

National Exams December 2002

Civ-B8, Management of Construction

3 hours duration

Notes:

1. If doubt exists as to the interpretation of any question, the candidate is urged to submit with the answer paper, a clear statement of any assumptions made;
2. This is a "Closed Book" exam. Candidates may use one of two calculators, the Casio or the Sharp approved models;
3. Any five questions constitute a complete paper. Only the first five questions as they appear in your answer book will be marked.
4. All questions are of equal value.

1. Scheduling:

Given the following project data, calculate and show:

- A. The logic network.
- B. The Critical path.
- C. What is the effect of delaying activity G by 5 days?
- D. What is the overall percent complete of the project, to-date?

Activity	Predecessors	Duration	Cost x \$1,000	Actual Percent Complete, to-date
A	---	4	5	100%
B	A	6	3	100%
C	A	2	4	70%
D	A	9	2	50%
E	B	3	4	15%
F	D	10	5	---
G	B	8	2	---
H	C, E	2	2	---
I	F	4	4	---
J	G, H, I	2	3	---

2. Contract Administration:

Discuss the project environment that best suits the following contractual approaches: Design-Bid-Build, Turnkey, and BOT. Also, discuss the level of risk carried by both the owner and the contractor organizations in each of the three contractual approaches.

3. Construction Delays:

Briefly discuss the following: excusable versus non-excusable delays; compensable versus non-compensable delays; and concurrent versus non-concurrent delays. Mention possible ways to minimize disputes over construction claims.

4. Engineering Economics:

An appraisal of two alternative projects is being carried out. Given the following cash flow, calculate the most economical plan using present value profit. Use a discount rate of 10% per year.

	<u>Project A</u>	<u>Project B</u>
Initial Investment	\$60,000	\$75,000
Yearly operating cost	\$1,500	\$1,000
Major Maintenance (every 5 years)	\$5,000	\$4,000
Yearly revenue	\$12,500	\$15,000
Life	15 years	15 years

5. Safety Practices and Regulations:

Construction sites can be considered as being one of the most hazardous types of working environments. Discuss some of the important practices that need to be adopted on the construction site of a high-rise building project to assure an accident-free environment.

6. Productivity:

Discuss the factors that can impact workers productivity on construction sites. Discuss briefly how productivity can be measured and ways to improve it.