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final term examination.

Course: Engineering E & E M:

Q1 Part a: A property dealer in Hujatabad township has an

Sol:

we know that.

$$P_2 = F(1/1 + i)^n \rightarrow (1)$$

So putting values in eq (1) we get

$$P_2 = 100m(1/1 + 0.08)^6$$

$$P_2 = 100m(1 + 0.08)^6$$

$$P_2 = 100m(1.08)^6$$

$$P_2 = 100(1.586)$$

$$P_2 = 158.68 \text{ m}$$

Q1 Part B: MR. Hamza an employee of iqra (2)

Sol:

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

$$10 = (1.06)^n - 1 / 0.06(1.06)^n$$

$$10 \times 0.06(1.06)^n = (1.06)^n - 1$$

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

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

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

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

$$2.5 = (1.06)^n$$

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

$$0.916 = n \times 0.0583$$

$$N = 0.916 / 0.0583$$

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

Q2 a four generators installed at
tesbela Dam

Sols

Given:

$$A = 30 \text{ million}, N = 5 \text{ years}$$

$$i = 15\%$$

So

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

$$P = 30000000 \left(\frac{1.0113}{0.3017} \right)$$

$$P = 30000000 (3.5200)$$

$$P = 105,600,000 \text{ Ans}$$

Q2 b Suppose Mr. Zafar make 15 equal
annual deposits of \$10,000 each

Sols

$$A = 10,000, i = 5\%, N = 15$$

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

$$F = 10,000 \left[\frac{(1+0.05)^{15} - 1}{0.05} \right]$$

$$= 10,000 (21.57)$$

$$= 215785.63 \text{ Ans}$$

Q3 A Property is depreciable if it meets (4) certain basic requirements. What are those basic requirements?

Ans: Depreciation is decrease in value of physical properties with the passage of time and use. A non-cash expense that reduces the value of an asset as a result of wear and tear, age, etc. Most assets lose their value over time (in other words, they are depreciable) and must be replaced once the end of their useful life is reached. There are several accounting methods that are used in order to write off an asset's depreciation cost over the period of its useful life. Because it is a non-cash expense, depreciation lowers the company's reported earnings while increasing free cash flow.

Property is depreciable if it meets the following basic requirements.

- ① It must be used in business or held to produce income.
- ② It must have a useful life and the life must be longer than one year.

Q 3 (b)

(6)

useful life = 10 years.
Cost = 40,000
Salvage Value = zero

Year	Depreciation	Rate	Remaining life
1	40000		10
2	40000		9
3	400,000		8
4	400,000		7
5	400000		6
6	400000		5
7	400000		4
8	400000		3
9	400000		2
10	400000		1

Fractions:

$$\frac{10}{55} \times 400,000 = 72,727.27$$

$$9/55 \times 400000 = 65454.54$$

$$8/55 \times 400000 = 58,181.81$$

$$7/55 \times 400000 = 50,909.09$$

$$6/55 \times 400,000 = 43,636.36$$

$$5/55 \times 400,000 = 36,363.63$$

$$4/55 \times 400,000 = 29,090.90$$

$$3/55 \times 400,000 = 21,818.18$$

$$2/55 \times 400,000 = 14,545.45$$

$$1/55 \times 400,000 = 7,272.72$$

Book value.

Year

- 1 = $400,000 - 7272.72 = 392,727.2$
- 2 = $\overset{400,000}{\cancel{21,818.18}} - 14,545.45 = 385,454.55$
- 3 = $-21,818.18 + 400,000 = 378,181.82$
- 4 = $400,000 - 29,090.90 = 370,909.1$
- 5 = $-36363.63 + 400,000 = 363,636.37$
- 6 = $-43636.36 + 400,000 = 356,363.64$
- 7 = $-50909.09 + 400,000 = 349,090.91$
- 8 = $-58181.81 + 400,000 = 341,818.19$
- 9 = $-65454.54 + 400,000 = 334,545.46$
- 10 = $-72727.27 + 400,000 = 327,272.73$

Q4
Part A

A Company buys a Digital Controlled DC machine for \$23,000 (Year 2000) and uses it for five years. ----- (7)

Gross income = \$50,000
Cost of goods sold = \$~~40,000~~^{30,000}
Depreciation on DC machine = \$4,000
operating expenses = \$6,000

if the company pays taxes at the rate of 40% on its taxable income, what is its net income during the first year from the project.

Given: Gross income and expenses as stated;
income tax rate = 40%

find: Net income
considers the purchase of the machine to have been made at the end of year 2000, which is also the beginning of year one.

Item	amount
Gross income	\$50,000
Expenses	
Cost of good sold	\$30,000
Depreciation	\$2,000
operating expenses	\$6,000
Taxable income	\$20,000
Taxes (40%)	\$8,000.

Q 4
Part B

A new Convention Center and Sport Complex has been proposed to ADA in -

(8)

Sol: Benefits: improvement of the image of the area of Abbotabad City

- ① Potential to attract conferences and conventions to Abbotabad city.
- ② Potential to attract professional sports, franchises to the city
- ③ Revenues from rental of the facility.
- ④ 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 wild life habitat in urban area.

Q5 (a) Star marketing Company is considering

Solution:

First to determine the equivalent
of all costs at the MARR of 12%/year
To earn exactly 12% the ~~amount~~ annual
rental income, adjustment for 90%
occupancy, must equal the AW of costs

initial investment cost

$$= 50000 + 225000 = 275000$$

Taxes and insurance per year

$$= 0.1(275000) = 27500$$

$$\text{ upkeep/year} = 30(12 \times 30) \cdot 0.9 = 9720$$

$$\text{CR cost/year} = 275000(A/P, 12\%, 20) - 50000(A/P, 12\%, 20)$$
$$= 36123$$

Q (Assume that the investment in Land is covered at the year of 20)

$$\text{Equivalent AN (of costs)} = -27500 - 9720 - 36123$$
$$= -73343$$

Therefore minimum amount rental
required equals 73,343 and with annual

(16)

Compounding, the monthly rental amount
R is.

$$R = 73393 / (12 \times 30) (0.9) = 226.36$$

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