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COURSE AND PAPER: E, E & M

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Question No: 01

(a). A property dealer in haljatabad township has an option to purchase a twenty-----? ?

Solution:

Given data:

$$F = 100 \text{ million} = 100,000,000$$

$$n = 6 \text{ years}$$

$$i = 8\% = 0.08$$

Required data:

$$P = ?$$

As we know that

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

Now putting values in the above eq, we get

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

$$P = 100000000 (0.6302)$$

$$P - T - 0$$

$$P = 63020000 \text{ Ans}$$

Question No: 01

(b). Mr Hamza an employee of Isra National University on retirement from - - - - - ?

Solutions

Given data

$$P = 10 \text{ million} = 10000000$$

$$A = 1 \text{ million} = 1000000$$

$$i = 6\% = 0.06$$

Required data

$$n = ?$$

As we know that

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

Now putting values in the above eq, we get

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

$$\frac{10000000}{1000000} = \frac{(1+0.06)^n - 1}{0.06(1+0.06)^n}$$

$$10 = \frac{(1+0.06)^n - 1}{0.06(1+0.06)^n}$$

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

$$0.6(1.06)^n = (1.06)^n - 1$$

$$-0.6(1.06)^n + (1.06)^n = 1$$

$$(1.06)^n [1 - 0.6] = 1$$

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

$$(1.06)^n = \frac{1}{0.4}$$

$$(1.06)^n = 2.5$$

Taking \ln

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

$$0.916 = n \cdot 0.0583$$

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

$$n = 15.7 \text{ (years)} \quad \underline{\text{Ans}}$$

Question No: 02,

(a) Four Generator installed at
turbela - - - - - ?

Solution:

Given data

$$A = 30 \text{ million} = 30000000$$

$$i = 15\% = 0.15$$

$$n = 5 \text{ years}$$

P - T - 0

Required data

$$P = ?$$

As we know that

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

Now putting values in above eq, we get

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

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

$$P = 30000000 \left[\frac{2.0114}{0.15(1.15)^5} \right]$$

$$P = 30000000 \left[\frac{2.0114}{0.3017} \right]$$

$$P = 30000000 (3.3522)$$

$$P = 100566000 \quad \underline{\underline{\text{Ans}}}$$

Question No 802

(b) Suppose Mr Zafar -----?

Solution:

Given data

$$A = 10000$$

$$P = T = 0$$

$$i = 5\% = 0.05$$

$$n = 15 \text{ years}$$

Required data

$$F = ?$$

As we know that

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

Now putting values in above eq, we get

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

$$P = 10000 (21.5786)$$

$$F = 215786 \quad \underline{\underline{\text{Ans}}}$$

Question No : 03

(a) A property is depreciable - - - ?

Answer:

A property is said to be depreciable if it meets the following basic requirements.

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

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

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

Question No: 03

(b) An MRI machine - - - - ?

Solution:

As we know that

From

$$d_v = (B - S) \left[\frac{2(N - k + 1)}{N(N + 1)} \right]$$

$$B_{v_k} = B - \left[\frac{2(B - S)N}{N} \right] k + \left[\frac{B - S}{N(N + 1)} \right] k(k + 1)$$

Putting values, For sample 1

$$d_1 = 400000 \left[\frac{2(10 + 1 - 1)}{10(10 + 1)} \right]$$

$$d_1 = 400000 \left[\frac{2(10)}{10(11)} \right]$$

$$d_1 = 400000 (0.1818)$$

$$d_1 = 72720$$

B_{v1} =

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

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

$$400000 - 80000 + 7272.7$$

$$= 327272.7$$

For d₂

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

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

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

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

$$d_2 = 65454.5$$

B_{v2} =

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

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

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

$$400000 - 160000 + 21818.16$$

$$= 261818.16$$

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

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

$$= 50909.0909$$

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

$$= 400000 + [200000] + 72727.2727$$

$$= 792727.2727$$

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

$$43636.3$$

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

$$400000 - 400000 + 72727.2$$

$$BV_5 = 72727.2$$

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

$$d_6 = 36363.6$$

BV6

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

$$400000 - 480000 + 152727$$

$$= 72727$$

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

$$d_7 = 29090.90$$

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

$$BV_7 = 400000 - 560000 + 203636.36$$
$$= 43636.36$$

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

$$= 400000 - (0.05454)$$

$$d_8 = 21818.18$$

$$BV_8 = 400000 - \left[2 \left(\frac{400000}{10} \right) \right] \times 8 + \left[\frac{400000}{110} \right] \times 8 \times 9$$

$$BV_8 = 400000 - 640000 + 3636.36 \times 72$$

$$BV_8 = 400000 - 640000 + 261817.9$$

$$BV_8 = 21818.18$$

$$d_9 = 400000 \left[\frac{2(10-9+1)}{10(11)} \right]$$

$$d_9 = 14545.4$$

$$BV_9 = 400000 - \left[2 \left(\frac{400000}{10} \right) \right] \times 9 + \left[\frac{400000}{110} \right] \times 9 \times 10$$

$$BV_9 = 400000 - 720000 + 327272.7$$

$$BV_9 = 7272.9$$

$$d_{10} = 400000 \left(\frac{2(10-10+1)}{10(11)} \right)$$

$$d_{10} = 7272.72$$

$$B_{10} = 400000 - \left[\frac{2(400000)}{10} \right] \times 10 + \left[\frac{400000}{110} \right] \times 10 \times 11$$

$$B_{10} = 400000 - 800000 + 400000$$

$$B_{10} = 0 \text{ Ans}$$

Question No: 4

(a) A company - - - - - ?

Solution:

$$\text{Gross Income} = \$ 50,000$$

Expenses =

$$\text{Cost of goods sold} = \$ 20,000$$

$$\text{Depreciation} = \$ 4,000$$

$$\text{Opening expenses} = \$ 6,000$$

$$\text{Total expenses} = \$ 30,000$$

$$\text{Income before income tax} = \$ 20,000$$

$$\text{Income tax} = 40\%$$

$$= 20000 \times \frac{40}{100} = 8000$$

$$\text{Net Income} = \$ 12,000 \text{ Ans}$$

P - F - O

Question No: D4

(b) A new convention - - - - -?

Solution: (Answer)

* Benefits:

- Improvement of the image of the area of Abbotabad city.
- Potential to attract conferences and conventions to abbotabad city.
- Potential to attract professional sports franchises to the city.
- Revenues from rental of the facility.
- Use of facility for civic events.

* Costs:

- Architectural design of the facility.
- Construction of the facility.
- Design and construction of parking facility.
- Facility operating and maintenance costs.
- Insurance costs.

* Disbenefits:

- Loss of use of portion of the park, bike path natural trail, and the pond.
- Loss of wildlife habitat in urban area.

Question No: 05

Star marketing - - - - - ?

Solution:

Given data

Land investment cost = \$ 50,000

Building investment cost = \$ 225,000

Study period = 20 years

Unkeep expenses per unit per month = \$ 30

Property taxes and insurance per year = 10%

Sol:Initial investment cost = $50,000 - 225,000 = \$ 275,000$ Taxes & insurance per year = $0.1(275,000) = \$ 27,500$ Unkeep expenses / year = $\$ 30(12 \times 25)(0.9) = \$ 81,000$ CR cost / year = $\$ 275,000(A/P 12\% \times 12)$ * - $50,000(A/P 12\% \times 20) = \$ 361,23$

Assume that investment in land is recovered at the year of twenty (20).

Equivalent AW (of cost) = $27,500 - 81,000 - 361,23$ = $\$ 16,736$

So, therefore minimum annual rental required equal 16736 and with annual compounding the monthly rental amount

R' is 16736

$$R = \frac{16736}{(12 \times 25)(0.9)} = \frac{16736}{270} = 61.99 \text{ Ans}$$

"The End"