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FIN2010 Assignment 9

1.

Project A

Savings	$8,000	$8,000	$8,000	$8,000	$8,000	$8,000	$8,000
Depr.	(5,600)	(8.960)	(5,376)	(3,226)	(3,225)	(1,613)	0
PBT	2,400	(960)	2,624	4,774	4,775	6,387	8,000
Taxes(34%)	816	(326)	892	1,623	1,624	2,172	2,720
Cashflow (Savings – Taxes)	7,184	8,326	7,108	6,377	6,376	5,828	5,280

Project B

Savings	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000
Depr.	(4,000)	(6,400)	(3,840)	(2,304)	(2,304)	(1,152)	0
PBT	1,000	(1,400)	2,160	3,696	4,696	5,848	7,000
Taxes(34%)	340	(476)	734	1,257	1,597	1,988	2,380
Cashflow (Savings – taxes)	4,660	5,476	5,266	4,743	5,403	5,012	4,620

A).

Project A

Year	Cash Flows	Cumulative Inflows
0	($28,000) (-b)	--
1	7,184	$7,184
2	8,326	15,510
3(a)	7,108	22,618 (c)
4	6,377(d)	22,995

PBP = a + (b - c)/d

= 3 + ($28,000 - $22,618)/$6,377 = 3.84 years

Project B

Year	Cash Flows	Cumulative Inflows
0	($20,000) (-b)	--
1	4,660	$4,660
2	5,476	10,136
3(a)	5,266	15,402 (c)
4	4,733(d)	20,145

PBP = a + (b - c)/d

= 3 + ($20,000 - $15,402)/$4,743 = 3.97 years

B).

Project A

Year	Cash Flow	Present Value Discount Factor (14%)	Present Value
0	$(28,000)	1.000	$(28,000)
1	7,184	.877	6,300
2	8,326	.769	6,403
3	7,108	.675	4,798
4	6,377	.592	3,775
5	6,376	.519	3,309
6	5,828	.456	2,658
7	5,280	.400	2,112

Net Present Value = $ 1,355

Project B

Year	Cash Flow	Present Value Discount Factor (14%)	Present Value
0	$(20,000)	1.000	$(20,000)
1	4,660	.877	4,087
2	5,476	.769	4,211
3	5,266	.675	3,555
4	4,743	.592	2,808
5	5,403	.519	2,804
6	5,012	.456	2,285
7	4,620	.400	1,848

Net Present Value = $ 1,598

c) PI project A = $29,355/$28,000 = 1.05

PI project B = $21,598/$20,000 = 1.08

d) IRR project A = 15.68 %

IRR project B = 16.58 %

2.

Selecting those projects with the highest profitability index values would indicate:

Project	Amount	PI	Net Present Value
1	$500,000	1.22	$110,000
3	350,000	1.20	70,000
	$850,000		$180,000

However, utilizing "close to" full budgeting will be better.

Project	Amount	PI	Net Present Value
1	$500,000	1.22	$110,000
4	450,000	1.18	81,000
	$ 950,000		$191,000

b) No. The resort should accept all projects with a positive NPV. If capital is not available to finance them at the discount rate used, a higher discount rate should be used that more adequately reflects the costs of financing.

3.

	Project A				Project B	
		Cashflows				Cashflows
Years	0	-2000		Years	0	-2000
	1	1000			1	0
	2	1000			2	0
	3	1000			3	0
	4	1000			4	6000
(A)	IRR	34.9%			IRR	31.6%
(B)	NPV (20%)	$490.61			NPV(20%)	$744.60
	NPV(32%)	$72.48			NPV(32%)	$77.51

(D) The superior project will be the one having the highest NPV at the required rate of return. Since B has more NPV than A at both 20% and 32%, we choose project B. We are assuming that the required rate of return is the same for each project and that there is no capital rationing.