

PROJECT MANAGEMENT

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I

(6 / 20)

(Adapted from Winston, 1994)

The promoter of a rock concert must perform the tasks shown in the table below before the concert can be held (all durations are in days).

Activity	Activity description	Time estimates (days)			Preceding tasks
		Optimistic	Most Likely	Pessimistic	
A	Find site	2	3	4	--
B	Find engineers	1	2	3	A
C	Hire opening act	2	6	10	A
D	Set radio and TV ads	1	2	3	C
E	Set up ticket agents	1	3	5	A
F	Prepare electronics	2	3	4	B
G	Print advertising	3	5	7	C
H	Set up transportation	0.5	1	1.5	C
I	Rehearsals	1	1.5	2	F, H
J	Last-minute details	1	2	3	I

- a) Draw a project A-o-A network for this project.
- b) Determine the critical path, the expected completion time and the floats (total and independent) for the activities.
- c) If the advance promoter wants to have a 99% chance of completing all preparations by June 30, when should work begin on finding a concert site?
- d) Develop a schedule for this project avoiding the “as soon as possible” assumption but keeping in mind that the project is supposed to be finished by June 30. Please state clearly what are your assumptions concerning the use of the overall slack time.

II

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Consider the simplified list of activities and predecessors that are involved in building a house in the following table.

Activity	Activity description	Preceding tasks	Duration (days)
A	Build foundation	--	5
B	Build walls and ceiling	A	8
C	Build roof	B	10
D	Do electrical wiring	B	5
E	Put in windows	B	4
F	Put on siding	E	6
G	Paint house	C , F	3

- a) Draw a project A-o-N network, determine the critical path, find the total float for each activity, and find the free float for each activity.
- b) Suppose that by hiring additional workers, the duration of each activity can be reduced. The costs per day of reducing the duration of the activities are given in the next table.

Activity	Cost per day of reducing duration	Maximum possible reduction in duration (days)
A	300	2
B	150	3
C	200	1
D	400	2
E	200	2
F	300	3
G	400	1

Use marginal cost analysis to determine which activities should be crashed and what is the global cost to complete the project within 20 days.

- c) Formulate the same problem using the linear programming approach.

III

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Part of the matrix mapping PM processes in the PMBOK is presented in Annex I (showing twelve of the forty-two processes). Please pick **TWO** of this processes, necessarily from different groups (columns), describe them briefly and illustrate them with examples from at least two different group presentations in class.

IV

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Please choose the (single) right answer to the following questions:

1. **Which of the following are the essential characteristics that make a group of activities a project?**
 - A. It takes multiple individuals to perform these activities and it creates a new product.
 - B. The work is managed by a project manager.
 - C. The group has a plan and a budget.
 - D. The group has a start date and a finish date, and its outcome will be a new product.

2. **You are being interviewed by a functional manager who says, "We have this huge undertaking of launching an online education website that contains different components, such as designing the website; developing the content; developing the administrative system, including registration and payment; marketing the courses on the website; integrating different components of the website; and finally going live. Each component is functionally complex and large enough that it will be better served under a different management." The manager is most likely describing a:**
 - A. Project
 - B. Program
 - C. Operation
 - D. Portfolio

3. **Both projects and operations share all the following characteristics except:**
 - A. Performed by individuals.
 - B. Planned, executed, monitored and controlled, and closed.
 - C. Limited by constraints.
 - D. Performed to achieve the strategic objectives of the organization.

4. **All of the following are true about a project except:**
 - A. Cost is low and stakeholder influence is highest in the beginning.
 - B. Staffing levels and the ability to influence the product characteristics are both low at the end of the project.
 - C. When the project is executing, both cost and stakeholders' influence are at their highest.
 - D. Uncertainty is at its highest in the beginning of the project.

5. **The project manager is responsible for achieving project objectives in an organization with the following structure:**
 - A. Projectized only
 - B. Strong matrix and projectized only
 - C. Matrix and projectized only
 - D. All structures

6. **You have just joined an organization as a project manager and are studying the enterprise environmental factors of the organization to find out how you can leverage them for the success of your upcoming projects. Enterprise environmental factors may have what kind of influence on the projects?**
 - A. Positive only
 - B. Negative only
 - C. Positive or negative
 - D. None

Annex I

Process Groups Knowledge Area	Initiating	Planning	Executing	Controlling	Closing
4. Project Integration Management	Develop Preliminary Project Scope Statement				
5. Project Scope Management		Scope Definition			
6. Project Time Management		Schedule Development		Schedule Control	
7. Project Cost Management		Cost Budgeting		Cost Control	
8. Project Quality Management				Perform Quality Control	
9. Project Human Resource Management		Human Resources Planning			
10. Project Communications Management			Information Distribution	Performance Reporting	
11. Project Risk Management		Risk Response Planning			
12. Project Procurement Management		Plan Contracting			

SOME of the Project Management Processes mapped to the Process Groups and Knowledge Areas