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, 2002**

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: **Sam Baroudi, 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

NOTES FROM EXAMINER:

Question 1 **(20 Marks)**

Describe what a builder's site investigation entails making reference to the following :
a. The purpose of the investigation.
b. List items that should be investigated and explain each one.
c. How would you investigate each of these items?
d. Why does each of these items need to be investigated?

Question 2 **(20Marks)**

Nominate a structural system for any given industrial building and discuss the following in regard to it.
a. Explain the structural system chosen including a diagram to illustrate it.
b. How does the structure chosen effect the flexibility of the floor plan?
c. Outline the advantages and disadvantages of the system.
d. Does the structure require bracing and what would you recommend if so?
e. Describe the method of fixing the structure to the footings.

Question 3 **(20 Marks)**

Concrete walling is a popular means of enclosing a building. Answer the following in respect of tilt-up, precast and in-situ concrete wall construction.

a. Define each of these walling types.
b. Explain the differences in construction between each of these.
c. State the advantages and disadvantages of each type.

Question 4 **(20 Marks)**

Discuss concrete floors under the following headings.
a. Design considerations for concrete slabs on ground.
b. Common floor failures for concrete slabs on ground.
c. Three joint types common to concrete slabs on ground.

OR

a. One and two way slabs in multistorey construction.
b. Different floor types in multistorey construction.
c. Construction of floors using temporary formwork as compared to permanent formwork in multistorey buildings.

Question 5 **(20 Marks)**

Discuss multi storey buildings in regard to the following topics :
a. Framed construction as compared to load bearing wall construction. Also which of these is more commonly used in modern construction and why?
b. Advantages of using high strength concrete in building structures.
c. Explain the concepts of simplicity, standardisation and symmetry as applied to the building's design using examples.

Question 6 **(20 Marks)**

Answer each of the following questions in respect to industrial/commercial buildings.

a. What do you understand of the need for soil testing?
b. What is reinforced masonry construction?
c. What is the difference between monolithic concrete paving and segmental concrete paving?
d. What do you understand by the term "LVL" in regards to timber framing?
e. Briefly outline examples of lightweight and heavyweight cladding systems.

Question 7 **(20 Marks)**

Answer the following questions in regard to roofing, ceilings and partitions in commercial building projects.

a. What selection criteria should be taken into account when choosing a roof?
b. Discuss metal roof claddings noting different fixing methods and waterproofing.
c. What considerations need to be addressed in partition design?
d. What do you understand by the term "borrowed lights" in relation to partitions?
e. Explain the difference between exposed grid and concealed grid ceilings.
f. What do you understand by the term "floor zone" in relation to ceilings?