Instructions for the next 11 Questions:

In this section of the exam, you will be presented with a bundle of project information and you will be asked to make decisions based upon what you have been provided. The materials provided are rather extensive, but all the calculations are quite simple. Read the situation below, then grab the information you have been provided (which is located after question 29) and answer the remaining questions of the exam based upon this information knowing the situation you are in.

Here is the situation: You are a project manager for a civil construction company. Your team has completed much of the initial and planning activities for a new municipal in ground pool being built at a neighborhood park in London, Ontario. Your management has called for a meeting later this afternoon to get a final understanding regarding the timing and risks moving forward because you are getting pretty close to starting the major activities requiring execution to build the pool. They want to review the network activity diagram and the Gantt chart. The problem is, you have spilled your coffee all over your network activity diagram!!! Five major stains are staring back at you on the page. What can you do! You have to remember what those numbers were, or your management will be disappointed in you! You will have to recalculate them. To make matters worse, the time you take recalculating the network activity diagram numbers has prevented you from calculating a summary of the risks for the project, which undoubtedly management will ask for as well. You will have to come up with the risks numbers pretty quickly. But first, what is under that coffee!!!! Please see your documents attached. Note that they all go together.

Question 19:

Based upon the fact that you are likely to be blasted by your management this afternoon for your incompetence, and knowing no extension or reschedule will be allowed, which of the following will you do:

A) Call in sick for the afternoon meeting.
B) Make up the numbers from memory as best you can.
C) Call your manager to inform him of your situation and ask for an extension or reschedule if possible.
D) Just show the Gantt chart. The network activity diagram and the Gantt chart provide the exact same information anyway.
E) Bring the Work Breakdown Structure Dictionary with you to the meeting. This document while very wordy, will provide most of the answers.

Question 20:

Under coffee stain number 1, you would find:

A) A number smaller than 0.25, indicating that activity E, excavate, does possess the largest float and is therefore easy to crash
B) A number larger than 0.25, but smaller than 1, indicating that everything that goes in the pool should float.
C) The number 2.25 which represents the number of weeks this activity could be delayed without putting the finish date of the project at risk.
D) The number 0.00 because building the fence, deck, and clubhouse is on the critical path.
E) The letter E, representing E for Excavate.

Question 21:

Under coffee stain number 5, you would find:

A) the critical path
B) 13.75, 13.75, and 1.00 demonstrating the project is on time
C) 10.41, 13.75, and 0.00 reflecting the latest start, latest finish, and float of the project
D) the longest activity in the project
E) the shortest activity on the critical path

Question 22:

Under coffee stains 3 and 4, you would find:

A) 21.25, 21.25 representing the number of weeks <u>not</u> on the critical path
B) the earliest start of activity J
C) Nothing. It is blank under there, just like coffee stain 2.
D) 18.75 and 18.75 representing the number of weeks <u>not</u> on the critical path
E) 21.25, 21.25 representing the number of weeks it is estimated to take to complete the project

Question 23:

Based upon your observations of the network activity diagram, the critical path for the project is:

A) A-B-E-F-I-J
B) A-C-D-G-J
C) A-C-D-H-J
D) A-B-C-D-E-F-G
E) I-B-A-D-I-D-I-E

Question 24:

The total cost of all risks on the project is:

A) $188,000
B) $317,600
C) $37,600
D) $44,600
E) $39,600

Question 25:

The total cost of the project is:

A) $188,000
B) $317,600
C) The difference between $317,600 and $188,000 because project risks can by definition never exceed project costs.
D) The sum of $188,000 and $317,600 because we must assume the worst in our budget – that all risks come true.
E) Negotiable because this is a public works project.

Question 26:

If the project is started on January 20, 2012 then 21.25 weeks later puts the date at June 29, 2012. This is one week after the day the elementary school children get out for the summer. What activities could we consider crashing in the project in order to get one week of better timing and ensuring the school children get a pool in time for summer?

A) Activity H – hiring staff. We could do this in way less than 5.33 weeks.
B) We should look at all of them on the critical path for this opportunity.
C) Anything but pool design, activity B. You never want to crash your riskiest item.
D) Anything but applying lining and pouring concrete. You have to do that at a certain time or you will destroy the cement mixer.
E) Only activities A and J the first and last tasks, because they are on all possible paths through the project.

Question 27:

What is the maximum amount of time you expect your company <u>to actually work</u> on this project?

A) 35.75 weeks
B) 34.5 weeks
C) 358 man hours
D) 46 weeks
E) 21.25 weeks

Question 28:

By observing the Gantt chart and comparing it to the work breakdown structure, you can see that generally the riskier items in the project appear to be items associated with project Execution as opposed to project Planning. In fact, only one item, Pool Design, has a medium or high risk severity that is not an Execution type item. Pool Design is of course more of a Planning or Development type item. Does it surprise you that such a risky item is at the beginning of a project?

A) Yes, in general it was taught in class that the amount at stake for risk is less as you get closer to the beginning of a project, so this is surprising. The PM should focus on this.
B) Yes, but this could just mean the construction company does not understand risk very well.
C) Yes, it must be a mistake.
D) No, large risks can occur anywhere. In fact the lessons we learned in class say nothing about where high severity risks are most likely to occur.
E) You would have to do the decision tree analysis for make or buy to really know for sure.

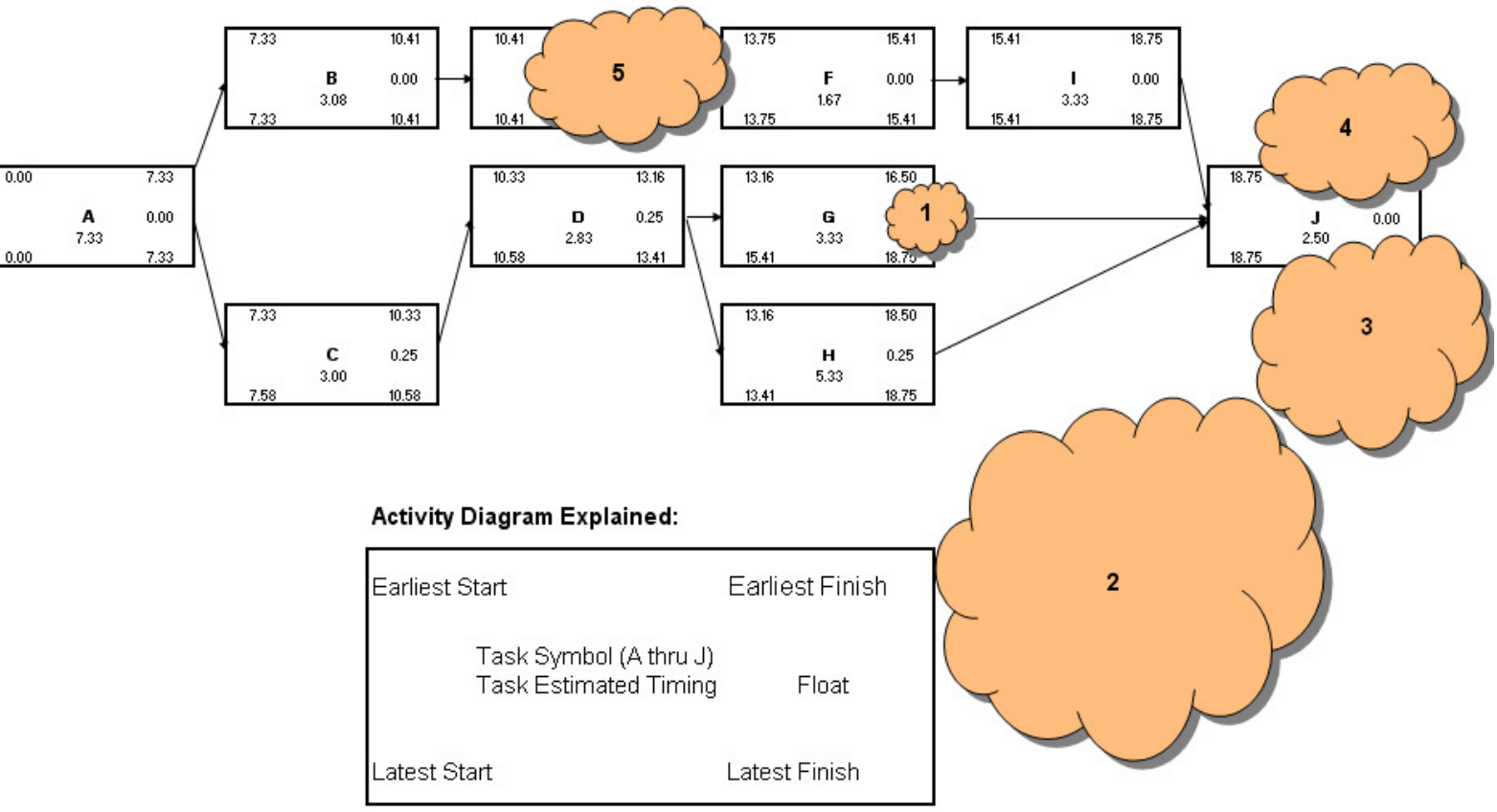
Question 29:

"Red Risks" are risks that share a defined combination of medium and high likelihood and consequences. As we learned it from the Risk Matrix presented in class, the only red risks in your situation now that need a plan to be worked out in advance of the event from happening to mitigate the effects are:

A) Hire staff; Build Fence, deck, and clubhouse;
B) Pre-source building and deck suppliers; obtain building permit;
C) Excavate; Design Pool;
D) Review Lessons Learned from previous projects; Apply lining and pour concrete;
E) Hire Staff; Prepare for first day of operation

Project Manager Documents

Network Activity Diagram for Building a Municipal in ground Pool



Activity Diagram Explained:

Earliest Start	Earliest Finish
Task Symbol (A thru J) Task Estimated Timing	Float
Latest Start	Latest Finish

Network Activity Chart

Tasks to build in-ground community pool	Task Symbol for Activity Diagram	Best Timing (wks)	Worst Timing (wks)	Most Likely Timing (wks)	Task Estimated Timing (wks)
Review Lessons Learned from Previous Projects	A	6	10	7	7.33
Design Pool	B	2.5	4	3	3.08
Pre-source pool and deck suppliers	C	2	4	3	3.00
Secure building permit	D	2	5	2.5	2.83
Excavate	E	2	4	3.5	3.33
Apply lining and pour concrete	F	1	2	1.75	1.67
Build fence, deck & clubhouse	G	2	6	3	3.33
Hire Staff	H	4	8	5	5.33
Seal and paint	I	3	4	3.25	3.33
Prepare for First Day of Operation	J	2	3	2.5	2.50

Task Estimated Timing = (Best + Worst + (4* Most Likely))/6

Work Breakdown Structure Dictionary

Activity Number	1.0.0
Activity Name	Review Lessons Learned from Previous Projects
Cost	$10,000
Duration	6 to 10 weeks
Work package	40 hours
Resources	City hall reviews, archive search and brainstorming meetings
Risk	Project is held up in city budget committee and we miss key July launch date
Risk Strategy	Move the business forward on city council agenda
Risk likelihood	High - 80% chance
Risk severity	Low - Puts only part of yr 1 revenue at risk ie $5,000

Activity Number	2.0.0
Activity Name	Design Pool
Cost	$10,000
Duration	2.5 to 4 weeks
Work package	40 hours
Resources	CAD designer and soil samples
Risk	Neighborhood cannot agree on fun kidney shape. They want traditional shallow/deep rectangle.
Risk Strategy	Avoid this delay by also completing a shallow/deep traditional design
Risk likelihood	High - 80 % chance
Risk severity	Medium - Risk is that the fight may drag out past last day to order materials for summer season $20,000 at risk

Activity Number	2.0.1
Activity Name	Excavate
Cost	$50,000
Duration	2 to 4 weeks
Work package	16 hours
Resources	Rental of back hoe and dozer
Risk	Local rental agency cannot supply heavy earth movers to meet our timing.
Risk Strategy	Accept this risk. There are a lot of suppliers locally.
Risk likelihood	High - 40 % chance
Risk severity	Medium - We have to bring in out of town equipment at a $20,000 premium

Activity Number	2.0.2
Activity Name	Apply Lining and Pour concrete
Cost	$30,000
Duration	1 to 2 weeks
Work package	60 hours
Resources	Cement mixer
Risk	Ready mix quick curing concrete solidifies in cement mixer.
Risk Strategy	Transfer the risk. Take out $1,000 insurance.
Risk likelihood	Low - 2 % chance
Risk severity	High - We are at risk of having to replace the cement mixer worth $250,000

Activity Number	2.0.3
Activity Name	Seal and Paint
Cost	$30,000
Duration	3 to 4 weeks
Work package	40 hours
Resources	painting sub-contractor
Risk	Epoxy paint is not compatible with chlorine causing discoloration during the warranty period.
Risk Strategy	Transfer the risk. Take out $1,000 insurance.
Risk likelihood	Low - 5 % chance
Risk severity	Medium - We are at risk of having to repaint for another $30,000

Activity Number	3.0.0
Activity Name	Pre-source Pool and deck suppliers
Cost	$3,000
Duration	2 to 4 weeks
Work package	16 hours
Resources	Purchasing agent from our company
Risk	Cannot locate cost effective suppliers putting approved budget at risk.
Risk Strategy	Accept this risk. There are a lot of suppliers locally.
Risk likelihood	Low - 20 % chance
Risk severity	Low - We can always just go with a lower cost contractor. Redo purchasing work to lower standard $3,000 at risk

Activity Number	3.0.1
Activity Name	Secure Building Permit
Cost	$5,000
Duration	2 to 5 weeks
Work package	16 hours
Resources	Engineering staff to work with city hall
Risk	Building permit not completely approved. Changing rooms not allowed in proposed location.
Risk Strategy	Ensure that a back up site is also prepared in case the city will not allow building on the proposed site.
Risk likelihood	Low - 10 % chance
Risk severity	Low - The rooms will be allowed somewhere on site. Design inconvenience at risk $5,000

Activity Number	3.0.2
Activity Name	Build Fence, deck and clubhouse
Cost	$40,000
Duration	2 to 5 weeks
Work package	80 hours
Resources	deck tiler, fence contractor, shed fabricator, drywaller, roofer, decorator.
Risk	Lining up all the sub trades for such a small job causes delays.
Risk Strategy	Get as much of the clubhouse prefabricated off site as possible
Risk likelihood	Medium - 30 % chance
Risk severity	Medium - Revenue is at risk, because you cannot launch the pool without a clubhouse. $20,000

Activity Number	3.0.3
Activity Name	Hire Staff
Cost	$5,000
Duration	2 to 5 weeks
Work package	10 hours
Resources	human resource personell to conduct interviews and set up payroll
Risk	No applicants due to the pool remaining open past Labor day all the way to September 30
Risk Strategy	Interview internal full time city employees first who do not have to go back to school.
Risk likelihood	Low - 10 % chance
Risk severity	Low - Despite pool being open, a much smaller staff is expected for September. Repeat hiring effort $5,000

Activity Number	4.0.0
Activity Name	Prepare for first day of operation
Cost	$5,000
Duration	2 to 3 weeks
Work package	40 hours
Resources	full time city aquatic personel
Risk	employees cannot be trained in time as they do not have their Bronze
Risk Strategy	Ensure all hirees if possible have Bronze lifeguarding designation
Risk likelihood	Low - 10 % chance
Risk severity	High - the pool can be legally run with non-Bronze staff, but insurance premiums go up by 10 times. Risk $25,000

Gantt chart

Project: Build in ground municipal pool

Work Required:	wk1	wk2	wk3	wk4	wk5	wk6	wk7	wk8	wk9	wk10	wk11	wk12	wk13	wk14	wk15	wk16	wk17	wk18	wk19	wk20	wk21	wk22
Initiating the Project																						
A: Review Lessons Learned from Previous Projects 1.0.0	x	x	x	x	x	x	x	x														
Plan and Execute pool installation																						
B: Design Pool 2.0.0								x	x	x	x											
E: Excavate 2.0.1											x	x	x	x								
F: Apply lining and pour concrete 2.0.2														x	x	x						
I: Seal and paint 2.0.3																x	x	x	x			
Plan and Execute building and deck structures																						
C: Pre-source pool and deck suppliers 3.0.0								x	x	x	x											
D: Secure building permit 3.0.1											x	x	x	x								
G: Build fence, deck & clubhouse 3.0.2														x	x	x	x					
H: Hire Staff 3.0.3														x	x	x	x	x	x			
Training Activities																						
J: Prepare for First Day of Operation 4.0.0																			x	x	x	x