

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

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

COURSE: DEVELOPMENT ECONOMICS

EXAMINATION: Internal Exam, Semester 1, 2001

**DURATION: 3.0 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 0.5 Hours of Exam time, a total of 3 Hrs 40 Mins.**

EXAMINER: Justin Cole

INSTRUCTIONS TO CANDIDATES:

- This exam is worth 40% of the total course marks
- Attempt five questions
- All questions are of equal value
- Any reference materials are allowed. Calculator is allowed.
- State any assumptions made

NOTES FROM EXAMINER: nil

1.A developer considers four options for a project as follows: the first involves purchasing the property for \$710,000, letting it for four years, then selling it, the second, third and fourth options involve investing increasing amounts in renovations, each with an anticipated increase in rents and selling prices.

The anticipated outcomes are as follows.

	Case A	Case B	Case C	Case D
Investment	\$710,000	\$710,000	\$710,000	\$710,000
Renovations	\$nil	\$180,000	\$390,000	\$570,000
Rent Y1	\$70,000	\$80,000	\$99,000	\$128,000
Rent Y2	\$73,500	\$84,000	\$105,000	\$133,300
Rent Y3	\$77,000	\$88,200	\$111,000	\$139,000
Rent Y4	\$81,000	\$92,600	\$118,000	\$145,000
Sale Price	\$860,000	\$1,145,000	\$1,496,000	\$1,585,000

Calculate the PI @10% for each alternative and determine the IRR for the most profitable investment

2...Three security systems are being investigated for a new project; one has an initial cost of \$600,000 and an annual running cost of \$100,000 per year; the second has an initial cost of \$690,000 with a running cost of 70,000 per year and the last , an electronic system has an initial cost of \$830,000 with a running cost of \$50,000 per year(All costs are at todays values)

Candidates prepare a break even graph and comment on which selections that might be made if the developer wished to sell the project at 2, 6 or 8 years

3. (a) Most property acquisitions involve purchase using borrowed funds; under what circumstances would you arrange for a loan to be repaid “principal and interest” and under what circumstances would you arrange for an “interest only” loan?

(b) Describe the process known as “Value Engineering” and give your opinions on situations where it may be used successfully.

(c) How does a “Life Cycle Analysis” for a Building assist in the selection of components?

(d) Describe six features that a (a) property trader, (b) property developer and (c) property investor may well consider as important when contemplating an investment: are these features different and if so why?

4. A company recently sold a property for \$580,000.00; the property had been purchased five years earlier for \$450,000.00 and was financed on an “Interest Only” loan of \$350,000, the net cost/income over the five years was as follows

Y1 -\$10,000

Y2 -\$5,000

Y3 \$.....

Y4 +\$5,000

Y5 +\$5,000

What was the internal rate of return for the venture?, if the company had a target of 12% was it successful?

5. The developer in undertaking a project has a budget for structural steel supply of \$1,200,000, made up from 4 payments of \$300,000, one at the start of the project, then at 4 months, 8 months and 12 months.

The developer receives three tenders, one for \$1,215,000, comprising three payments of \$405,000, at months 4, 8 and 12,; one for \$1,225,000 with payments at months 6 and 12: and one for \$1,250,000 comprising a payment of \$250,000 at the start and two, \$600,000 payments at months 6 and 12.

Which is the lowest tender (in NPV terms) and is the lowest within the budget?

6..A client studied the results of two projects, as follows

Project A	Initial investment	\$1,200,000
	Renovations ..year one	\$ 500,000
	Rent year one	\$ 180,000
	Sale end of year one	\$2,300,000
Project B	Initial investment	\$3,000,000 (including substantial renovations)
	Rent year one	\$ 240,000
	Rent year two	\$ 280,000
	Rent year three	\$ 320,000
	Rent year four	\$ 360,000
	Sale end of year four	\$4,000,000

Find the Net Present Value @10% and the Internal Rates of Return for each project: which is the most profitable?

The following data may be of assistance

Discount Rate	10%	15%
Y1	0.909	0.870
Y2	0.826	0.756
Y3	0.751	0.658
Y4	0.683	0.572
Y5	0.621	0.497
Y6	0.564	0.432
Y7	0.513	0.375
Y8	0.467	0.326
Y9	0.424	0.284
Y10	0.385	0.247