MODELOFF™

Financial Modeling World Championships 2017

Round 1 Section 2 - Case Study Information Pack

Section 2: Case Study – Castles In The Air

Relates to Questions 16-28

30 Marks available in this Section - Estimated time is 30-45 minutes

INTRODUCTION

All the inputs mentioned below are provided in the workbook for this case study.

You are working for a company which is considering purchasing a number of properties. You have been asked to model each of the available investments to assist in choosing a portfolio (up to a maximum purchase price of $1,700,000) that maximises the value to the company, as measured by an increase in net present value. The company's cost of capital is 8%.

AVAILABLE INVESTMENTS

Full details of the investments may be found on the table on the subsequent page

- The model should be monthly. For NPV purposes assume that all payments occur at the end of the month and use the XNPV function.
- The purchase price for each property should be paid on 31 December 2017.
- The company holds the property for a number of years (the investment length).
- During the investment length, the company receives rental revenue and pays operating costs.
- Where amounts are indexed the base date is 1 January 2018 and the index should step annually (i.e. a full year of indexation should first be applied on 1 January 2019). Do NOT round inflated prices to whole cents in interim calculations.
- At the end of the investment length, the company will sell the property for the terminal value. The terminal value is not indexed.
- For property 4, the company has the option of overhauling the property.
  Details of the property without overhaul are listed under property 4a,
  Details of the property with overhaul are listed under property 4b.
  The overhaul cost should not be considered in the purchase price constraint.
  It is NOT possible to invest in both property 4a and property 4b.
  The overhaul cost (which is not indexed).

For Questions 16 to 21, 23, 26, 27, select your answer from a multiple choice list.
For Questions 22, 24, 25, you are required to type in your answer.

Prepare your model and then use it to answer the given questions.
When finished, please upload your workbook (Question 28).

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INVESTMENT DETAILS

	Property 1	Property 2	Property 3	Property 4a	Property 4b
Purchase Price	$450,000	$550,000	$500,000	$470,000	As 4a
Investment length	5 years	5.5 years	6 years	4 years	As 4a
Overhaul cost	N/A	N/A	N/A	N/A	$125,000 paid 31 Dec 2019
Terminal value	$500,000	$575,000	$550,000	$570,000	$675,000
Rental revenue	$45,000 per year Paid monthly Indexed at 2.5%	$60,000 per year Paid quarterly (starting March) Indexed at 3%	$55,000 per year Paid quarterly (starting January) Indexed at 2%	$55,000 per year Paid monthly Not indexed	Up to overhaul as 4a Afterwards: $75,000 per year Paid monthly Not indexed
Operating costs	5% of revenues	$4,500 per year Paid monthly Indexed at 3%	$1,000 in April $3,000 in October Indexed at 2%	$3,000 per year Paid monthly Indexed at 1%	Up to overhaul as 4a Afterwards: 8% of revenues

QUESTIONS

Question 16

What are the total revenues for Property 1? [1 mark]

A. $236,528

B. $236,529

C. $236,530

D. $236,531

E. $236,532

F. $236,533

G. $236,534

H. $236,535

I. $236,536

Question 17

What are the revenues for Property 2 in September 2019? [2 marks]

A. $15,446

B. $15,447

C. $15,448

D. $15,449

E. $15,450

F. $15,451

G. $15,452

H. $15,453

I. $15,454

Question 18

What are the costs for Property 3 in October 2020? [2 marks]

A. $3,118

B. $3,119

C. $3,120

D. $3,121

E. $3,122

F. $3,123

G. $3,124

H. $3,125

I. $3,126

Question 19

What are total revenues less total costs for Property 4a? [2 marks]

A. $207,819

B. $207,820

C. $207,821

D. $207,822

E. $207,823

F. $207,824

G. $207,825

H. $207,826

I. $207,827

Question 20

What is the absolute value of difference in operating costs between Properties 4a and 4b? [3 marks]

A. $5,848

B. $5,849

C. $5,850

D. $5,851

E. $5,852

F. $5,853

G. $5,854

H. $5,855

I. $5,856

Question 21

What is the net present value of an investment in property 3? [3 marks]

A. $104,239

B. $104,240

C. $104,241

D. $104,242

E. $104,243

F. $104,244

G. $104,245

H. $104,246

I. $104,247

Question 22

What is the NPV value of Property 4a less the NPV value of Property 4b? [3 marks]
If 4b is greater in value enter a negative number. Please enter your answer to the nearest dollar (e.g. $1,000)

Question 23

Which property is highest in NPV value? [3 marks]

A. Property 1

B. Property 2

C. Property 3

D. Property 4a

E. Property 4b

Question 24

Which properties should the company invest in subject to the constraint on purchase price in order to maximise their increase in net present value? [4 marks]
State your answer in numerical order separated by commas and with NO spaces (e.g. 1,4b)

Question 25

If the company's cost of capital was 4% what is the maximum portfolio NPV value that can be achieved subject to the constraint on total purchase price? [3 marks]
Please enter your answer to the nearest dollar (e.g. $1,000).

Question 26

If the revenues for all properties were paid monthly, what would be the total NPV (at 8%) of Properties 1, 2 and 3? [2 marks]

A. $268,662

B. $268,663

C. $268,664

D. $268,665

E. $268,666

F. $268,667

G. $268,668

H. $268,669

I. $268,670

Question 27

What would the NPV (at 8%) of the operating costs for Property 3 be if the first payment each year was made in June and the second payment each year was made in December? [2 marks]

A. $19,541

B. $19,542

C. $19,543

D. $19,544

E. $19,545

F. $19,546

G. $19,547

H. $19,548

I. $19,549

Question 28

Please upload your workbook from this section.

Answers

16	H	$236,535
17	E	$15,450
18	D	$3,121
19	A	$207,819
20	B	$5,849
21	H	$104,246
22	-	$2,957
23	D	4a
24	-	2,3,4a
25	-	$640,121
26	D	$268,665
27	D	$19,544
28		N/A