

**UNIVERSITY OF SOUTH AUSTRALIA
SCHOOL OF GEOINFORMATICS, PLANNING & BUILDING**

**PROGRAM(S): Bachelor of Construction Management & Economics &
Diploma in Built Environment**

COURSE: CONSTRUCTION 2N (10271)

EXAMINATION: Internal Exam, Semester 1, 2001

**DURATION: 3 Hours of Exam time preceded by 10 minutes of Reading
time, a total of 3 Hrs 10 Mins.
For ENTEXT students 10 minutes of Reading time plus 3.5
Hours of Exam time, a total of 3 Hrs 40 Mins.**

EXAMINER: Andrew Hill, Tel 22234

INSTRUCTIONS TO CANDIDATES:

- This exam is worth 50% of the total course marks
 - All questions are of equal value.
 - Attempt to answer five (5) questions only. You may illustrate your answer with carefully drawn sketch details suitably annotated.
 - No reference materials are allowed.
 - State any assumptions made
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NOTES FROM EXAMINER:

Question 1

(20 Marks)

Describe steel portal framed industrial building under the following headings :-

- a. economical spans.
- b. bracing
- c. column bases.
- d. purlins and girts
- e. cladding and
- f. frame erection

Question 2**(20Marks)**

Describe the methodology of Tilt-Up construction :-

- a. advantages claimed for the system,
- b. importance of planning,
- c. method of constructing panels,
- d. method of erection of panels and
- e. limitations of Tilt-Up construction.

OR

Compare and contrast the use of reinforced masonry construction as a viable alternative to Tilt-Up construction. Your answer should define the term "reinforced masonry construction", describe the method of construction and list its advantages.

Question 3**(20 Marks)**

Describe the following manufactured structural timber products and their applications :-

- a. nail plated joined timber,
- b. laminated veneer lumber,
- c. plywood webbed beams and
- d. glue laminated timber ("glulam").

Question 4**(20 Marks)**

Discuss the choice of appropriate structure for multi storey buildings under the following headings :-

- a. site considerations,
- b. type and use of building,
- c. suitable grid for the proposed use and
- d. loading.

OR

Describe the advantages claimed and methods of multi storey construction employed when comparing steel framed (flexible and rigid connections) with that of concrete (insitu and precast).

Question 5**(20 Marks)**

In multi storey concrete structures discuss :-

- a. the principles of rapid construction,
- b. standardisation of formwork,
- c. standardisation of detailing,
- c. pre-assembling of reinforcing and
- d. use of post-tensioning.

Question 6**(20 Marks)**

Cladding has been defined as "a continuous, non-structural envelope which performs the enclosing function in a framed building". Discuss cladding under the following headings:

- a. strength and structural stability,
- b. weather resistance,
- c. dimensional stability,
- d. thermal behaviour,
- e. sound insulation and
- f. fire resistance.

Question 7**(20 Marks)**

Define and explain the methodology involved in the following building terms and

systems :-

- a. geotechnical site investigations,
- b. underpinning,
- c. wellpoints,
- d. "Rapidwall",
- e. "Timber framed multi residential construction",
- f. high strength concrete and
- g. drained joint principle.

END OF QUESTIONS