

The University of Melbourne

Semester Two, 2004

Faculty of Architecture, Building and Planning

Subject Number: 702-316

Subject Title: Management of Construction 3

The student is to write the student's number on the examination answer booklet.

Exam Duration: Three (3) hours

Reading Time: 15 minutes

This paper has 3 pages

Authorised materials:

Electronic calculators

Instructions to Invigilators:

Standard script books only required.

Exam paper may be removed from the examination room.

Instructions to students:

Answer **FIVE (5)** questions; **ONE** from each of the five parts of this paper.

All questions are of equal value.

Start each question on a new page.

Clearly state any assumptions that you make in answering any questions.

Paper to be held by Baillieu Library

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QUESTION 1

- a. What is to be managed in the construction phase of a project from the point of view of the construction manager?
- b. Discuss the relationships between the client function, the design function and the project management function in the context of a construction project. Consider the following stages: the brief, the concept, design development and construction.

QUESTION 2

- a. Discuss the relative merits of the three following planning techniques: bar chart (Gantt chart), network analysis (precedence diagram), flow line (line of balance).
- b. What steps would you take to shorten the critical path in a construction project? Which of the three planning techniques listed above is preferable in planning project time acceleration?

QUESTION 3

You are required to allocate durations for the activities in a construction project in the construction industry which is becoming more competitive. In order to maintain your competitive edge, discuss how you would investigate improvements in productivity on site. Consider such approaches as work study, work measurement, work sampling, activity sampling, labour and plant constants, time study and method study.

QUESTION 4

What is the use of projecting cash flows for the duration of a construction project from date of possession of the site to the date of final completion? Illustrate your answer using the following cash flow:

Month	1	2	3	4	5	6	7	8	9	12
Cash flow	100	200	400	600	800	600	400	200	100	200

QUESTION 5

You are to choose a project procurement method for the following projects:

- a suburban office building,
- a city building for a government department,
- an institutional building of high quality design and
- an owner-occupied administration building.

Which method would you choose? Give reasons for your choice. What other methods are available for allocating risks to, and transferring risks between, the owner and the contractor?

QUESTION 6

Identify the unsystematic risks associated with the development (including the construction) of an office property in docklands. What sort of techniques would you use to analyse these risks?

QUESTION 7

- a. What do you understand by the term "earned value"?
- b. You are to prepare a progress claim for a building under construction. Discuss the steps that you would take in order to complete the claim. List and briefly describe the items that you would include in the claim.

QUESTION 8

What are the major components of a work breakdown structure? Illustrate your answer with a hypothetical multi-storey office building having a 3-level basement and a 2-level podium both covering the whole site as well as 20 upper floors in a tower. Prepare an outline construction plan for the project.

END OF EXAMINATION PAPER