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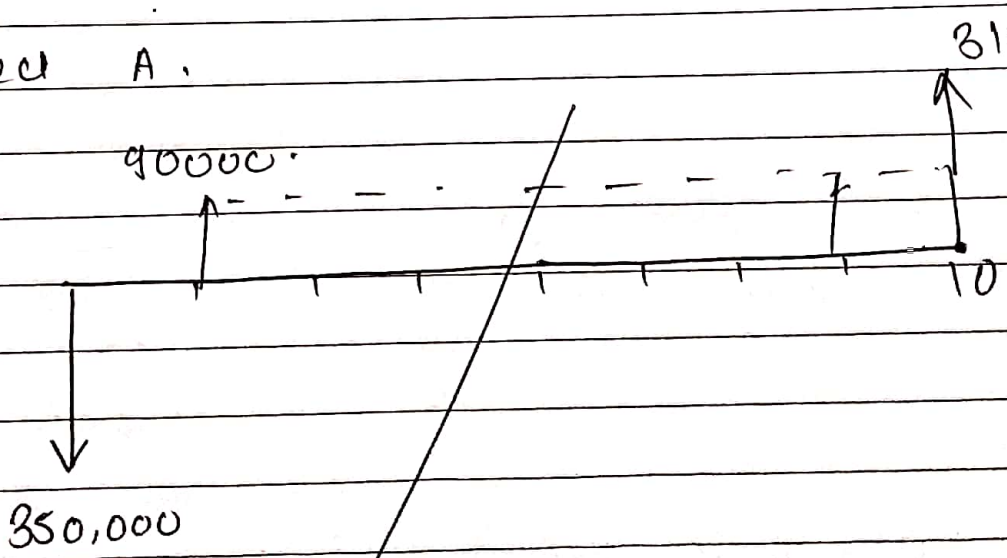
Q. NO. 1 ⇒.

Project	A	B	C	D.
Initial investment	850,000	450000	6,00,000	8,00,000
Annual revenue	90,000	1,00,000	1,00,000	175000.
Salvage value.	31500	37800	44100	50400.

Now.
for Project A.



350,000

Now
using Pw formulation
Pw(i* y.) = 0.

$P_{with\ new} - P_{without\ new} = 0$.

$90000 \times (P/A, i^*\%, 10) + 81500\,(P/F, i^*\%, 10) - 350000 = 0$.

Thus,

$$90{,}000 \times \frac{(1+i^*)^{10} \times i^*}{((1+i^*)^{10}-1)} + \frac{81500}{(1+i^*)^{810}} - 350000 = 0$$

for Project A,
using future worth formulation,

$$fw(i^*) = -350000\,(f/p, i_A^*, 10) + 90000\,(F/A, i_A^*, 10)$$

Thus,

$$81500 = -350000\,(1+i_A)^{10} + 90000\left(\frac{(1+i_A)^{10}-1}{i_A^*}\right)$$

$$i_A = 0.2188$$

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Therefore by hit and Trial

At $i_A = 20\%$, fw =

$i_A^* = 25\%$, fw =

fw, 20% = ~~2088070~~ 137673.6422

fw, 25% = −298367.7425.

using linear interpolation

$$\frac{i^* - 20\%}{25\% - 20\%} = \frac{0 - 137673.6422}{-298367.7425 - 13763.64^{R}}$$

$\therefore i_A = 22.20\%$ fw = −25505.4919.

Again,

$$\frac{i^* - 20\%}{22.20 - 20} = \frac{0 - 13763.6422}{-25505.4919 - 13763.6422}$$

$= 21.88\%$

Thus $i_A = 21.88\%$, fw (21.88) = 0.

Therefore, $i_A = 21.88\%$.

Now,

for Project B,

fw inflow - fw outflow = 0.

$fw(i^*) = -450,000\ (F/P, i_A^*, 10) + 100,000\ (F/A, i_A^*, 10)$.

=

Thus,

$$37800 = -450,000\,(1+i_A)^{10} + 100,000\left(\frac{(1+i_A)^{10}-1}{i_A^*}\right)$$

∴ using calculation we know,

$i_{AB} = 8.17\%$.

for project C.

$fw_C = -6,000\,(F/P, i_A^*, 10) + 1,0000C(F/A, i_A, 10$

$$\therefore\ 44100 = -600,000\,(1+i_A)^{10} + 100,000\left(\frac{1+i_A^{10}-1}{i_A^*}\right).$$

$\therefore\ i_{AC} = 9.8\%$

for Project D,

$$5040 = -800000(1+i_A)^{10} + 175000\frac{(1+i_A)^{16}-1}{i_A}$$

$\therefore \quad i_{AD} = 17.16\%$.

i. $IRR_A = 21.88\%$.
$IRR_B = 17\%$.
$IRR_C = 9.8\%$.
$IRR_D = 17.16\%$.

IRR of A is maximum Therefore project A is selected.