

National Exams May 2012

98-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.

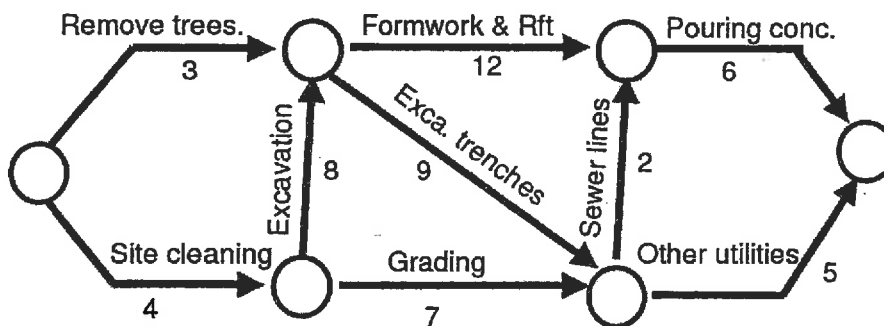
Marking Scheme

1. 20 marks
2. 20 marks
3. 20 marks
4. 20 marks
5. 20 marks
6. 20 marks

1. Scheduling:

The figure below represents the network diagram of a small 9-activity project with the durations shown below each activity. Complete the following:

- Identify the critical path and calculate its length in days.
- Draw an early bar chart.
- For each task not on the critical path, calculate its latest start time.



2. Contract Administration:

Compare the circumstances that mandate the use of lump sum, unit price, or negotiated cost-plus contracts. Also, discuss the advantages and disadvantages of the following types of negotiated cost-plus contracts: (1) cost plus fixed percentage; (2) cost plus fixed fee; (3) Guaranteed Maximum Price; and (4) cost plus sliding fee.

3. Insurance:

Discuss the differences between bid bonds and performance bonds. Also, discuss the purpose and mechanics of liens in construction.

4. Engineering Economics:

An appraisal is being carried out for two alternative projects with the cash flows shown below. At what level of initial investment will Project A be as attractive as Project B? Use a discount rate of 10% per year.

	Project A	Project B
Initial Investment	?	\$80,000
Yearly operating cost	\$1,500	\$1,000
Major Maintenance (every 3 years)	\$5,000	\$3,000
Yearly revenue	\$15,000	\$25,000
Life	4 years	3 years

5. 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.

6. Labor Relations:

Discuss the pros and cons of hiring unionized versus non-unionized labor for your construction project.