



**Mid Year 2005 Final Examination**  
University of South Australia

If you are required to use a calculator during your exam please note the following details:

Calculator Make: \_\_\_\_\_

Calculator Model: \_\_\_\_\_

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| <b>Student ID:</b> |  | <b>Student Name:</b> |  |
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**DIVISION OF  
INFORMATION TECHNOLOGY, ENGINEERING & THE ENVIRONMENT**

**SCHOOL OF NATURAL & BUILT ENVIRONMENTS**

|                      |                  |                          |              |
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| <b>Subject Area:</b> | <b>BUIL 3011</b> | <b>Catalogue Number:</b> | <b>10281</b> |
|----------------------|------------------|--------------------------|--------------|

**--DEVELOPMENT ECONOMICS-N\1-**

|                                |  |
|--------------------------------|--|
| <b>Examination Day: Monday</b> | <b>Examination Date: 27<sup>th</sup> June 2005</b> |
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|                                 |                                  |
|---------------------------------|----------------------------------|
| <b>Examination Time: 2.00pm</b> | <b>Length of Exam: 2.5 hours</b> |
|---------------------------------|----------------------------------|

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|---------------------------|---------------------|
| <b>Examination Venue:</b> | Ridley Centre _____ |
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**Instructions to Candidates**

- This exam is worth 50% of the total course marks.
- **Answer FOUR of six questions (Question 4 is compulsory).**
- Equal marks (25%) allocation for each question.
- Neatness and presentation are taken into account in marking.
- Reference material is allowed in the examination. Calculator IS allowed.
- Candidates must include **(Q4 worksheet)** with their Answer Books and be clearly marked with their Student ID number.
- 2.5 Hours of Exam time preceded by 10 minutes of Reading Time. (ENTEXT students extra 10 minutes/hr)

### Question 1

Understanding the environment in which the development industry operates is a valuable tool. This is undertaken by considering the following change agents in the industry environment.

- Economic factors
- Political / Legal factors
- Socio cultural factors
- Technological factors
- Demographic factors

Discuss why understanding these factors is a valuable tool for the development industry and explain through example how each of these might impact upon the building industry.

### Question 2

Financing of property developments can take various forms. Explain the various types of lending and finance arrangements, which a developer might utilise. Identify and discuss the major risk factors for lenders to property developers and explain how these lenders might mitigate these risks.

What are the advantages/disadvantages of fixed interest and interest only loans?

### Question 3

What are the common reasons for requesting a valuation of a property?

Describe the three main approaches to valuation of property illustrating your answer with examples of each.

### Question 4 COMPULSORY

Prepare an after tax cash flow analysis on the following property investment assuming a 10 year holding period (refer to course example 'After Tax Cash Flow Analysis'). You are required to compute the Net Present Value of the cash flow using the tables attached to the exam paper. **Use attached worksheet and return with your answer booklet.**

|  |             |
|--|-------------|
| Project Cost   | \$2,500,000 |
| Net Income   | \$200,000   |
| Initial Capitalisation Rate (this is the 'discount' rate for NPV calcs.) | 10%         |
| Reversionary capitalisation rate   | 6%          |
| Rental escalation  | 5%          |
| Gearing  | 60%         |
| Interest rate (principal paid at end of term)                            | 8%          |
| Inflation rate (CPI increases for capital gains calc.)                   | 3%          |
| Tax rate (for both Income and Capital Gains)                             | 30%         |
| Depreciation allowances on proportion of building cost                   |             |
| Fittings (12% of Building cost)  | 15%         |
| Plant (22% of Building cost)   | 20%         |
| Building Capital Allowance eg. Structure (50% of bldg. Cost)             | 2.5%        |

**Note: CPI adjusted Cost base for Capital Gains calculation is (Initial Cost multiplied by 2.1589)**

### Question 5

The tax treatment of property is a complex and constantly changing area. Discuss this statement with regard to both state, federal and local government current property taxes. Give an example of property taxes levied by each of the three levels of government in Australia. Give an example of both an 'entry' and 'exit' property tax.

### Question 6

An Aged Care Developer is considering two options for floor coverings in the residential areas of a new Nursing Home. The two options are a good quality commercial carpet which is inexpensive to purchase and maintain but has a limited life within an aged care environment. The alternative is a new product with superior wearing qualities but a much higher capital cost. This product demands higher regular cleaning costs but offers a much less frequent replacement schedule. (use PV (table A.2) and PV of an annuity (table A.3) attached).

The costs associated with each option are:

|                 | Commercial Product         | New Product             |
|-----------------|----------------------------|-------------------------|
| Initial Cost    | \$80,000                   | \$160,000               |
| Annual Cleaning | \$5,000                    | \$7,000                 |
| Replacement     | \$90,000/ yrs 5, 10 and 15 | \$170,000/ yrs 7 and 14 |

In addition in the case of the New Product, it has been determined that the thermal qualities of this revolutionary new product will provide savings of \$2000 per year.

Which is the most economical choice given a 10% discount rate and a 20 year effective life for the building?

**TABLE A.2**

Present value of \$1 to be received after *t* periods =  $1/(1 + r)^t$

| Number<br>of<br>Periods | Interest Rates |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
|-------------------------|----------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
|                         | 1%             | 2%     | 3%     | 4%     | 5%     | 6%     | 7%     | 8%     | 9%     | 10%    | 12%    | 14%    | 15%    | 16%    | 18%    | 20%    | 24%    | 28%    | 32%    | 36%    |
| 1                       | 0.9901         | 0.9804 | 0.9709 | 0.9615 | 0.9524 | 0.9434 | 0.9346 | 0.9259 | 0.9174 | 0.9091 | 0.8929 | 0.8772 | 0.8696 | 0.8621 | 0.8475 | 0.8333 | 0.8065 | 0.7813 | 0.7576 | 0.7353 |
| 2                       | 0.9803         | 0.9612 | 0.9426 | 0.9246 | 0.9070 | 0.8900 | 0.8734 | 0.8573 | 0.8417 | 0.8264 | 0.7972 | 0.7695 | 0.7561 | 0.7432 | 0.7182 | 0.6944 | 0.6504 | 0.6104 | 0.5739 | 0.5407 |
| 3                       | 0.9706         | 0.9423 | 0.9151 | 0.8890 | 0.8638 | 0.8396 | 0.8163 | 0.7938 | 0.7722 | 0.7513 | 0.7118 | 0.6750 | 0.6575 | 0.6407 | 0.6086 | 0.5787 | 0.5245 | 0.4768 | 0.4348 | 0.3975 |
| 4                       | 0.9610         | 0.9238 | 0.8885 | 0.8548 | 0.8227 | 0.7921 | 0.7629 | 0.7350 | 0.7084 | 0.6830 | 0.6355 | 0.5921 | 0.5718 | 0.5523 | 0.5158 | 0.4823 | 0.4230 | 0.3725 | 0.3294 | 0.2923 |
| 5                       | 0.9515         | 0.9057 | 0.8626 | 0.8219 | 0.7835 | 0.7473 | 0.7130 | 0.6806 | 0.6499 | 0.6209 | 0.5674 | 0.5194 | 0.4972 | 0.4761 | 0.4371 | 0.4019 | 0.3411 | 0.2910 | 0.2495 | 0.2149 |
| 6                       | 0.9420         | 0.8880 | 0.8375 | 0.7903 | 0.7462 | 0.7050 | 0.6663 | 0.6302 | 0.5963 | 0.5645 | 0.5066 | 0.4556 | 0.4323 | 0.4104 | 0.3704 | 0.3349 | 0.2751 | 0.2274 | 0.1890 | 0.1580 |
| 7                       | 0.9327         | 0.8706 | 0.8131 | 0.7599 | 0.7107 | 0.6651 | 0.6227 | 0.5835 | 0.5470 | 0.5132 | 0.4523 | 0.3995 | 0.3759 | 0.3538 | 0.3139 | 0.2791 | 0.2218 | 0.1776 | 0.1432 | 0.1162 |
| 8                       | 0.9235         | 0.8535 | 0.7894 | 0.7307 | 0.6768 | 0.6274 | 0.5820 | 0.5403 | 0.5019 | 0.4665 | 0.4039 | 0.3506 | 0.3269 | 0.3050 | 0.2660 | 0.2326 | 0.1789 | 0.1388 | 0.1085 | 0.0854 |
| 9                       | 0.9143         | 0.8368 | 0.7664 | 0.7026 | 0.6446 | 0.5919 | 0.5439 | 0.5002 | 0.4604 | 0.4241 | 0.3606 | 0.3075 | 0.2843 | 0.2630 | 0.2255 | 0.1938 | 0.1443 | 0.1084 | 0.0822 | 0.0628 |
| 10                      | 0.9053         | 0.8203 | 0.7441 | 0.6756 | 0.6139 | 0.5564 | 0.5083 | 0.4632 | 0.4224 | 0.3855 | 0.3220 | 0.2697 | 0.2472 | 0.2267 | 0.1911 | 0.1615 | 0.1164 | 0.0847 | 0.0623 | 0.0462 |
| 11                      | 0.8963         | 0.8043 | 0.7224 | 0.6496 | 0.5847 | 0.5268 | 0.4751 | 0.4289 | 0.3875 | 0.3505 | 0.2875 | 0.2366 | 0.2149 | 0.1954 | 0.1619 | 0.1346 | 0.0938 | 0.0662 | 0.0472 | 0.0340 |
| 12                      | 0.8874         | 0.7885 | 0.7014 | 0.6246 | 0.5568 | 0.4970 | 0.4440 | 0.3971 | 0.3555 | 0.3186 | 0.2567 | 0.2076 | 0.1869 | 0.1685 | 0.1372 | 0.1122 | 0.0757 | 0.0517 | 0.0357 | 0.0250 |
| 13                      | 0.8787         | 0.7730 | 0.6810 | 0.6006 | 0.5303 | 0.4688 | 0.4150 | 0.3677 | 0.3262 | 0.2897 | 0.2292 | 0.1821 | 0.1625 | 0.1452 | 0.1163 | 0.0935 | 0.0610 | 0.0404 | 0.0271 | 0.0184 |
| 14                      | 0.8700         | 0.7579 | 0.6611 | 0.5775 | 0.5051 | 0.4423 | 0.3878 | 0.3405 | 0.2992 | 0.2633 | 0.2046 | 0.1597 | 0.1413 | 0.1252 | 0.0985 | 0.0779 | 0.0492 | 0.0316 | 0.0205 | 0.0135 |
| 15                      | 0.8613         | 0.7430 | 0.6419 | 0.5553 | 0.4810 | 0.4173 | 0.3624 | 0.3152 | 0.2745 | 0.2394 | 0.1827 | 0.1401 | 0.1229 | 0.1079 | 0.0835 | 0.0649 | 0.0397 | 0.0247 | 0.0155 | 0.0099 |
| 16                      | 0.8528         | 0.7284 | 0.6232 | 0.5339 | 0.4581 | 0.3936 | 0.3387 | 0.2919 | 0.2519 | 0.2176 | 0.1631 | 0.1229 | 0.1069 | 0.0930 | 0.0708 | 0.0541 | 0.0320 | 0.0193 | 0.0118 | 0.0073 |
| 17                      | 0.8444         | 0.7142 | 0.6050 | 0.5134 | 0.4363 | 0.3714 | 0.3166 | 0.2703 | 0.2311 | 0.1978 | 0.1456 | 0.1078 | 0.0929 | 0.0802 | 0.0600 | 0.0451 | 0.0258 | 0.0150 | 0.0089 | 0.0054 |
| 18                      | 0.8360         | 0.7002 | 0.5874 | 0.4936 | 0.4155 | 0.3503 | 0.2959 | 0.2502 | 0.2120 | 0.1799 | 0.1300 | 0.0946 | 0.0808 | 0.0691 | 0.0508 | 0.0376 | 0.0206 | 0.0118 | 0.0068 | 0.0039 |
| 19                      | 0.8277         | 0.6864 | 0.5703 | 0.4746 | 0.3957 | 0.3305 | 0.2765 | 0.2317 | 0.1945 | 0.1635 | 0.1161 | 0.0829 | 0.0703 | 0.0596 | 0.0431 | 0.0313 | 0.0188 | 0.0092 | 0.0051 | 0.0029 |
| 20                      | 0.8195         | 0.6730 | 0.5537 | 0.4564 | 0.3769 | 0.3118 | 0.2584 | 0.2145 | 0.1784 | 0.1486 | 0.1037 | 0.0728 | 0.0611 | 0.0514 | 0.0365 | 0.0261 | 0.0135 | 0.0072 | 0.0039 | 0.0021 |
| 21                      | 0.8114         | 0.6598 | 0.5375 | 0.4388 | 0.3589 | 0.2942 | 0.2415 | 0.1987 | 0.1637 | 0.1351 | 0.0926 | 0.0638 | 0.0531 | 0.0443 | 0.0309 | 0.0217 | 0.0109 | 0.0056 | 0.0029 | 0.0016 |
| 22                      | 0.8034         | 0.6468 | 0.5219 | 0.4220 | 0.3418 | 0.2775 | 0.2257 | 0.1839 | 0.1502 | 0.1228 | 0.0826 | 0.0560 | 0.0462 | 0.0382 | 0.0262 | 0.0181 | 0.0088 | 0.0044 | 0.0022 | 0.0012 |
| 23                      | 0.7954         | 0.6342 | 0.5067 | 0.4057 | 0.3256 | 0.2618 | 0.2109 | 0.1703 | 0.1378 | 0.1117 | 0.0738 | 0.0491 | 0.0402 | 0.0329 | 0.0222 | 0.0151 | 0.0071 | 0.0034 | 0.0017 | 0.0008 |
| 24                      | 0.7876         | 0.6217 | 0.4919 | 0.3901 | 0.3101 | 0.2470 | 0.1971 | 0.1577 | 0.1264 | 0.1015 | 0.0659 | 0.0431 | 0.0349 | 0.0284 | 0.0188 | 0.0126 | 0.0057 | 0.0027 | 0.0013 | 0.0006 |
| 25                      | 0.7798         | 0.6095 | 0.4776 | 0.3751 | 0.2951 | 0.2330 | 0.1842 | 0.1460 | 0.1160 | 0.0923 | 0.0588 | 0.0378 | 0.0304 | 0.0245 | 0.0160 | 0.0105 | 0.0046 | 0.0021 | 0.0010 | 0.0005 |
| 30                      | 0.7419         | 0.5521 | 0.4120 | 0.3083 | 0.2314 | 0.1741 | 0.1314 | 0.0994 | 0.0754 | 0.0573 | 0.0334 | 0.0196 | 0.0151 | 0.0116 | 0.0070 | 0.0042 | 0.0016 | 0.0006 | 0.0002 | 0.0001 |
| 40                      | 0.6717         | 0.4529 | 0.3066 | 0.2083 | 0.1420 | 0.0972 | 0.0668 | 0.0460 | 0.0318 | 0.0221 | 0.0107 | 0.0053 | 0.0037 | 0.0026 | 0.0013 | 0.0007 | 0.0002 | 0.0001 | *      | *      |
| 50                      | 0.6080         | 0.3715 | 0.2281 | 0.1407 | 0.0872 | 0.0543 | 0.0339 | 0.0213 | 0.0134 | 0.0085 | 0.0035 | 0.0014 | 0.0009 | 0.0006 | 0.0003 | 0.0001 | *      | *      | *      | *      |

The factor is zero to four decimal places.

**TABLE A.3**

Present value of an annuity of \$1 per period for  $t$  periods =  $[1 - 1/(1 + r)^t]/r$

| Number of Periods | Interest Rate |         |         |         |         |         |         |         |         |        |        |        |        |        |        |        |        |        |        |  |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------|---------------|---------|---------|---------|---------|---------|---------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--|--|--|--|--|--|--|--|--|--|--|--|--|
|                   | 1%            | 2%      | 3%      | 4%      | 5%      | 6%      | 7%      | 8%      | 9%      | 10%    | 12%    | 14%    | 15%    | 16%    | 18%    | 20%    | 24%    | 28%    | 32%    |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1                 | 0.9901        | 0.9804  | 0.9709  | 0.9615  | 0.9524  | 0.9434  | 0.9346  | 0.9259  | 0.9174  | 0.9091 | 0.8929 | 0.8772 | 0.8696 | 0.8621 | 0.8475 | 0.8333 | 0.8065 | 0.7813 | 0.7576 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2                 | 1.9704        | 1.9416  | 1.9135  | 1.8861  | 1.8594  | 1.8334  | 1.8080  | 1.7833  | 1.7591  | 1.7355 | 1.6901 | 1.6467 | 1.6257 | 1.6052 | 1.5656 | 1.5278 | 1.4568 | 1.3916 | 1.3315 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3                 | 2.9410        | 2.8839  | 2.8286  | 2.7751  | 2.7232  | 2.6730  | 2.6243  | 2.5771  | 2.5313  | 2.4869 | 2.4018 | 2.3216 | 2.2832 | 2.2459 | 2.1743 | 2.1065 | 1.9813 | 1.8684 | 1.7663 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4                 | 3.9020        | 3.8077  | 3.7171  | 3.6299  | 3.5460  | 3.4651  | 3.3872  | 3.3121  | 3.2397  | 3.1699 | 3.0373 | 2.9137 | 2.8550 | 2.7982 | 2.6901 | 2.5887 | 2.4043 | 2.2410 | 2.0957 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 5                 | 4.8534        | 4.7135  | 4.5797  | 4.4518  | 4.3295  | 4.2124  | 4.1002  | 3.9927  | 3.8897  | 3.7908 | 3.6048 | 3.4331 | 3.3522 | 3.2743 | 3.1272 | 2.9906 | 2.7454 | 2.5320 | 2.3452 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 6                 | 5.7955        | 5.6014  | 5.4172  | 5.2421  | 5.0757  | 4.9173  | 4.7665  | 4.6229  | 4.4859  | 4.3553 | 4.1114 | 3.8887 | 3.7845 | 3.6847 | 3.4976 | 3.3255 | 3.0205 | 2.7594 | 2.5342 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 7                 | 6.7282        | 6.4720  | 6.2303  | 6.0021  | 5.7864  | 5.5824  | 5.3893  | 5.2064  | 5.0330  | 4.8684 | 4.5638 | 4.2883 | 4.1604 | 4.0386 | 3.8115 | 3.6046 | 3.2423 | 2.9370 | 2.6775 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 8                 | 7.6517        | 7.3255  | 7.0197  | 6.7327  | 6.4632  | 6.2098  | 5.9713  | 5.7466  | 5.5348  | 5.3349 | 4.9676 | 4.6389 | 4.4873 | 4.3436 | 4.0776 | 3.8372 | 3.4212 | 3.0758 | 2.7860 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 9                 | 8.5660        | 8.1622  | 7.7861  | 7.4353  | 7.1078  | 6.8017  | 6.5152  | 6.2469  | 5.9952  | 5.7590 | 5.3282 | 4.9484 | 4.7716 | 4.6065 | 4.3030 | 4.0310 | 3.5655 | 3.1842 | 2.8681 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 10                | 9.4713        | 8.9826  | 8.5302  | 8.1109  | 7.7217  | 7.3601  | 7.0236  | 6.7101  | 6.4177  | 6.1446 | 5.6502 | 5.2161 | 5.0188 | 4.8332 | 4.4941 | 4.1925 | 3.6819 | 3.2689 | 2.9304 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 11                | 10.3676       | 9.7868  | 9.2526  | 8.7605  | 8.3064  | 7.8869  | 7.4987  | 7.1390  | 6.8052  | 6.4951 | 5.9377 | 5.4827 | 5.2337 | 5.0286 | 4.6560 | 4.3271 | 3.7757 | 3.3351 | 2.9776 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 12                | 11.2551       | 10.5753 | 9.9540  | 9.3851  | 8.8633  | 8.3838  | 7.9427  | 7.5361  | 7.1607  | 6.8137 | 6.1944 | 5.6603 | 5.4206 | 5.1971 | 4.7932 | 4.4392 | 3.8514 | 3.3868 | 3.0133 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 13                | 12.1337       | 11.3484 | 10.6350 | 9.9856  | 9.3936  | 8.8527  | 8.3577  | 7.9038  | 7.4869  | 7.1034 | 6.4235 | 5.8424 | 5.5831 | 5.3423 | 4.9095 | 4.5327 | 3.9124 | 3.4272 | 3.0404 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 14                | 13.0037       | 12.1062 | 11.2961 | 10.5631 | 9.8986  | 9.2950  | 8.7455  | 8.2442  | 7.7863  | 7.3667 | 6.6282 | 6.0021 | 5.7245 | 5.4675 | 5.0081 | 4.6106 | 3.9616 | 3.4587 | 3.0609 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 15                | 13.8651       | 12.8493 | 11.9379 | 11.1184 | 10.3797 | 9.7122  | 9.1079  | 8.5595  | 8.0611  | 7.6061 | 6.8109 | 6.1422 | 5.8474 | 5.5755 | 5.0916 | 4.6755 | 4.0013 | 3.4834 | 3.0764 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 16                | 14.7179       | 13.5777 | 12.5611 | 11.6523 | 10.8378 | 10.1059 | 9.4466  | 8.8514  | 8.3136  | 7.8237 | 6.9740 | 6.2651 | 5.9542 | 5.6685 | 5.1624 | 4.7296 | 4.0333 | 3.5026 | 3.0882 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 17                | 15.5623       | 14.2919 | 13.1661 | 12.1657 | 11.2741 | 10.4773 | 9.7632  | 9.1216  | 8.5436  | 8.0216 | 7.1196 | 6.3729 | 6.0472 | 5.7487 | 5.2223 | 4.7746 | 4.0591 | 3.5177 | 3.0971 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 18                | 16.3983       | 14.9920 | 13.7535 | 12.6593 | 11.6896 | 10.8276 | 10.0591 | 9.3719  | 8.7566  | 8.2014 | 7.2497 | 6.4674 | 6.1280 | 5.8178 | 5.2732 | 4.8122 | 4.0799 | 3.5294 | 3.1039 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 19                | 17.2260       | 15.6785 | 14.3238 | 13.1339 | 12.0853 | 11.1581 | 10.3356 | 9.6036  | 8.9501  | 8.3649 | 7.3658 | 6.5504 | 6.1982 | 5.8775 | 5.3162 | 4.8435 | 4.0967 | 3.5386 | 3.1090 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 20                | 18.0456       | 16.3514 | 14.8775 | 13.5903 | 12.4622 | 11.4699 | 10.5940 | 9.8181  | 9.1285  | 8.5136 | 7.4694 | 6.6231 | 6.2593 | 5.9298 | 5.3527 | 4.8696 | 4.1103 | 3.5458 | 3.1129 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 21                | 18.8570       | 17.0112 | 15.4150 | 14.0292 | 12.8212 | 11.7641 | 10.8355 | 10.0168 | 9.2922  | 8.6487 | 7.5620 | 6.6870 | 6.3125 | 5.9731 | 5.3837 | 4.8913 | 4.1212 | 3.5514 | 3.1158 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 22                | 19.6604       | 17.6580 | 15.9369 | 14.4511 | 13.1630 | 12.0416 | 11.0612 | 10.2007 | 9.4424  | 8.7715 | 7.6446 | 6.7429 | 6.3687 | 6.0113 | 5.4099 | 4.9094 | 4.1300 | 3.5558 | 3.1180 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 23                | 20.4558       | 18.2922 | 16.4436 | 14.8568 | 13.4886 | 12.3034 | 11.2722 | 10.3741 | 9.5802  | 8.8832 | 7.7184 | 6.7921 | 6.3988 | 6.0442 | 5.4321 | 4.9245 | 4.1371 | 3.5592 | 3.1197 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 24                | 21.2434       | 18.9139 | 16.9355 | 15.2470 | 13.7986 | 12.5504 | 11.4693 | 10.5288 | 9.7666  | 8.9847 | 7.7943 | 6.8351 | 6.4338 | 6.0726 | 5.4509 | 4.9371 | 4.1428 | 3.5619 | 3.1210 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 25                | 22.0232       | 19.5235 | 17.4131 | 15.6221 | 14.0939 | 12.7834 | 11.6536 | 10.6748 | 9.8225  | 9.0770 | 7.8431 | 6.8729 | 6.4641 | 6.0971 | 5.4669 | 4.9476 | 4.1474 | 3.5640 | 3.1220 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 30                | 25.8077       | 22.3965 | 19.6004 | 17.2920 | 15.3725 | 13.7648 | 12.4090 | 11.2578 | 10.2737 | 9.4269 | 8.0552 | 7.0027 | 6.5660 | 6.1772 | 5.5188 | 4.9789 | 4.1601 | 3.5693 | 3.1242 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 40                | 32.8347       | 27.3555 | 23.1148 | 19.7928 | 17.1591 | 15.0453 | 13.3317 | 11.9246 | 10.7574 | 9.7791 | 8.2438 | 7.1050 | 6.6418 | 6.2335 | 5.5482 | 4.9966 | 4.1659 | 3.5712 | 3.1250 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 50                | 39.1961       | 31.4236 | 25.7298 | 21.4822 | 18.2559 | 15.7619 | 13.8007 | 12.2335 | 10.9617 | 9.9148 | 8.3045 | 7.1327 | 6.6605 | 6.2463 | 5.5541 | 4.9956 | 4.1666 | 3.5714 | 3.1250 |  |  |  |  |  |  |  |  |  |  |  |  |  |

**QUESTION 4 WORKSHEET**  
 You must return this sheet with your Answer Book

STUDENT ID NO  
 STUDENT NAME

Note

- 1 Net income \$200,000
- 2 Project Cost \$2,500,000
- 3 Initial Capitalisation 10.00%
- 4 Reversionary capitalisation rate 6.00%
- 5 Rental escalation 5.00%
- 6 Gearing 60.00%
- 7 Interest 8.00%
- 8 Inflation rate 3.00%
- 9 Tax rate 30.00%
- 10 Depreciation allowances on proportion of building cost
  - 15% on 12% on 15% on 12%
  - 20% on 22% on 20% on 22%
  - 2.5% on 50% on 2.5% on 50%

**Depreciation Calculation**

| Effective Life in Years | 15% on 12% |  | 20% on 22% |  | 2.5% on 50% |  | TOTAL |
|-------------------------|------------|--|------------|--|-------------|--|-------|
|                         | yrs        |  | yrs        |  | yrs         |  |       |
| 1                       |            |  |            |  |             |  |       |
| 2                       |            |  |            |  |             |  |       |
| 3                       |            |  |            |  |             |  |       |
| 4                       |            |  |            |  |             |  |       |
| 5                       |            |  |            |  |             |  |       |
| 6                       |            |  |            |  |             |  |       |
| 7                       |            |  |            |  |             |  |       |
| 8                       |            |  |            |  |             |  |       |
| 9                       |            |  |            |  |             |  |       |
| 10                      |            |  |            |  |             |  |       |

| Year | Cost | Net Income | Finance | Interest | Tax Depreciation Allowance | Profit Before Tax | Tax | Nett Profit | add depreciation | Sale price | Capital gain | Capital Gains Tax | After Tax Cash Flow | Discount Factor | PV |
|------|------|------------|---------|----------|----------------------------|-------------------|-----|-------------|------------------|------------|--------------|-------------------|---------------------|-----------------|----|
| 0    | \$   |            |         |          |                            |                   |     |             |                  |            |              |                   |                     |                 |    |
| 1    |      |            |         |          |                            |                   |     |             |                  |            |              |                   |                     |                 |    |
| 2    |      |            |         |          |                            |                   |     |             |                  |            |              |                   |                     |                 |    |
| 3    |      |            |         |          |                            |                   |     |             |                  |            |              |                   |                     |                 |    |
| 4    |      |            |         |          |                            |                   |     |             |                  |            |              |                   |                     |                 |    |
| 5    |      |            |         |          |                            |                   |     |             |                  |            |              |                   |                     |                 |    |
| 6    |      |            |         |          |                            |                   |     |             |                  |            |              |                   |                     |                 |    |
| 7    |      |            |         |          |                            |                   |     |             |                  |            |              |                   |                     |                 |    |
| 8    |      |            |         |          |                            |                   |     |             |                  |            |              |                   |                     |                 |    |
| 9    |      |            |         |          |                            |                   |     |             |                  |            |              |                   |                     |                 |    |
| 10   |      |            |         |          |                            |                   |     |             |                  |            |              |                   |                     |                 |    |

NPV \$