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Question - 1 (a).

Solution-

We know that;

$$P = F\left(\frac{1}{1+n}\right)^n$$

Putting values,

$$P = 100000000\left(\frac{1}{1+0.08}\right)^6$$

$$P = 100000000\left(\frac{1}{1.08}\right)^6$$

$$P = 100000000\,(0.6302)$$

$$P = 63020000$$

Question - 1 (b) -

As we know that;

$$P = A\left[\frac{(1+i)^n - 1}{i(1+i)^n}\right]$$

$$10000000 = 100000\left[\frac{(1+0.06)^n - 1}{0.06(1+0.06)^n}\right]$$

$$\frac{10000000}{1000000} = \left[\frac{(1+0.06)^n - 1}{0.06\,[1+0.06]^n}\right]$$

$$10 = \left[\frac{(1+0.06)^n - 1}{0.06\,(1+0.06)^n}\right]$$

$$\Rightarrow 10 \times 0.06\,(1+0.06)^n = (1+0.06)^n - 1$$

$$\Rightarrow 0.6\,(1.06)^n = (1.06)^n - 1$$

$$\Rightarrow -0.6\,(1.06)^n + (1.06)^n = 1$$

$$\Rightarrow (1.06)^n\,(1 - 0.6) = 1$$

$$\Rightarrow (1.06)^n\,(0.4) = 1$$

$$(1.06)^n = 1/0.4$$

$$(1.06)^n = 2.5$$

Taking ln;

$$\ln 2.5 = n * \ln (1.06)$$

$$0.916 = n * 0.0583$$

$$n = \frac{0.916}{0.0583}$$

$$n = 15.7 \text{ years}$$

$$N = 15.7 \text{ years.}$$

Question- 2 (a)

$A = 30 \text{ million}$

$i = 15\% = 0.15$

$N = 5 \text{ years}$

We know that;

$$P = A \left[\frac{(1+i)^n - 1}{i\ (1+i)^n} \right]$$

putting values,

$$P = 30000000 \left[\frac{(1+0.15)^5 - 1}{0.15\ (1+0.15)^5} \right]$$

$$P = 30000000 \left[\frac{(1.15)^5 - 1}{0.15\ (1.15)^5} \right]$$

$$P = 30000000 \left[\frac{1.0114}{0.15\ (1.15)^5} \right]$$

$$P = 30000000 \left[\frac{1.0114}{0.3017} \right]$$

$$P = 30000000 \left[3.3522 \right]$$

$$P = 100566000$$

Question - 2 (b)-

$A = \$ 10000$

$i = 5\ \%$

$N = 15$ years

$$F = A \left[\frac{(1+i)^n - 1}{i} \right]$$

Putting Values;

$$F = 10000 \left[\frac{(1 + 0.05)^{15} - 1}{0.05} \right]$$

$$F = 10000 \left[21.5786 \right]$$

$F = \$ 215786$

Question - 3 (a).

Answer.

Property depreciable is any asset that is eligible for tax and accounting purposes to book depreciation in accordance with the Internal Revenue service (IRS) Rules.

Property is depreciable if it meet the following basic arguments.

⇒ It must be used in business or held to produce income.

⇒ It must be something that wears out, decay gets used up, become obsolete or loss value from natural causes.

⇒ It must have useful life and the life must be longer than one year.

Question - 3 - (b)

Solution:- We know that;

From

$$dv = (B - SVN)\left[\frac{2(N-K+1)}{N(N+1)}\right]$$

$$BVK = B - \left[\frac{2(B-SVN)}{N}\right]K + \left[\frac{(B-SVN)}{N(N+1)}\right]K(K+1)$$

Putting values for Sample (1).

$$d1 = 400000\left[\frac{2(10+1-1)}{10(10+1)}\right]$$

$$d1 = 400000\left[\frac{2(10)}{10(11)}\right]$$

$$d1 = 400000\ (0.1818)$$

$$d1 = 72720$$

$$BV1 = 400000 - \left[\frac{2(400000)}{10} \times (1)\right] + \left[\frac{400000}{10(11)}\right]1(1+1)$$

$$\Rightarrow 400000 - [80000] + \left[\frac{400000}{110}\right] \times 2$$

$$\Rightarrow 400000 - 80000 + 7272.7$$

$$\Rightarrow 327272.7$$

For d2.

$$d_2 = 400000 \left[\frac{2(10-2+1)}{10(10+1)} \right]$$

$$d_2 = 400000 \left[\frac{2(8+1)}{10(11)} \right]$$

$$d_2 = 400000 \left[\frac{2(9)}{110} \right]$$

$$d_2 = 400000 \left[\frac{18}{110} \right]$$

$$d_2 = 65454.5$$

$$BV_2 = 400000 - \left[\frac{2(400000)}{10} \right] \times 2 + \left[\frac{400000}{10(11)} \right] 2 \times 3$$

$$\Rightarrow 400000 - 80000 \times 2 + \left[\frac{400000}{110} \right] \times 6$$

$$\Rightarrow 400000 - 160000 + 3636.36 \times 6$$

$$\Rightarrow 400000 - 160000 + 2118.16$$

$$\Rightarrow 261818.16$$

$$d_3 = 40000 \left[\frac{2(10-3+1)}{10(10+1)} \right]$$

$$d_3 = 40000 \left[\frac{2(8)}{110} \right]$$

$$d_3 = 40000 \left[0.1454 \right]$$

$$d_3 = 58.18181$$

$$Bv_3 = 40000 - \left[\frac{2(40000)}{10} \right] \times 3 + \left[\frac{40000}{110} \right] 3 \times 4$$

$$Bv_3 = 40000 - [8000] \times 3 + (3636.36) \times 12$$

$$Bv_3 = 40000 - 24000 + 43636.36$$

$$Bv_3 = 40000 + 43636.36 - 24000$$

$$Bv_3 = 443636.36 - 24000$$

$$Bv_3 = 203636.36$$

$$d_4 = 400000 \left[\frac{2(10-4+1)}{10(10+1)} \right]$$

$$= 400000 \left[\frac{2(7)}{110} \right]$$

$$= 50909.0909$$

$$BV_4 = 400000 + \left[2\left(\frac{400000}{10}\right) \right] \times 4 + \left[\frac{400000}{110} \right] 4 \times 5$$

$$= 400000 + 320000 + 72727.2727$$

$$= 792727.2727$$

$$d_5 = 400000 \left[\frac{2(10-5+1)}{10(10+1)} \right]$$

$$d_5 = 4363.3$$

$$BV_5 = 400000 - \left[\frac{2(400000)}{10} \right] \times 5 + \left[\frac{400000}{110} \right] 5 \times 4$$

$$400000 = 400000 + 72727.2$$

$$BV_5 = 72727.2$$

$$d_6 = 400000 \left[\frac{2(10-6+1)}{10(11)} \right]$$

$$d_6 = 36363.6$$

$$BV_6 = 400000 - \left[\frac{2(400000)}{10} \right] \times 6 + \left[\frac{400000}{110} \right] \times 6 \times 7$$

$$= 400000 - 480000 + 152727$$

$$\Rightarrow 72727$$

$$d_7 = 400000 \left[\frac{2\{10-7+1\}}{10(11)} \right]$$

$$d_7 = 29090.90$$

$$BV_7 = 400000 - \left[\frac{2(400000)}{10} \right] \times 7 + \left[\frac{400000}{110} \right] \times 7 \times 8$$

$$BV_7 = 400000 - 560000 + 203636.36$$

$$\Rightarrow 43636.36$$

$$d_8 = 400000 \left[\frac{2(10-8+1)}{10(11)} \right]$$

$$d_8 = 400000 \ (0.05454)$$

$$d_8 = 21818.18$$

$$BV8 = 400000 - \left[\frac{2(400000)}{10}\right] \times 8 + \left[\frac{400000}{110}\right] \times 8 \times 9$$

$$BV8 = 400000 - 640000 + 3636.36 \times 72$$

$$BV8 = 21818.18$$

$$d9 = 400000 \left[\frac{2(10-9+1)}{10(11)}\right]$$

$$d9 = 14545.4$$

$$BV9 = 400000 - \left[\frac{2(400000)}{10}\right] \times 9 + \left[\frac{400000}{110}\right] 9 \times 10$$

$$BV9 = 400000 - 720000 + 327272.7$$

$$BV9 = 7272.9.$$

Question - 4 (a)

Gross income = $ 50,000

Cost of Gold sold = $ 20.000

Deprating on DC machine = $ 4,000

Operating expenses = $ 6,000

Gross income & expenses as stated;

income - tax rate = 40 %

Solution:- Consider the purchase of the machine to have been made at the end of year, zero which is also the beginning of year one.

Gross income	$ 50000
Cost of Good Sold	$ 20,000
Depreciation	$ 2,000
Operating expenses	$ 6.000
Taxable income	$ 20,000
Taxes - 40 %	$ 8,000
Net income	12,000

Question - 4 (b).

Answer-

Benefits :- With this proposed park public primary health will improved, besides that a new recreational activity will be added in the city of Abbotabad. With new recreational activity local people and also people from outside will pay a visit to this park thus increasing its value in terms of financial activities, substitute business like cafe etc. will also flourish which will generate revenue for the government. And on a greator scale it will attract tourist to the city.

Costs :- As land already is availble so the park building cost will be low and also government is palanning to issue bonds. So the cost won't be a big issue. They can manage it in low cost.

Disbenefits :- If not properly managed they can damage the nature and issueance of bonds might be an issue which is considerable factor.

Question - 5 (a)

Land investment cost	$ 50,000
Building investment cost	$ 225,000
Study period	$ 20 years
Upkeep expenses per unit per month	$ 30
Property taxes and insurance	10 %

Solution :-

⇒ To determine the equivalent AW of all costs at the MARR of 12 % per year.

⇒ To earn exactly 12 % the annual rental income, adjusted for 90 % occupany, must equal the AW of costs.

Initial investment cost = $ 50000 + $ 225000

= $ 275,000

Taxes & insurance per year = 0.1 ($ 275,000)

= $ 27500

Upkeep / year = $30 (12 × 30) (0.9)

= $ 9720

CR cost / year = $275000 (A/P, 12%, 20)

− $50,000 (A/F, 12%, 20)

= $ 36,123

⇒ Assume that investment in land is recoverd at the year of 20.

Equalent AW (of cost) = $275000 − $9720

− $ 36123

= $ 73343

Therefore minimum annual rental required equals $ 73343 and with annual compounding, monthly rental amount R is;

= $ 73343 / (12 × 30) (0.9)

= $ 226.36