity C can start if activity A starts on week 1?
    a) 5
    b) 6
    c) 7
    d) 12

22. Use the information from question 19 to add just enough information to the diagram you created in question 18 to answer the following question: What is the total float of activity F?
    a) 0
    b) 1
    c) 2
    d) 6

23. Use the diagram you completed in the prior question to answer this question: Which activity pairing has the most free float of those listed? (Choose only an option in which free float is calculated correctly.)
    a) B-D: 6 weeks
    b) G-M: 3 weeks
    c) J-M: 6 weeks
    d) C-K: 1 week

24. Facing a deadline constraint of 29 weeks, what is the best place to add a lead of one week? Note that all mandatory or discretionary dependency information shown below is correct.
    a) From activities A to C, since this is a discretionary dependency
    b) From activities B to H, since this is a discretionary dependency
    c) From activities K to L, since this is a mandatory dependency
    d) From activities E to F, since this is a mandatory dependency

25. During the fifth week of the project, changes are proposed to the written content, and the writer for activity D now estimates that it will take 11 weeks instead of nine. In addition, the writer is scheduled to do five weeks of work on a different project after first draft but before second draft, which requires a lag of three weeks between activities E and F. A lead time of one week between activities B and H was previously approved and is still in the new schedule baseline. To get the project done by the week 29 milestone, the project manager proposes that there be a start-to-start relationship between activities F and G with a lag of one week and a finish-to-start relationship between activities G and M with a lead of one week. These changes are submitted to integrated change control and are approved. They are summarized in the table below. Construct a new network diagram with these relationships.

Activity ID	Description	Duration (Weeks)	Predecessor	PDM and Lead or Lag
A	Research and design outline	4	None	None
B	Review and revise outline	3	A	FS
C	Procure software platform	8	A	FS
D	Write first draft	9	B	FS
E	Review first draft	2	D	FS
F	Write second draft	4	E	FS + 3
G	Review and revise second draft	3	F	SS + 1
H	Design online content	6	B	FS – 1
I	Write first draft online content	5	H	FS
J	Review and revise online content	3	I	FS
K	Develop online software	11	C, H	C: FS, H: FS
L	Test online software	3	K	FS
M	Edit and control quality	3	G, J, L	G: FS – 1, J: FS, L: FS

Based on the differences between the network diagram you just created and the one created for questions 18 through 23, is the finish-to-start lead time between activities B and H really needed?

a) No, it is no longer on the critical path, so it should be removed to reduce risk.
b) Yes, it is still on the critical path and should remain.
c) While it is no longer on the critical path, it can remain to add a buffer for later delays.
d) While it is no longer on the critical path, it is too late to propose a change to this activity.

26. What is the new critical path for this project?
    a) A-B-D-E-F-G-M
    b) A-B-H-K-L-M
    c) A-C-K-L-M
    d) All paths except A-B-H-I-J-M are now on the critical path.

27. Match the names of the following quality pioneers with the catchwords often associated with them.

Deming	Fishbone diagram
Juran	Zero defects
Crosby	Design quality in.
Ishikawa	PDCA
Taguchi	Pareto principle

28. List the major characteristics of the Six Sigma approach to quality management.

29. List the steps in the sender-receiver communications model.

1.
2.
3.
4.
5.
6.

Worksheet Answers

Answers to the worksheet question follow.

1. A recognized body of knowledge formed by consensus—the *PMBOK® Guide*; standards and vocabulary that allow professionals to promote common understanding—the standard and glossary in the *PMBOK® Guide*; a means of ensuring that the profession's members are competent—the PMP certification (and others).

2. The 12 principles of project management:
   - Be a diligent, respectful, and caring steward.
   - Create a collaborative project team environment.
   - Effectively engage with stakeholders.
   - Focus on value.
   - Recognize, evaluate, and respond to system interactions.
   - Demonstrate leadership behaviors.
   - Tailor based on context.
   - Build quality into processes and deliverables.
   - Navigate complexity.
   - Optimize risk responses.
   - Embrace adaptability and resiliency.
   - Enable change to achieve the envisioned future state.

3. Stewards act with integrity, care, and trustworthiness and maintain internal and external compliance.

4. To ensure that value is realized from a project, teams should focus on the intended outcome instead of on specific deliverables.

5. Building quality into processes and deliverables should focus on meeting acceptance criteria for deliverables.

6. Risk responses should be appropriate given the importance of the risk, be cost-effective, be realistic for the given project, be agreed upon by relevant stakeholders, and be assigned to a responsible person.

7. The eight Performance Domains are as follows:
   - Stakeholder
   - Team
   - Development Approach and Life Cycle
   - Planning
   - Project Work
   - Delivery
   - Measurement
   - Uncertainty

8. Stakeholder engagement process: Identify, understand, analyze, prioritize, engage, and monitor.

9. a: 4, b: 3, c: 2, d: 1, e: 5. Organizational strategy is translated into the organizational project management hierarchy, which is then implemented as portfolio management, program management, and project management.

10. The Knowledge Areas are as follows:

    1. Project Integration Management
    2. Project Scope Management
    3. Project Schedule Management
    4. Project Cost Management
    5. Project Quality Management
    6. Project Resource Management
    7. Project Communications Management
    8. Project Risk Management
    9. Project Procurement Management
    10. Project Stakeholder Management

11. Initiating, Planning, Executing, Monitoring and Controlling, Closing

12.

Process	KA	PG
Estimate Activity Resources	Resource	Planning
Plan Scope Management	Scope	Planning
Define Activities	Schedule	Planning
Create WBS	Scope	Planning
Identify Stakeholders	Stakeholder	Initiating
Develop Schedule	Schedule	Planning
Plan Cost Management	Cost	Planning
Develop Project Charter	Integration	Initiating
Plan Schedule Management	Schedule	Planning
Develop Project Management Plan	Integration	Planning
Sequence Activities	Schedule	Planning
Determine Budget	Cost	Planning
Estimate Activity Durations	Schedule	Planning
Estimate Costs	Cost	Planning
Collect Requirements	Scope	Planning
Define Scope	Scope	Planning

13.

Process	Order	PG
Monitor Risks	7	Monitoring and Controlling
Perform Qualitative Analysis	3	Planning
Plan Risk Responses	5	Planning
Identify Risks	2	Planning
Implement Risk Responses	6	Executing
Perform Quantitative Analysis	4	Planning
Plan Risk Management	1	Planning

14.

Process	Order	PG
Create WBS	4	Planning
Collect Requirements	2	Planning
Validate Scope	5	Monitoring and Controlling
Define Scope	3	Planning
Plan Scope Management	1	Planning
Control Scope	6	Monitoring and Controlling

15.

Process	Order	PG
Sequence Activities	3	Planning
Develop Schedule	5	Planning
Control Schedule	6	Monitoring and Controlling
Define Activities	2	Planning
Estimate Activity Durations	4	Planning
Plan Schedule Management	1	Planning

16. During **Initiating,** integration is used to define the project objectives and get formal project authorization in the form of a project charter, which is used to identify stakeholders and becomes the basis for Planning processes.

    During **Planning,** integration involves taking the charter plus the plans from each of the other Knowledge Areas and ensuring that everything fits together in a cohesive project management plan.

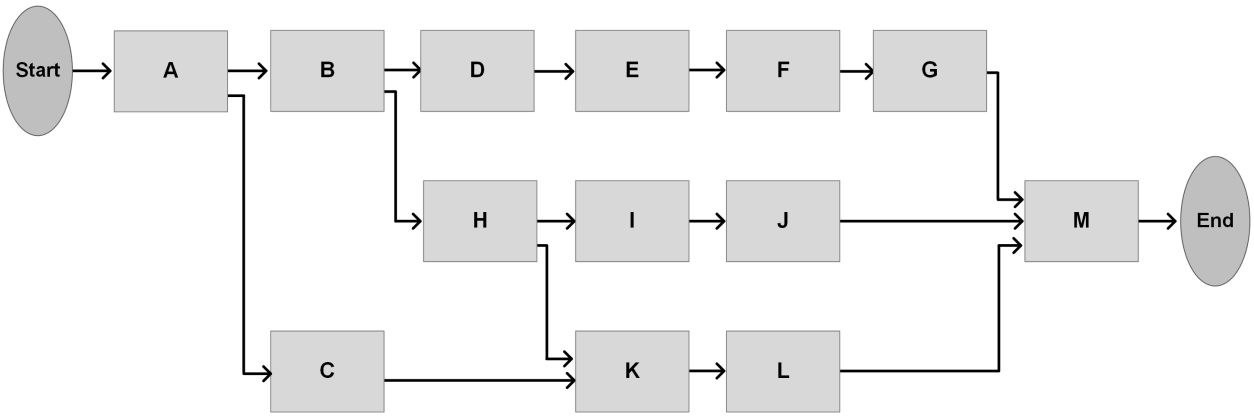
    During **Executing,** integration involves providing leadership and management to team members who are performing the activities as well as implementing approved changes.

    During **Monitoring and Controlling**, integration involves transforming project data into actionable information and reports. Perform Integrated Change Control is a key process; it uses the term "integrated" to emphasize that the project manager always analyzes proposed changes for their impacts and tradeoffs in constraints. Change requests can come from Executing or Monitoring and Controlling activities. Approved changes are then documented and communicated to stakeholders.

    During **Closing,** integration involves ensuring that the final results meet expectations and objectives (by integrating with the Validate Scope process) and are accepted if possible and all activities (including procurements) are finalized before formally completing the phase or project.

17. c. There is a larger risk of schedule slippage whenever an activity has two or more precedent activities. At these points, a delay in any preceding activity could delay this and all later dependent activities.

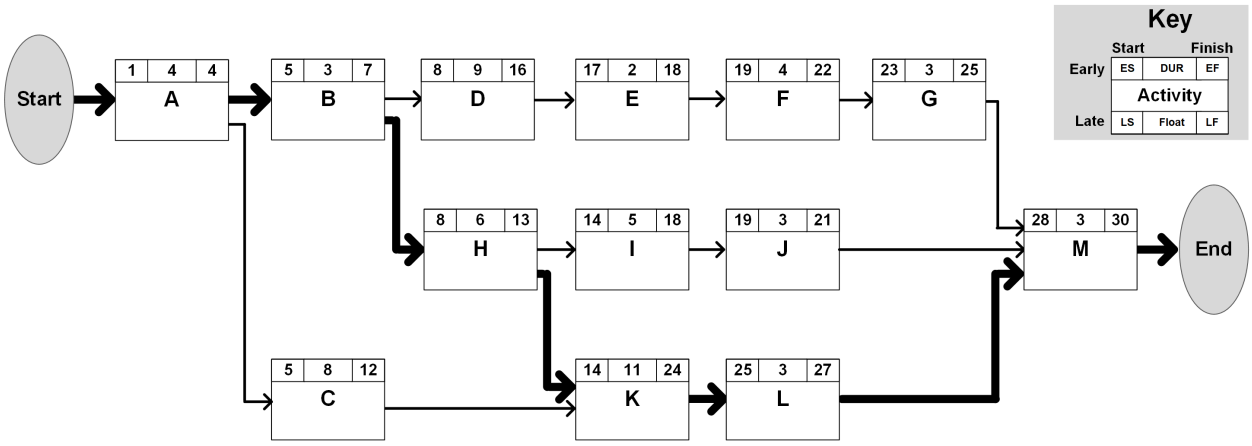
18. d



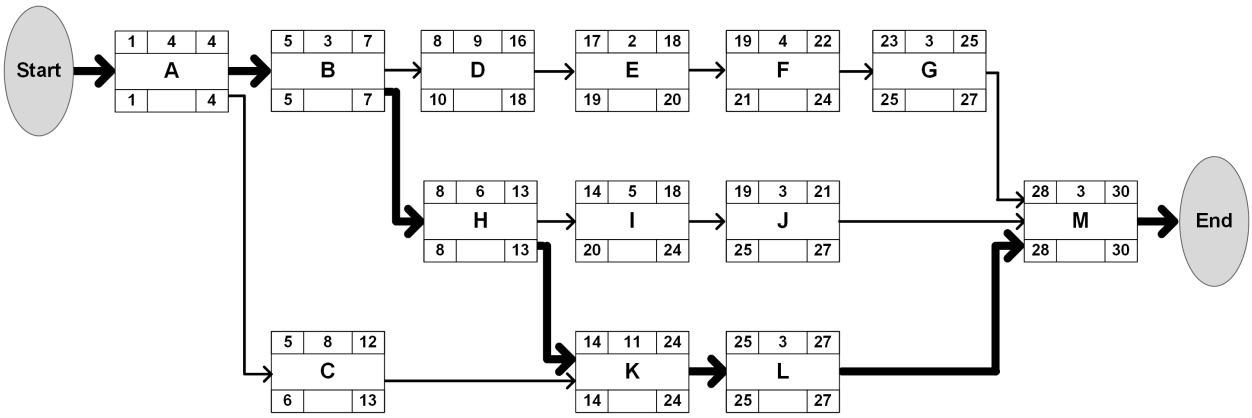
19.

A-B-D-E-F-G-M = 4 + 3 + 9 + 2 + 4 + 3 + 3 = 28
A-B-H-I-J-M = 4 + 3 + 6 + 5 + 3 + 3 = 24
A-B-H-K-L-M = 4 + 3 + 6 + 11 + 3 + 3 = 30 This is the critical path.
A-C-K-L-M = 4 + 8 + 11 + 3 + 3 = 29

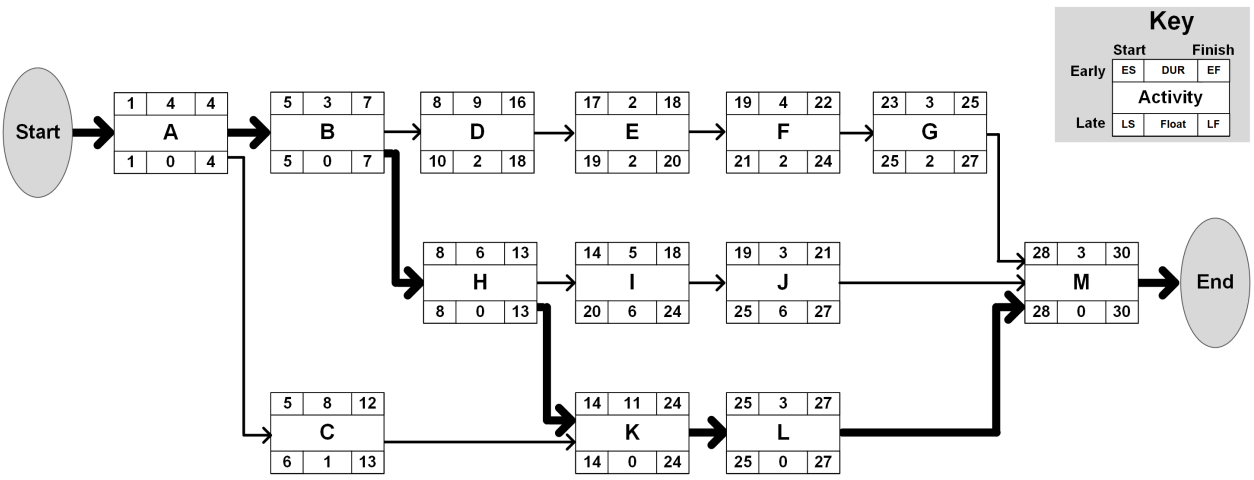
20. b



21. b



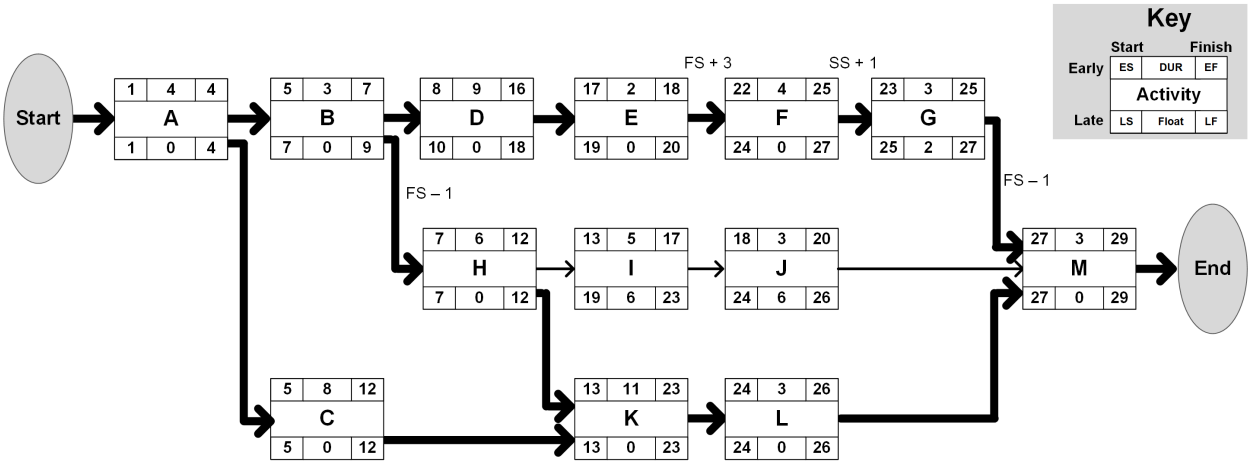
22. c



23. c

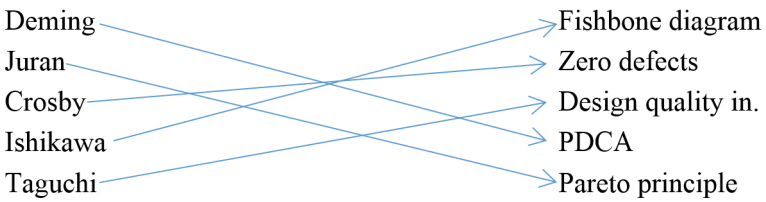
24. b

25. b



26. d. See the diagram for question 25.

27. The quality pioneers are matched with their catchwords as follows.



28. The major characteristics of the Six Sigma approach to quality management are full integration with the organization's business strategy, demonstration of the positive financial impact of implementing the Six Sigma methodology, and fact-based decision making.

29. The order of the steps is as follows.

1. A sender encodes a message.
2. The sender transmits the message in a medium.
3. The receiver decodes the message.
4. The receiver acknowledges the message in a medium.
5. The receiver encodes feedback in a medium.
6. The sender decodes the feedback.

Exam-Taking Tips

A Day or Two Before the Exam

The PMP exam is offered in Prometric testing centers. An important first consideration after signing up to test is to know how to get to the testing center and how long it will take to get there (adding time for bad weather or traffic). If it is unclear, you may wish to pay a visit there a day or two in advance. Determine not only where the building is but where the testing center is in the building; it may not be easy to find. This will reduce risks of being late and exacerbating your exam-day nerves.

Get a good night's sleep the day before the exam and good meals the night before and the day of the exam. Since the human brain requires a night's sleep to transform learning into memory, do not study much on the day of the exam. Get prepared in the days leading up to the exam and, on the day of the exam, focus instead on doing things that help you get and stay calm.

The Exam-Day Experience

The testing center is a secure location, so you will need to empty your pockets and leave your phone, wallet/purse, and other things in a storage locker once you have checked in. The testing center staff will explain the exam process, give you some pencils and scratch paper, and then set you down at a computer. These computers will have a software-based four-function calculator as part of the learning environment, but if you want a physical calculator, be sure to ask for one in advance. You can also ask for more paper or pencils in advance.

Starting the Exam

The first part of the exam is a 15-minute tutorial on how to use a mouse, how to answer the multiple-choice questions, and how to mark them for review and return to the review later. Even if you are comfortable with this type of exam, go through the tutorial so that you don't have any surprises after the timed exam begins.

When you start the actual exam, the timer will start. As noted earlier, you may want to use the first few minutes of the exam to write out the Process Group and Knowledge Area map and the math formulas.

Pacing Yourself

You will need to keep up a steady pace to finish on time. After the first 15 minutes of answering test questions, determine whether you will finish on time if you keep working at your current pace. If not, you need to find ways to work more efficiently. One way to make your multiple-choice process more efficient is to determine which answers are definitely wrong and rule those out so that there are fewer answers to mull over.

Marking for Review

Many people find it helpful to automatically mark for review any question that involves math calculations and then return to these at the end when you know how much time you have left. One advantage of doing it this way is that you might find that one exam question provides the answer to a different question.

While you can use the mark-for-review function for questions you are unsure of, be sure to select an answer for these before moving on, because if you run out of time, you won't necessarily get these questions wrong. Be sparing in how often you use the mark-for-review function. Reviewing takes time, so the fewer questions marked for review, the more time you will have for each review question. Often your first choice is correct and you can second-guess yourself into a wrong answer. Question your reasons for changing an answer and make a change only if you have strong reasons to do so.

Question Analysis Grid

When taking tests, it is helpful to have a consistent plan for addressing each question. Practicing this strategy as you take the quizzes will help you develop a comfortable approach that will be second nature by the time you take your credential exam.

If you develop a familiar and consistent notation, you'll save time on the test if you decide to mark a question to come back to later. This question analysis grid will assist you in developing a habit of writing down a question number and key elements to avoid starting from scratch on a question when you return to it.

Below is a short description on how to use each element of the grid. This is followed on page two with a blank template, and on page three with an example of the grid in use on a sample question.

Identify the stem question	Correctly identifying the key elements or stem of the question being asked helps you to avoid problems resulting from misinterpreting the question. By stripping away the extraneous information in the question, you can focus more clearly.
Predict the answer	Predicting the answer before you look at the choices helps you to focus on choices that match your initial response, making it easier to identify distractors.
Locate the concept in the content	Locating the concept in the content before you look at the potential answers helps you avoid distractors in the incorrect answers, and lets you focus in on the correct concepts.
Analyze the choices	As you read each of the possible answers, evaluate each one individually. Each incorrect answer that you can eliminate improves the odds of selecting the correct answer. **No** – if you can rule out the answer **Maybe** – if you can't rule it out **Yes** – if you think the answer is correct
Select the best answer	Finally, you will need to select the best answer from the remaining options.

Graphic Organizer: Template

Identify the stem question	Question # ____ What is truly being asked? What are the key elements of the question?
Predict the answer	
Locate the concept in the content	
Analyze the choices: **No** – if you can rule out the answer **Maybe** – if you can't rule it out **Yes** – if you think the answer is correct	A. _____ B. _____ C. _____ D. _____
Select the best answer	

Graphic Organizer: Example

Here's an example of using the Graphic Organizer. The actual question and possible answers are in red.

Identify the stem question	**What is a clear signal that you are working on an operational activity rather than a project activity?** Find the **operational activity** that does not apply to a project activity.
Predict the answer	The operational activity will be: ongoing, have no end date, result in normal day to day outputs, produce a continuing product, use permanent positions, be managed by functional manager. It will **not** produce a unique product, service or result, will not have a specific start date and a specific end date.
Locate the concept in the content	Ch 1 – Project Concepts - definition of operations vs. definition of a project
Analyze the choices **No** – if you can rule it out **Maybe** – if you can't rule it out **Yes** – if you think it is correct	**A. The end date has changed more than once.** No – an end date is a project characteristic, not an operations one. B. **There is no projected end date.** Maybe – projects should have projected end dates. C. **The work is the same as prior organizational work with only a few exceptions.** Maybe – although this could apply to either a project or operations. D. **The work produces intangible results that are expected to last indefinitely.** Maybe – this could be either a project or operations.
Select the best answer	If you have more than one YES, and MAYBE, weigh the options and select the best answer. B – operational activities are ongoing while projects have start and end dates. This is the best answer because it only applies to operations.