Plant Design and Economics - IX

Complete Course on Plant Design and Economics

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Good Morning Question

Q-25

An industry Need Pump, Absorption Column and a Condenser to start the plant operation. The cost of the above mentioned equipments respectively are 10L, 20L & 12L. When the plant starts, the amount spend in the operation of these three equipments are 2L, 3L & 2.5L respectively. If fixed charge is charged by 20%. then calculate the total annualized cost for the Plant.

Ans:-

Total Operational/Variable cost = 2L + 3L + 2.5L

= 7.5L

Total Fixed cost = 10L + 20L + 12L = 42L

Yearly Fixed cost = 20% of 42L = 8.4L

Total Annualized cost = 7.5L + 8.4L

= **15.9L = Ans**

Ans :-

Ques 26

Fixed Capital investment for a Plant is 30 L and Corresponding Working capital investment is 20% of the Total Capital investment. At the start of the Plant 25% of the WCI is used to run the Plant in order to bear the early expenses. It is observed that at the end of the year, the Company is in a total Profit of 2L such that the revenue collected is 4.5 L. If 15% is charged equally during the service life then calculate the total annualized Cost?

Ans

FCI = 30L

Yearly fixed charge = 15% of 30L = 4.5L

Profit = TAR − TAE

TAE = 4.5L − 2L = 2.5L

Total annualized cost = 2.5L + 4.5L = **7.0L = Ans**

Ques 27

A Person took a Loan of 5 L at an interest rate of 10% to complete his financial obligation. For the first 5 yr, the rate of interest is simple but after 5 yr, the lender changed it to compound for the next 5 yr. If no intermediate Payments are Made the calculate the total Money obtained after the end of 10 yrs?

Ans:- $P = 50\,L, \quad i = 10\%$

$$S = P(1+in) = 50\,L\,(1+0.1\times 5) = 50\,L\,(1.5) = 75\,L$$

After 5 yr

$P' = 75\,L, \quad i = 10\%$

$$S = P'(1+i)^n = 75\,L\,(1+0.1)^5 = 120.78825\,L$$

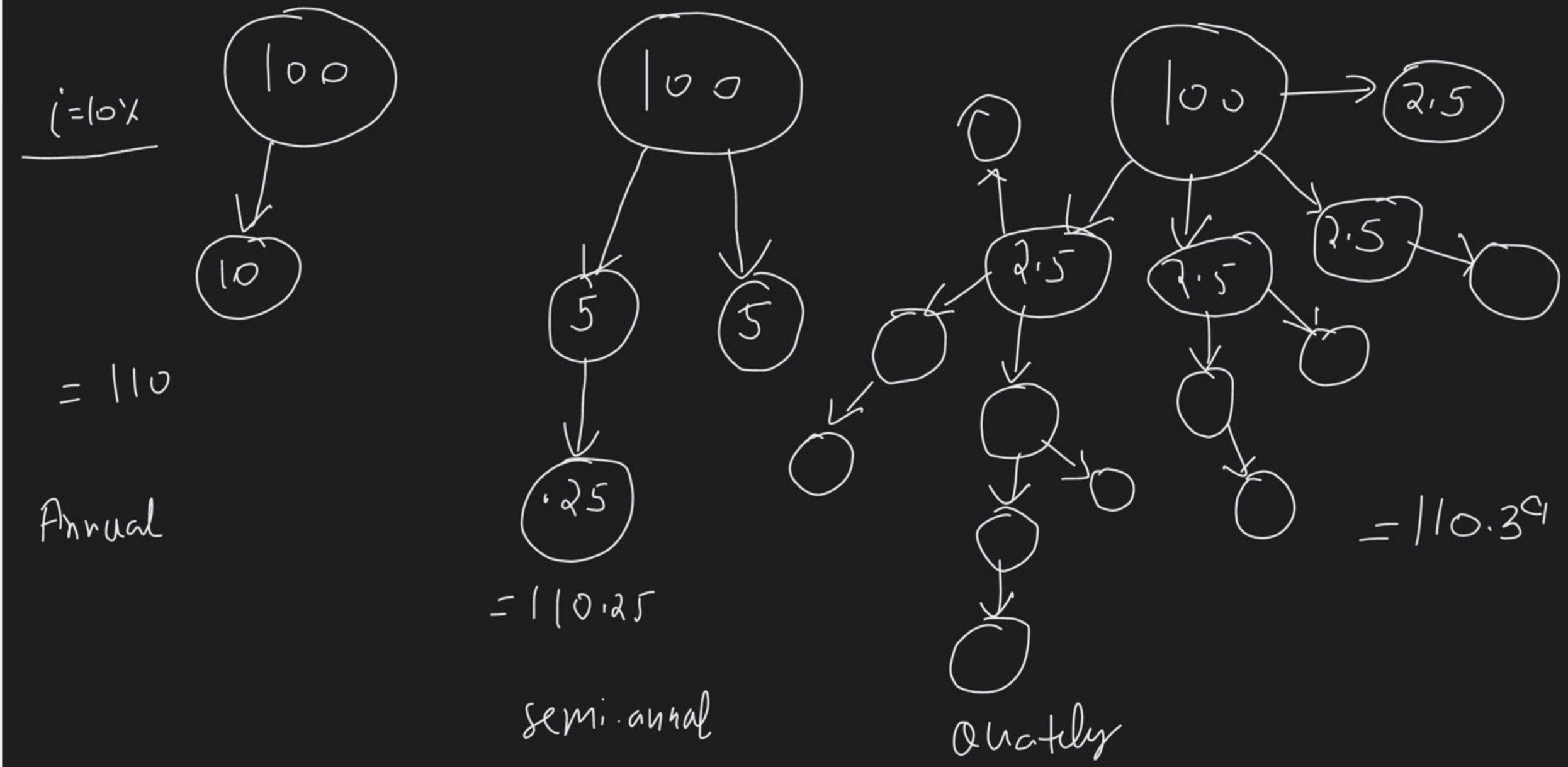
After 5 yr

$$= 1.2078825\,Cr = \text{Ans}$$

Compound interest

$$S = P(1+i)^{n}$$

- n → Number of years
- S → Compound Amount
- P → Principal Amount
- i → Interest Rate


i=10%
100
10
= 110
Annual
100
5
5
.25
= 110.25
semi-annual
100
2.5
2.5
2.5
2.5
= 110.38
quately

1 Lakh → Credit Card

30 days

15th Feb → Spend

15th Mar → Statement

30th March → Payment

Statement Generation Date

15th

45 days

Billing Date

after 15 days

30k → Saving Account 2.5-3%
FD 4-4.5%
Liquid Mutual Fund 6-7%

24%

30days → 30k → 150₹
1 year → 30k → 1800₹

Min 12%
+
12% Reward

+
Credit Card → Reward Point → 2k-3k