Real Estate & REIT Modeling:
– Quiz Questions
Module 3 – Hotel Acquisition & Renovation

1. **Assume you have a hotel with 100 rooms, an Average Daily Rate (ADR) of $200 per night, and an Occupancy Rate of 80% (assume 365 days in the year). What is the Revenue Per Available Room (RevPAR) and the Total Room Revenue for this hotel?**

    a. RevPAR = $120; Total Room Revenue = $3.84 million.

    b. RevPAR = $150; Total Room Revenue = $4.84 million.

    c. RevPAR = $160; Total Room Revenue = $5.84 million.

    d. RevPAR = $190; Total Room Revenue = $7.84 million.

2. **Why do hotels have lower margins that are more in-line with the margins of normal companies, as opposed to the higher NOI margins you see with residential and office properties?**

    a. Because revenue for a hotel is less predictable due to the lack of long-term contracts.

    b. Because hotels are more expensive to maintain and operate.

    c. Because more of a management team and staff are required to operate a hotel.

    d. All of the above.

    e. None of the above – NOI margins for hotels are on par with NOI margins for residential and office properties.

3. **TRUE OR FALSE: Typically in an acquisition and renovation model for a hotel, you will assume that the hotel's ADR will INCREASE after the renovation and that its expenses will DECREASE after the renovation.**

    a. True.

    b. False.

4. For this question and the next 3 questions, please consider the screenshot below (Exhibit 3.4.1) of a hotel's Income Statement over 10 years, which includes a renovation period of 2 years, as well as the screenshot below that one (Exhibit 3.4.2) which shows the IRR calculation in this acquisition and renovation scenario:

Exhibit 3.4.1 – Hotel Acquisition & Renovation Income Statement

Income Statement - Four Seasons
($ in US Dollars as Stated)

			1	2	3	4	5	6	7	8	9	10
Calendar Year Number:			1	2	3	4	5	6	7	8	9	10
Days in Year:		365	366	365	365	365	366	365	365	365	366	365
Renovation Phase:			1	2	2	3	3	3	3	3	3	3
Number of Rooms:		100	100	100	100	100	100	100	100	100	100	100
Roomnights Available:		36,500	36,600	36,500	36,500	36,500	36,600	36,500	36,500	36,500	36,600	36,500
Occupancy:		80.0%	80.0%	80.0%	80.0%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%
Roomnights Occupied:		29,200	29,280	29,200	29,200	32,850	32,940	32,850	32,850	32,850	32,940	32,850
Average Daily Rate (ADR):		$ 200.00	$ 208.00	$ 216.32	$ 224.97	$ 256.47	$ 266.73	$ 277.40	$ 288.49	$ 300.03	$ 312.03	$ 324.52
Revenue Per Available Room (REVPAR):		$ 160.00	$ 166.40	$ 173.06	$ 179.98	$ 230.82	$ 240.05	$ 249.66	$ 259.64	$ 270.03	$ 280.83	$ 292.06
Renovation Factor:			0.0%	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Hotel Revenue:												
Room Revenue:		$ 5,840,000	$ 6,090,240	$ -	$ -	$ 8,425,006	$ 8,786,012	$ 9,112,487	$ 9,476,986	$ 9,856,066	$ 10,278,392	$ 10,660,321
Food & Beverage Revenue:		1,752,000	1,827,072	-	-	2,527,502	2,635,804	2,733,746	2,843,096	2,956,820	3,083,517	3,198,096
Telecom & Other Revenue:		116,800	121,805	-	-	168,500	175,720	182,250	189,540	197,121	205,568	213,206
Parking Revenue:		292,000	304,512	-	-	421,250	439,301	455,624	473,849	492,803	513,920	533,016
Total Revenue:		**8,000,800**	**8,343,629**	**-**	**-**	**11,542,259**	**12,036,837**	**12,484,107**	**12,983,471**	**13,502,810**	**14,081,396**	**14,604,640**
Cost of Sales & Labor:												
Rooms:		1,168,000	1,187,597	-	-	1,516,501	1,537,552	1,549,123	1,563,703	1,576,971	1,593,151	1,599,048
Food & Beverage:		1,401,600	1,458,003	-	-	2,001,782	2,082,285	2,154,192	2,234,673	2,318,147	2,411,311	2,494,515
Telecom & Other:		105,120	109,381	-	-	150,302	156,391	161,838	167,932	174,255	181,311	187,622
Parking:		58,400	59,380	-	-	75,825	76,878	77,456	78,185	78,849	79,658	79,952
Total Cost of Sales & Labor:		**2,733,120**	**2,814,361**	**-**	**-**	**3,744,410**	**3,853,106**	**3,942,609**	**4,044,493**	**4,148,221**	**4,265,430**	**4,361,137**
Gross Profit:		**5,267,680**	**5,529,268**	**-**	**-**	**7,797,849**	**8,183,731**	**8,541,498**	**8,938,978**	**9,354,589**	**9,815,967**	**10,243,502**
Operating Expenses:												
Base Management Fee:		240,024	250,309	-	-	346,268	361,105	374,523	389,504	405,084	422,442	438,139
General & Administrative:		400,040	417,181	-	-	577,113	601,842	624,205	649,174	675,141	704,070	730,232
Sales & Marketing:		320,032	333,745	-	-	461,690	481,473	499,364	519,339	540,112	563,256	584,186
Energy:		240,024	250,309	-	-	346,268	361,105	374,523	389,504	405,084	422,442	438,139
Repairs & Maintenance:		240,024	250,309	-	-	346,268	361,105	374,523	389,504	405,084	422,442	438,139
Insurance:		80,008	83,436	83,436	83,436	115,423	120,368	124,841	129,835	135,028	140,814	146,046
Property Taxes:		240,024	250,309	250,309	250,309	346,268	361,105	374,523	389,504	405,084	422,442	438,139
Capital Reserves - Maintenance CapEx:		160,016	166,873	166,873	166,873	230,845	240,737	249,682	259,669	270,056	281,628	292,093
Total Operating Expenses:		**1,920,192**	**2,002,471**	**500,618**	**500,618**	**2,770,142**	**2,888,841**	**2,996,186**	**3,116,033**	**3,240,674**	**3,379,535**	**3,505,113**
Net Operating Income, Pre-Incentive:		**3,347,488**	**3,526,797**	**(500,618)**	**(500,618)**	**5,027,707**	**5,294,890**	**5,545,313**	**5,822,945**	**6,113,915**	**6,436,432**	**6,738,389**
Yield on Cost:		*10.0%*	*10.5%*	*(1.5%)*	*(1.5%)*	*15.0%*	*15.8%*	*16.6%*	*17.4%*	*18.3%*	*19.2%*	*20.1%*

Exhibit 3.4.2 – Hotel Acquisition & Renovation IRR Calculation

Returns and IRR Calculations - Four Seasons

($ in US Dollars as Stated)

Acquisition of Property - Equity:		$ (10,645,012)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Additional Equity Injections:			-	(4,429,587)	(4,429,587)	-	-	-	-	-	-	-
Sale of Property:			-	-	-	-	-	-	-	-	-	43,264,976
Net Change in Cash:			421,488	-	-	1,847,352	2,101,177	2,339,078	2,602,828	2,879,250	3,185,641	3,472,500
Total Cash Flows:		**(10,645,012)**	**421,488**	**(4,429,587)**	**(4,429,587)**	**1,847,352**	**2,101,177**	**2,339,078**	**2,602,828**	**2,879,250**	**3,185,641**	**46,737,476**

IRR:	15.8%
Net Cash Flow:	42,610,105
Invested Equity:	19,504,186
Multiple:	3.18 x

In Exhibit 3.4.2 above, why do we assume that the insurance expense, property taxes, and maintenance capital expenditures still exist even during the renovation period, when 100% of the rooms are being renovated and are therefore not in use?

a. We don't need to do this – it's just in the model to ensure that we're extra-conservative with the assumptions.

b. Doing this boosts the IRR since we overestimate the expenses in earlier years.

c. Because we still need to pay these expenses regardless of whether or not the rooms are in use.

d. None of the above – it is a mistake in the formula. In Years 2 and 3 (the renovation period) ALL Operating Expenses should be $0.

5. We're assuming here that the renovation results in a higher occupancy rate and higher ADR, which in turn will boost revenue, NOI, and the selling price of the property. However, it will also require additional funding, so this model is comparing 1) The funding required for the renovation to 2) The uplift in NOI and the selling price resulting from that renovation.

Using what's in Exhibits 3.4.1 and 3.4.2 above, what's the most accurate "rule of thumb" you can use to determine if this renovation will pay off?

a. Compare the total "Additional Equity Injections" to the CUMULATIVE INCREASE in "Net Change in Cash" post-renovation, plus the increase in the "Sale of Property" figure in the final year.

b. Compare the amount of funding required for the renovation to the CUMULATIVE INCREASE in "Net Change in Cash" post-renovation, plus the increase in the "Sale of Property" figure in the final year.

c. Compare the amount of funding required for the renovation to the CUMULATIVE INCREASE in Net Operating Income post-renovation, plus the increase in the "Sale of Property" figure in the final year.

d. None of the above – you cannot create a "rule of thumb" for a scenario as complex as this one.

6. In this model, we're assuming that the "Net Change in Cash" (the 4th line item in Exhibit 3.4.2) simply accrues to the equity investors and boosts their IRR by allowing them to earn back some of the invested funds prior to the exit. All debt is repaid only in the final year when we sell the property. If we used the cash flow generated in these years to REPAY the debt early instead, how would the IRR change?

   a. Just as in an LBO model, it's always better to repay debt earlier if you can do so – doing so will generally INCREASE the IRR.

   b. You can't even make a guess for how this will impact the IRR since it depends on the terms of the debt, the purchase price, and the selling price.

   c. This change would not impact the IRR by much since you're still paying off the same amount of debt – you're just doing it earlier on in the model now.

   d. In THIS case, the IRR will generally DECREASE if we use excess cash flow to repay debt because we sell the property only in Year 10, and the time-value of money means that repaying all the debt at the end makes less of an impact.

7. In addition to the purchase price, Exit Cap Rate, and Loan-to-Cost (LTC) ratio, which of the following metrics listed below would be useful to analyze in a sensitivity table for the IRR of a hotel acquisition and renovation?

   a. Lot Square Footage.

   b. Occupancy Rate Uplift from Renovation.

   c. ADR Improvement from Renovation.

   d. Renovation Costs.

   e. NOI Margin during the Renovation Period.

8. For this question and the next 2 questions after this one, please consider the screenshot shown below in Exhibit 3.8, of a real estate debt amortization schedule:

Exhibit 3.8 – Debt Amortization Schedule

	Debt Assumptions - Acquisition and Renovation of JT Marlin Inn								
	($ in US Dollars as Stated)								
	Senior Debt Terms:			**Year #:**	**Amort. Period:**	**Beg. Balance:**	**Interest:**	**Principal:**	**End Balance:**
	Amount:	$ 27,770,908		0	0	N/A	N/A	N/A	$ 27,770,908
	Interest Rate:	7.0%		1	1	27,770,908	=D7*D6	293,994	27,476,914
	Term:	30		2	2	27,476,914	1,923,384	314,574	27,162,341
	Amortization:	30		3	3	27,162,341	1,901,364	336,594	26,825,747
	Interest-Only Period:	0		4	4	26,825,747	1,877,802	360,155	26,465,591
	Loan-to-Value (LTV):	10.0%		5	5	26,465,591	1,852,591	385,366	26,080,225
				6	6	26,080,225	1,825,616	412,342	25,667,883
				7	7	25,667,883	1,796,752	441,206	25,226,678
				8	8	25,226,678	1,765,867	472,090	24,754,587
				9	9	24,754,587	1,732,821	505,136	24,249,451
				10	10	24,249,451	1,697,462	540,496	23,708,955
				11	11	23,708,955	1,659,627	578,331	23,130,624
				12	12	23,130,624	1,619,144	618,814	22,511,810
				13	13	22,511,810	1,575,827	662,131	21,849,679
				14	14	21,849,679	1,529,478	708,480	21,141,199
				15	15	21,141,199	1,479,884	758,074	20,383,125
				16	16	20,383,125	1,426,819	811,139	19,571,987
				17	17	19,571,987	1,370,039	867,919	18,704,068
				18	18	18,704,068	1,309,285	928,673	17,775,395
				19	19	17,775,395	1,244,278	993,680	16,781,715
				20	20	16,781,715	1,174,720	1,063,238	15,718,478
				21	21	15,718,478	1,100,293	1,137,664	14,580,814
				22	22	14,580,814	1,020,657	1,217,301	13,363,513
				23	23	13,363,513	935,446	1,302,512	12,061,001
				24	24	12,061,001	844,270	1,393,688	10,667,314
				25	25	10,667,314	746,712	1,491,246	9,176,068
				26	26	9,176,068	642,325	1,595,633	7,580,435
				27	27	7,580,435	530,630	1,707,327	5,873,108
				28	28	5,873,108	411,118	1,826,840	4,046,268
				29	29	4,046,268	283,239	1,954,719	2,091,549
				30	30	2,091,549	146,408	2,091,549	(0)

Suppose that you change the assumptions and create an Interest-Only Period in the beginning – for example, you might set cell D10 to 15 or 20 rather than 0. Will this INCREASE or DECREASE the IRR for this hotel renovation?

    a. It will INCREASE the IRR.

    b. It will DECREASE the IRR.

    c. It will NOT AFFECT the IRR.

    d. There is not enough information to determine the effect on the IRR.

9. If you look at the schedule, you'll see that the interest + principal repayment total in each year is the same, but Excel allocates a higher percentage of the total to interest in the earlier years, via the IPMT and PPMT functions. Why might it do this?

    a. Because interest is tax-deductible but debt principal repayment is not, so the investors can get a tax break in earlier years by paying more of the interest then.

    b. Because paying more in interest earlier on will always boost the IRR in an acquisition and renovation scenario.

    c. Because the property might not generate enough cash flow to pay off debt principal in the beginning.

    d. Excel only does that here because we've explicitly told it to do so via the variables passed into the function.

10. In Exhibit 3.8 above, the formula for the Interest Expense for Year 1 is INCORRECT (see the formula in cell I7) and does NOT account for both normal and Interest-Only Periods. Which of the following answer choices gives the correct formula so that it works correctly for both Interest-Only periods and normal periods?

    a. =IF(G7<="I/O",D7*D6,-PPMT(D7,G7,D9,D6))

    b. =IF(G7<>"I/O",D7*D6,-PPMT(D7,G7,D9,D6))

    c. =IF(G7="I/O",D7*D6,-IPMT(D7,G7,D9,D6))

    d. =IF(G7>="I/O",D7*D6,-IPMT(D7,G7,D9,D6))