CA FINAL AFM

BUSINESS VALUATION

Introduction:-

Relative Valuation
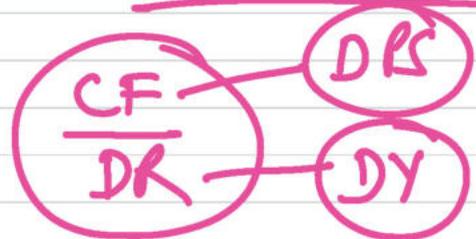
1) **DY Valuation Model:-**

$$DY \Rightarrow \frac{DPS}{MPS} \longrightarrow ? \qquad \boxed{IV = ?} \qquad \underline{I_D =}$$

$$MPS \Rightarrow \frac{DPS}{DY} \text{-------} G$$

$$DY \rightarrow \underline{\text{Discount Rate}}$$

$$DPS \text{-----} G$$

$$\frac{CF}{DR} \quad \begin{cases} DRS \\ DY \end{cases}$$

$$\boxed{V_E \Rightarrow \text{No. of eq. Shares} \times MPS}$$

_OR_

$$V_{\Delta} = V_E + MV \text{ of Debt}$$

2) **EY Valuation Model:-**

$$EY = \frac{EPS}{MPS} \longrightarrow ?$$

$$MPS = \frac{EPS}{EY} \dashrightarrow \%_0$$
$$EY \longrightarrow \text{Discount Rate}$$

$$V_E = \text{No. of Shares} \times MPS$$

3) **P/E Valuation Model:-**

$$P/E = \frac{MPS}{EPS} \longrightarrow ?$$

$$MPS \Rightarrow EPS \times P/E \text{ Ratio}$$

↓ Subject

⇓ Comparables / Industry.

4) **P/S Ratio :-**

Price to Sales Ratio :-

$$P/S \text{ Ratio} \Rightarrow \frac{MPS \text{—①}}{Sales/Share} \quad \text{or} \quad \frac{Total \ MV}{Total \ Sales} \quad Eg.$$

→ All

$$MPS \Rightarrow Sales/Share \times P/S \text{ Ratio}$$

↓ Subject

⇓ Comparables / Industry Avg.

5) **P/B Ratio :-**
(Price to Book Value)

$$P/B \Rightarrow \frac{MPS}{BVPS} \quad OY \quad \frac{Total \ MKt. \ Value}{Total \ Book \ Value}$$

Bank's / NBFC's

$$\frac{\downarrow}{\uparrow} \Rightarrow NPA'S$$

$$\boxed{MPS = BVPS \times P/B \ Ratio}$$

6) **Price to Replacement Cost Ratio :-**

Q Ratio

Tobin's Q.

$$\Rightarrow \frac{MPS}{RC/Share} \quad \left(\frac{M+A}{?} \right)$$

$$\boxed{MPS \Rightarrow R/c \ per \ share \times Price \ to \ RC \ Ratio}$$

Note :-

1 ⟶ ✓
2 ⟶ ✓
3 ⟶ ✓
4 ⟶ ✓
5 ⟶ ✓
6 ⟶ ✓
7 ⟶ ✓

Weights

DCF ✓ — weights

P/E ✓

Weighted Avg.
⇓
As per our Valuation

W.No.1 :- Cal. of DPS :-

$$DPS = \frac{Total\ Dividend}{Total\ No.\ of\ eq.\ Shares}$$

$$\Rightarrow \frac{12,50,000}{5,00,000} = ₹\ 2.5/Share$$

$$DPS = 2.5 - - - - - - 6$$

$$\boxed{MPS = \frac{DPS}{DY}} \Rightarrow \frac{2.50}{.18}$$

$$MPS \Rightarrow ₹\ 13.89/Share$$

Value of 3000 Shares :-

$$\Rightarrow 13.89 \times 3000 \Rightarrow ₹\ 41670$$

Note:

If weights are not given in the question, always assume to be equally weighted.

Q.1 B

W.No.1 Estimation of Ratio's

(i) MKT. to BV: — $\dfrac{\text{MKT. Value}}{\text{Book Value}}$

SK Ltd. $\dfrac{450}{400}$ $\Rightarrow$ 1.125

AS Ltd. $\dfrac{400}{300}$ $\Rightarrow$ 1.333

Avg $\Rightarrow \dfrac{1.125 + 1.333}{2} \Rightarrow \boxed{1.2290}$

(ii) MKt. to RC.:-

SK Ltd. $\Rightarrow \dfrac{450}{600} \Rightarrow 0.75$

AS Ltd. $\Rightarrow \dfrac{400}{550} \Rightarrow 0.727$

Simple Avg. $\dfrac{0.75 + 0.727}{2}$

$\Rightarrow 0.7385$ ✓

(iii) MKt to Sales:-

SK Ltd. $= \dfrac{45}{550} \Rightarrow 0.818$

AS Ltd. $\dfrac{400}{450} \Rightarrow 0.889$

Simple Avg. 0.8535

(iv) Mkt. to NI :-

SK Ltd. $\dfrac{450}{18}$ ⇒ 25

AJ Ltd. $\dfrac{400}{16}$ ⇒ 25

          Simple Avg.   25 times

Application :- on XY Ltd :-

(i) MV to BV :-

      MV = BV × MVBV Ratio

         ⇒ 250 × 1.2290 ⇒ $\boxed{307.25}$

(ii) MV to RC :-

         ⇒ 500 × 0.7385 ⇒ 369.25

(iii) MV to Sale:

$$\Rightarrow 500 \times 0.8535 \Rightarrow 426.75$$

(iv) MV to Income:-

MV $\Rightarrow$ Income $\times$ MV to Income

$$\Rightarrow 14 \times 25 \qquad \Rightarrow ₹ 350$$

Avg. (Simple) $\left[\dfrac{\Sigma x}{n}\right]$ ₹ 363.31

Concept: Valuation Based on FMP's :-

(Future Maintainable Profits)
(As per ICAI)

$$V_B \Rightarrow \frac{FMP's \ - \ - \ - \ - \ - \ - \ - \ \times G}{DR/CR}$$

DR/CR

Discount rate   Capitalization Rate

or $V_E = V_B - MV \ of \ Debt$

Cal. of FMP's :-

Last year Profits or Avg. Profits   XXX
(Before Tax)

Less: All Profits not likely to arise in future   XXX

Q. 3 A

W. No. 1 **Cal. of FMP's :-**

$$₹ \frac{lakh}{65}$$

Profit after tax

$$\frac{\text{Profit before tax}}{65}$$ 100

$$\frac{65}{(1 - .35)}$$

Less: Extra-ordinary Income. ⇒ 10

Add Extra-ordinary losses ⇒ 3

Add: Feature Profits :- ⇒ 27

Sales	60
(−) M/C	15
(−) Labour	10
(−) Add. M/C	8

FMP's before tax   120

Less: Tax @ 35%   42

     FMP's after tax   ₹ 78 lakhs

(#) Allocated fixed cost is a sunk cost & should be ignored.

(a) $V_B = \dfrac{FMP's}{CR} \Rightarrow \dfrac{78 \text{ lakh}}{.15}$

$$\boxed{V_B \Rightarrow ₹ 520 \text{ lakhs}}$$

(b)   FMP's after tax   = 78 lakhs

Less: Pref. Dividend   = 11 lakh

$$[1,09,000 \times 11\% \times 100]$$

Profit available for ESH's	67 lakhs
÷ No. of eq. shares	40 lakhs
EPS	1.675/share
× P/E Ratio	8 times
P/E Valuation MPS ⟹	13.40/share

Q.2C

(i) Profits from Existing operations :-

$$P/E \quad = \quad 6 \text{ times.}$$

$$MPS \quad = \quad 24/\text{Shr}$$

$$EPS \quad \Rightarrow 4/\text{Shr} \left(\frac{24}{6}\right)$$

$$\text{No. of eq. Share} \quad = \quad 5,00,000 \text{ Shr}$$

$$\underline{EFE} \quad = \quad 20,00,000$$

Add. Pref. Dividend   9,00,000

$$(1,00,000 \times 9\% \times 100)$$

$$PAT \quad\quad\quad \underline{29,00,000}$$

Profit before tax

$$\frac{29,00,000}{1 - \cdot 34} \qquad 43,93,939$$

Less: Extra-Ording Income $\qquad$ 24,00,000

Add: Extra-ordinary losses $\qquad$ 9,00,000

Existing Profit from old operation $\qquad$ 28,93,939

(ii) Value of Business :-

Profit from old operations $\qquad$ 2893939

Add: Future Prof:ts $\qquad$ 52,00,000

$$\text{Sales} \qquad 150$$

$$(-) \text{ MC} \qquad 40$$

(-) LC   34

(-) FC   24
_____

FMP's before tax   80,93,939

$\underline{\underline{\text{less}}}$ Tax @ 34%   27,51,939

FMP's after tax   53,42,000

$$V_B = \frac{FMP's}{DR/ur} = \frac{53,42,000}{10}$$

$$V_B \Rightarrow ₹ \; 534,20,000 \, ,$$

Concept:- Net Asset Valuation Method:-

(NAV Method)   (NAV/Share)

↓

Distress firm / Loss making firm /
JV / Don't have going Concern
assumption

↓

Equity Valuation

Net Assets Value / Share for ESH's

↓

Net Assets available for ESH's

Method 1:- NAV/Share

Equity

Less :-

Total External
Liabilities

⇒ Pref. Share Capital
⇒ Debentures
→ LTL
→ Current Liab.

Asset Side

Total Assets
Excluding :-

1) P/L Dr. Bal.
2) Preliminary Exp.
3) Misc. Expenditure
4) Discount on Issue
   of Deb./Pref.

Net Assets available for ESH'l

Method 2:

Liability $'de

B/S

ESC
+ R&S
(−) Prelim. Exp.
(−) Misc. Exp.
(−) P/L Dr. Bal.
(−) Discount on issue
       of Debt/Pref.
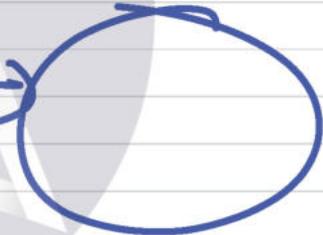
Net Assets available for ESH'l

$$\text{NAV/Share} = \frac{\text{Total Assets} - \text{Total External Liab.}}{\text{No. of eq. Shares}}$$

Q.3A

Method 1:- Value Based on FMP's :- (₹Lakh)

Profit before tax	64
Less: Extra-ordinary income	4
Less. Income from Inv).	1
Less. Add. Adv. Exp.	5
Less. Add. Dep^n	6
FMP's before tax	48 lakh.
Less. Tax @ 30%	14.4 lah
FMP's after tax	33.60 lah

$$V_A = \frac{FMP's}{CR}$$

$$V_B = \frac{33.60}{.15} \Rightarrow ₹\ 224\ \text{lakh}$$

Less: V_D $\Rightarrow ₹\ 30\ \text{lakh}$

$$V_E \qquad\qquad \overline{₹\ 194\ \text{lakh}}$$

$$V_E / \text{Share} \qquad \frac{₹\ 194\ \text{lakh}}{10\ \text{lakh}}$$

$$\text{Value} / \text{Share} \qquad \Rightarrow\ \underline{\underline{19.4 / \text{Share op}}}$$

Method 2 :- Cal. of Value / Share using

NAV Method :-

Land & Building   96

Plant & Machinery   100

Invt.   10

Stock   20

Destros   15

Cash   5

Less: Extenal Liab
      ─────────────
         LTL   30

      NAV for ESH's   ₹216 lakh

      ÷ No. of eq. Shr   10 lakh

      NAV/Shr   ₹21.60/Shr

Final Answer:-

      Fair Value per Share:-

      ⇒   19.40 + 21.60
          ─────────────
                2

Fair Value / Sha ⇒ ₹ 20.50 / Share

(i) P/E Ratio = $\dfrac{0.3\theta}{9 \text{ times}}$

PAT/EFE $\Rightarrow$ 50 Cr.

P/E Valuation $\Rightarrow$ 50 cr. $\times$ 9

$\Rightarrow$ 450 cr.

(ii) DY Valuation :-

$DY = \dfrac{DPS}{MPS}$

$MPS = \dfrac{DPS}{DY} \Rightarrow \dfrac{Total\ Div.}{DY}$

Value of $\mathcal{C}_y \Rightarrow \dfrac{40\,cr.}{0.06}$

$\Rightarrow ₹\ 666.67\ Cr.$

(iii) a) Gordon's :-

$$P_0 = \frac{D_0 (1+g)}{K_e - g_c}$$

$$K_e = R_F + \beta [R_M - R_F]$$
$$\Rightarrow 6\% + 1.2 [11\% - 6\%]$$
$$\Rightarrow \underline{\underline{12\%}}$$

P₀ | Value of TL 恒 $\Rightarrow \dfrac{40 cr. (1 + .04)}{.12 - .04}$

$$\Rightarrow \boxed{₹ 520 \text{ cr.}}$$

ⓑ Book Value :- $\Rightarrow$ 225 cr.

(c) Net Realizable Value:-

$$225\ cr + 100\ cr. - 25\ cr.$$

$$\Rightarrow \boxed{300\ cr.}$$

Concepts   EVA®   Economic Value Added

Registered Model   Storn Steward & Co.

AVS Consulting firm

EVA:- Economic Value Added

↓

Value addition for long-term
Investors
↓

ESH's | Deb. |
Pref. | LTL

EVA → Excess Return over Minimum
Return

EVA

Actual Return (—) Minimum Return
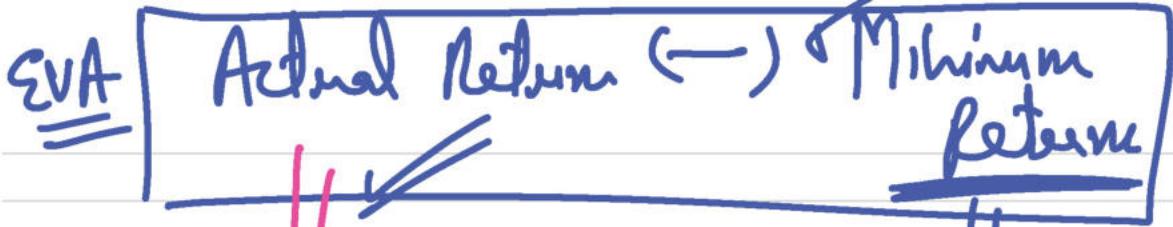
$EBIT \rightarrow$ Operating Profit

(without any Distribution)

$$\Rightarrow \begin{cases} K_e \rightarrow Eq. \\ K_I \rightarrow Deb \\ K_p \rightarrow Pref. \\ K_{LT} \rightarrow LTL \end{cases}$$

K_o/WACC $\times$ Capital Invested

Matching Principal

$$EVA = EBIT(1-tax) - K_o \times Capital\ Invested$$

Operating profit   (after tax)

Operating
Capital
Invested

$$EVA = EBIT(1-tax) - K_o \times \text{Operating Capital Invested}$$

NOPAT

Operating

NOPAT

Operating

B/S

Method 1:

(Long-term Investor)

Non-operating Assets

(−)

→

Asset side

Total Assets

P/L

Current Liab

Enet.

Prov. Inv. P/L

(−) Non-operating

Note: $\boxed{EBIT} (1-tax) = NOPAT$

$$\underset{(2)}{EBIT}$$
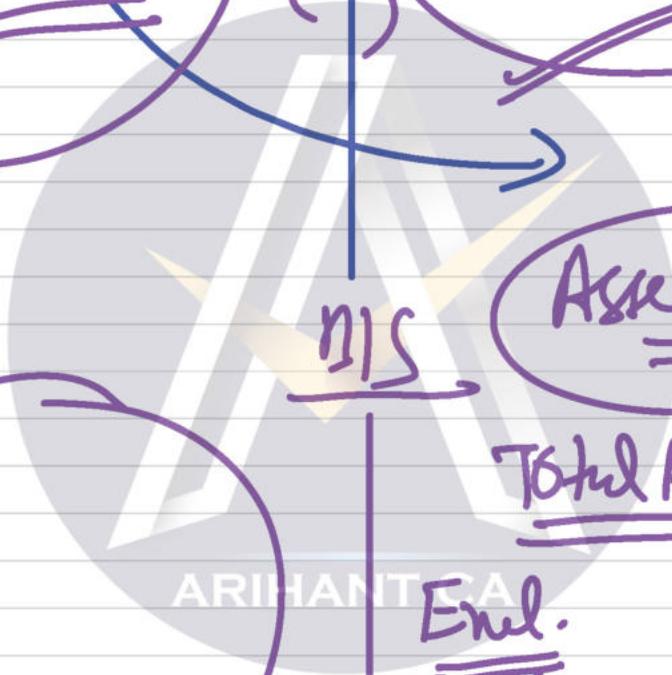
$$
\begin{array}{l}
EBIT \\
(-)\ Int. \\
\overline{EBT} \\
(-)\ Tax \\
\overline{PAT} \\
-\ Pref.\ DN. \\
\overline{EFE} \\
(-)\ Eq.\ Div \\
\overline{R/E \rightarrow \frac{t}{f} \downarrow R/S}
\end{array}
$$

1) $$\dfrac{EFE + Pref.DN.}{1-tax} + Int = EBIT$$

2) $$\dfrac{PAT}{1-tax} + Int. = EBIT$$

3) $$EBT + Int = EBIT$$

Note:- Adjustment of Intangible Assets:-

Intangible → Trademark / = 100 cr
                  Brand Value

⇒ Foot Notes:

100 cr. ⇒ Trademark → H°

ENR ⇒ NOPAT — K_o × Capital Invested

⇓   ⇓

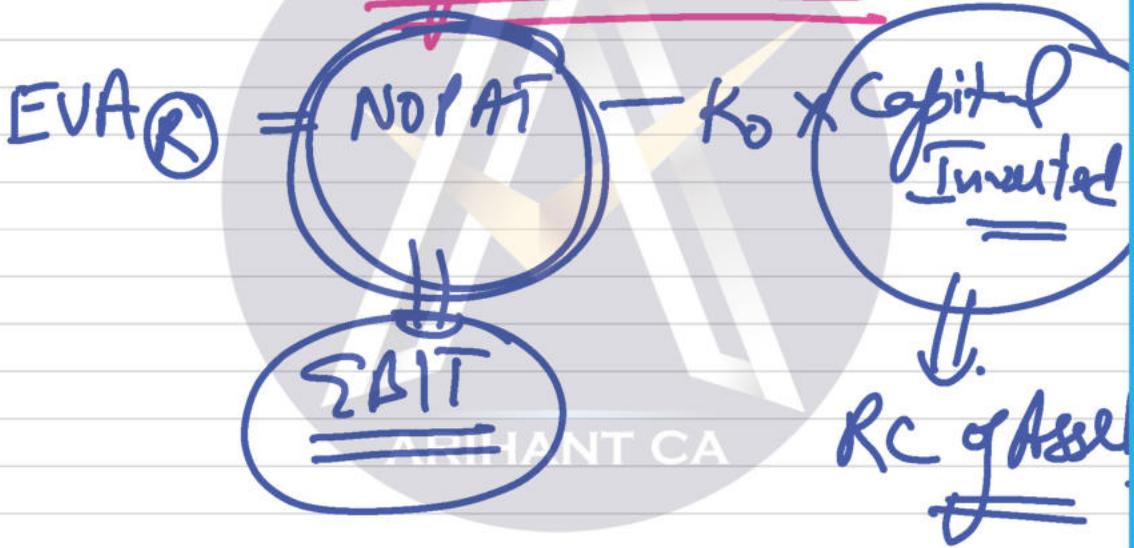EBIT   Consider

⇒ Operating Capital may have to be adjusted very machny principal.

Note: Adjustment of Replacement cost of Assets :-

Adjustment $\Rightarrow$ RC of Assets

Replacement Cost ✓

$$EVA_® = NOPAT - K_0 \times Capital\ Invested$$

$$\Sigma BIT$$

$$\Downarrow$$

RC of Assets

Q.4A

Leverage:-

Method 2 → Sales

$$- \quad V/C - \%$$

DOL

$$- \quad C$$

$$- \quad FC = fixed$$

$$\boxed{EBIT}$$

DFL

$$(-) \quad Int. = fixed$$

$$EBT$$

DCL

$$- \quad Tax → \%$$

$$PAT \quad \%$$

$$\div \quad No.\, of\, Shares → fixed$$

$$\boxed{EPS}$$

$$OL = \frac{C}{EBIT} = times$$

$$FL = \frac{EBIT}{EBT}$$

$$CL = OL \times FL$$

$$\boxed{DOL = \frac{\%\, chge\, in\, EBIT}{}}$$

$$\text{\% chge in Sales}$$

$$DFL \Rightarrow \frac{\text{\% chge in EPS}}{\text{\% chge in EBIT}}$$

$$DCL \Rightarrow \frac{\text{\% chge in EPS}}{\text{\% chge in Sales}}$$

Q.4A

$$FL = 1.4 \text{ times} = \frac{EBIT}{EBT}$$

$$1.4 = \frac{EBIT}{EBIT - \text{Int.}}$$

$$1.4 = \frac{EBIT}{EBIT - 40 \text{ lakh}}$$

$$EBIT \Rightarrow 140 \text{ lakh} \checkmark$$

Hint. $\text{Int} = 4\text{nil} \times 10\% = 40 \text{ lakh}$

W.No.2 Cal. of K_0 / WACC

$$K_0 \Rightarrow K_e W_e + K_d W_d$$

$$\Rightarrow 17.5\% \times \frac{300}{700} + 10\%(1-30)\times\frac{400}{700}$$

$$\Rightarrow 11.5\%$$

W.N. 3   Cal. of Capital Invested

ESC	170 lakh
RM	130 lakh
10% Dep.	400 lakh
	700 lakhs ✓

Final Answer-

$$EVA ® \Rightarrow EBIT(1-tax) - K_0 \times \text{Capital Invested}$$

$$\Rightarrow 140 \text{ lakh}(1-.30) - 11.5\% \times 700 \text{ lakh}$$

$$EVA \Rightarrow ₹ 17.5 \text{ lakh} \, \checkmark$$

Q.4B

$$\frac{D}{A} = \frac{0.80}{1}$$

A/J

$D = .80$ | A
$E = .20$ | $= 1$

$$\boxed{\begin{array}{l} D = 80\% \\ E = 20\% \end{array}}$$

(a)   Cal. of WACC :-

$$K_0 = K_e W_e + K_d W_d$$

PLtd = $26\% \times .20 + 14\% (1 - .25) \times .80$

$\Rightarrow 12.48\%$

Qltd $\Rightarrow 22\% \times .50 + 12\% (1 - .25) \times .50$

$\Rightarrow 14.9\%$

RLR: $\Rightarrow 20\% \times \cdot 80 + 10\% \dfrac{(1 - \cdot 35)}{x \cdot 20}$

$\Rightarrow \underline{17.3\%}$

(b) $EVA_{(R)} \Rightarrow EBIT(1 - tax) - K_0 \times \dfrac{Cap.}{Inv.}$

P. LR $\Rightarrow 25000(1 - \cdot35) - 12.48\% \times 1,00,000$

$\Rightarrow 16250 - 12480$

$\Rightarrow ₹ 3770$

O. LR $EVA \Rightarrow 25000(1 - \cdot35) - 14.9\% \times 1,00,000$

$\Rightarrow 16250 - 14900$

$\Rightarrow ₹ 1350$

RLJ2

$$EVA = 25000(1 - .35) - 17.3\%$$

$$\begin{array}{c} \overset{\times}{1,00000} \end{array}$$

$$\Rightarrow 16250 - 17300$$

$$\Rightarrow (-) \underline{1050} \checkmark$$

BUSINESS VALUATION

Q.4L

(a) Cal. of EBIT = ?

$$EBIT \Rightarrow \frac{PAT}{1-tax} + Intt.$$

$$\Rightarrow \frac{12,00,000}{(1-.40)} + 15,00,000$$

$$EBIT \Rightarrow ₹ 35,00,000$$

(b) $EVA \circledA \Rightarrow EBIT(1-tax) - K_o \times \text{Capital Invested}$

$$\Rightarrow 35,00,000 (1-.40) - 12\% \times 80,00,000$$

$$\Rightarrow ₹ 11,40,000 \checkmark$$

(c)   EVA $\Rightarrow$ 11,40,000

No. of Shares = 5,00,000

$\Rightarrow$ Max. Dividend / Share $= \dfrac{11,40,000}{5,00,000}$

$= 2.28/Share$

$\Rightarrow$ ~~Dividend~~ $\underline{EBIT} \uparrow$ $g \uparrow$

Value of firm $\Uparrow$

$\uparrow g = \boxed{RR} \times ROE$
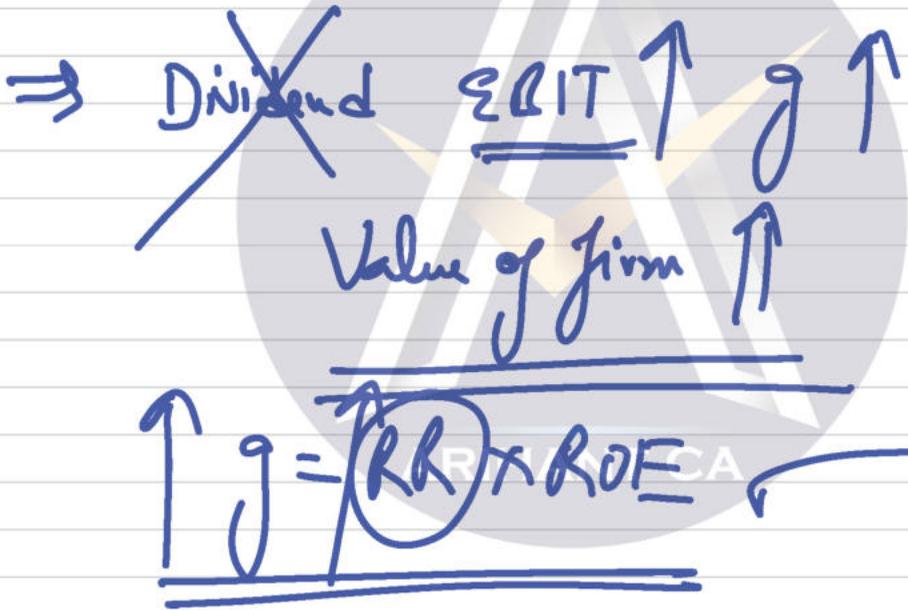
W.No.1   Cal. of K_e :-

$$K_e = R_F + \beta [R_m - R_F]$$

$$= 8.5\% + 1.36 \times 9\%$$

$$\Rightarrow \underline{\underline{20.74\%}}$$

$K_d \Rightarrow$ Int. $(1-tax) = 11\% (1-.30)$

$$\Rightarrow \underline{\underline{7.70\%}}$$

(i) $K_0 \Rightarrow K_e W_e \times K_d W_d$

$$\Rightarrow 20.74\% \times \frac{125}{165} + 7.70\% \times \frac{40}{165}$$

$$\Rightarrow \underline{\underline{17.58\% \text{ p.a.}}}$$

(ii) $EVA_{(R)} = NOPAT - K_0 \times$ Capital Invested

$$\Rightarrow 40,11,429 (1-.30) - 17.58\% \times 165 \text{ lakh}$$

$$\Rightarrow 28,08,000 - 29,00,700$$

$EVA_{(R)} \Rightarrow (-) 92,700 \checkmark$

W.No   Cal. of EBIT

$$EBIT = \frac{PAT}{1-Tax} + Int.$$

$$= \frac{25,00,000}{1-.30} + 40,00,000 \times 11\%$$

$$\Rightarrow 35,71,429 + 4,40,000$$

$$\Rightarrow ₹ 40,11,429$$

Q.5E

$$PAT = 12,00,000$$

$$\downarrow NOPAT$$

→ Tax rate is missing
→ Diff. Amt.

$$WACC = K_0 = 15\%$$

Capital Invested :-

PPE	80,00,000
W/C [CA-CL]	20,00,000
(*) Patent	40,00,000
Total Capital Invested	1,40,00,000

$$EVA® = NOPAT - K_0 \times \text{Capital Invested}$$

$$= 12,00,000 - 15\% \times 1,40,00,000$$

$\Rightarrow 12,00,000 \sim 21,00,000$

EVA① $\Rightarrow \leftarrow 19,00,000$ ✓

Q.4F

1) Revenue = __84 Crores__

(#) Since, No tax, No EBIT / No NOPAT is
given, assume to be __NOPAT / EBIT__

2) Cal of Invested Capital :-

Net Worth (Equity) = 200 cr. ⓦ

+ Long-term Debt = 400 cr.

+ Patents ⊛ = 100 cr. ⓐ

Capital Invested → __701 cr.__

W.No.3) Cal. of WACC / K_0 :- (ICAI

$$K_o = K_e W_e + K_f W_d$$

$$\Rightarrow 12\% \times \frac{300 \, cr.}{700 \, cr.} + 10\% \times \frac{4\pi w}{700 \, cr}$$

$$\Rightarrow \boxed{10.86\%} \, p.a.$$

(#) $K_m = 12\%$

Since, stock is moving as per market, then $K_e = 12\%$.

Final Answer:-

$$EVA = NOPAT - K_o \times \text{Capital Invested}$$

$$\Rightarrow 84 \, cr. - 10.86\% \times 700 \, cr.$$

$$\Rightarrow 84 \, cr - 76.02 \, cr.$$

$$EVA \, \textcircled{R} \Rightarrow ₹ 7.98 \, cr.$$

Q.44

W.N.1   Cal of EBIT

$$EBIT = 20.20 \, cr. + 2 \, cr.$$

$$\Rightarrow 22.20 \, cr.$$

$$K_o \Rightarrow 11\%$$

Capital Invested $\Rightarrow$ Replacement Cost

$$= 84 \, cr$$

EVA $\Rightarrow$ NOPAT $- K_o \times$ Capital Invested

$$\Rightarrow 22.20 \, cr. - 11\% \times 84 \, cr.$$

$$\Rightarrow 22.20 \, cr. - 9.24 \, cr.$$

$$\boxed{EVA \, Ⓐ \Rightarrow 12.96 \, cr.}$$ ✓

Concept: DCF (Discounted CF Approach)

(Most Im...
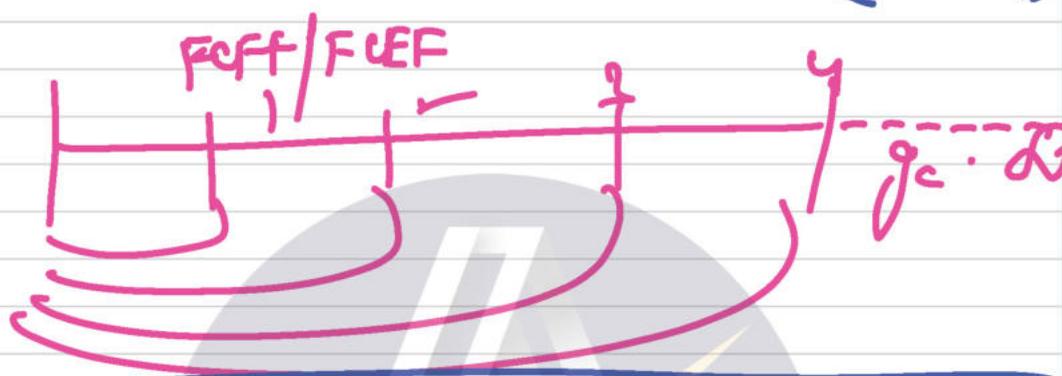
FCFF/FCEF

$g_c = ...$

$$NPV = Pvof\ CI's - Initial\ Invl.$$

p.a.

p.a.

FCFF₁ / FCFE₁
FCFF₂
FCFF₃
FCFF₄ + TV

1) Constant Model Assumption

$$\boxed{FCFF_y}$$

$$TV \Rightarrow \boxed{\dfrac{FCFF_y}{WACC}}$$

② Constant growth Model Assumption!

$$g_c = 10\%$$

$$FCFF_y$$

$$\boxed{TV \Rightarrow \dfrac{FCFF_y (1+g)}{K_0 - g_c}}$$
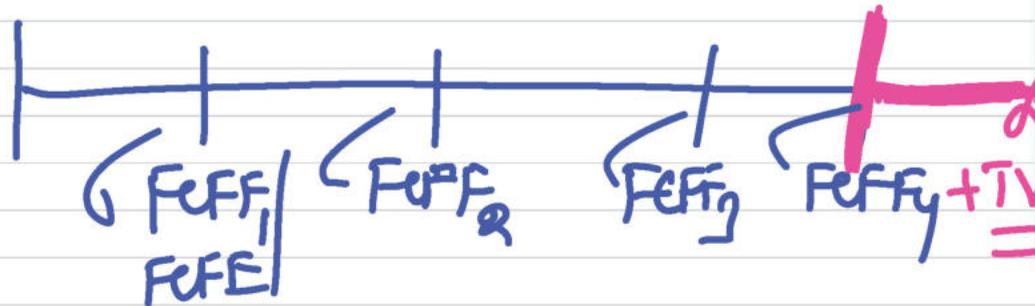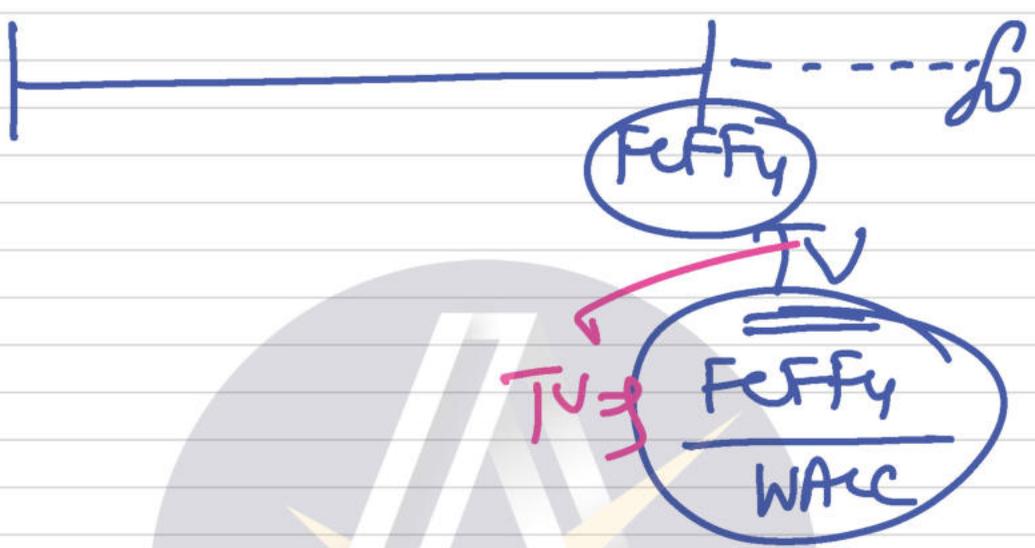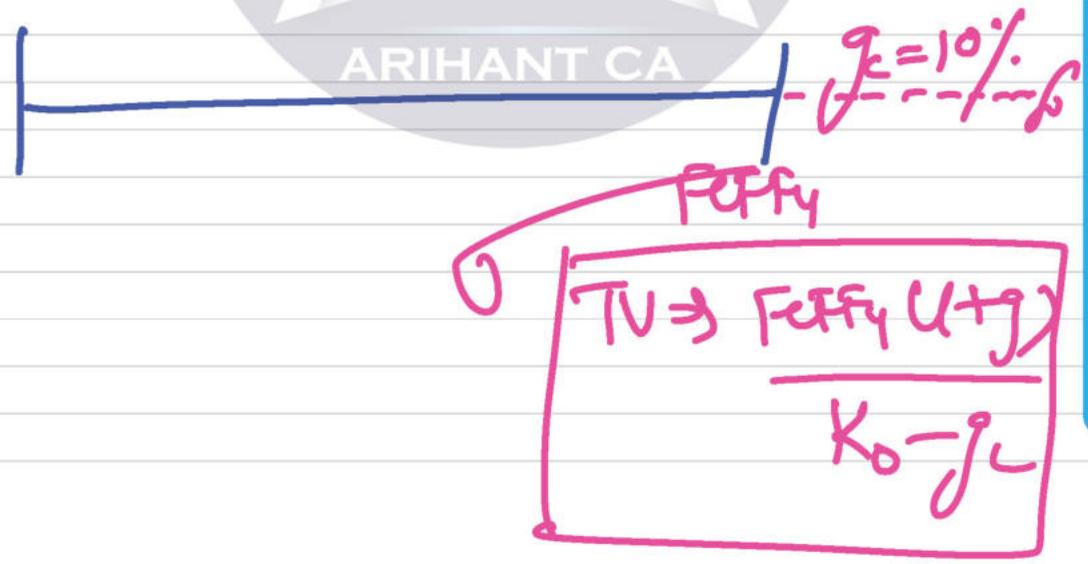
3) Already given in question

$$TV = 2000 \, cr$$

$$\frac{or}{Cal. \, Procedure:} \quad TV = FCFF_4 \times 15$$
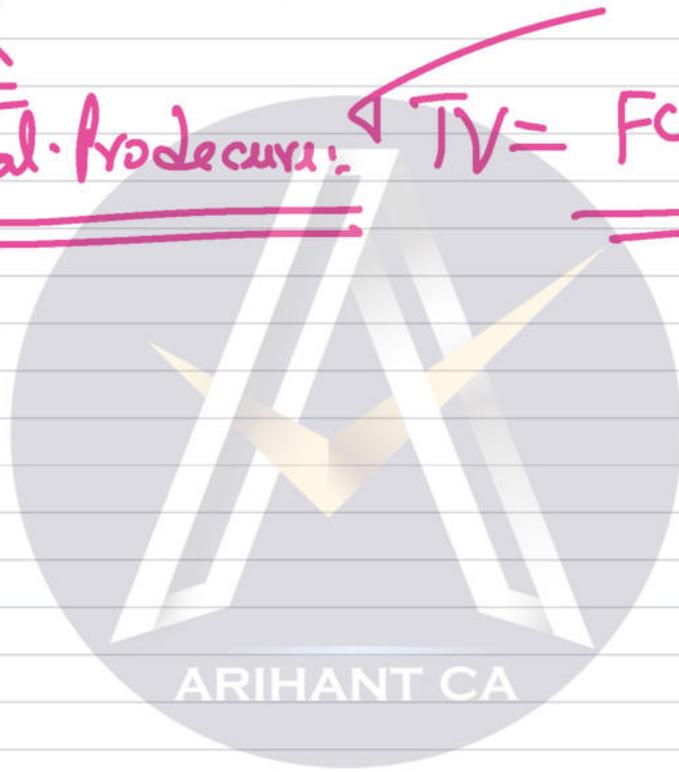
W. No) Cal. of WACC:—

High Growth:—

$$K_e = R_F + \beta [R_M - R_F]$$

$$= 10\% + 1.15 [6\%]$$

$$\Rightarrow \underline{16.9\%}$$

$$K_d \Rightarrow 13\% (1 - .30) \Rightarrow 9.1\%$$

WACC:— $K_0 \Rightarrow K_e W_e + K_d W_d$

$$\Rightarrow 16.9\% \times \frac{1}{2} + 9.1\% \times \frac{1}{2}$$

$$\boxed{K_0 \Rightarrow 13\%} \longrightarrow \text{High growth}$$

Stable growth period:-

$$K_e \Rightarrow R_F + \beta [R_m - R_F]$$

$$\Rightarrow 9\% + 1 [5\%]$$

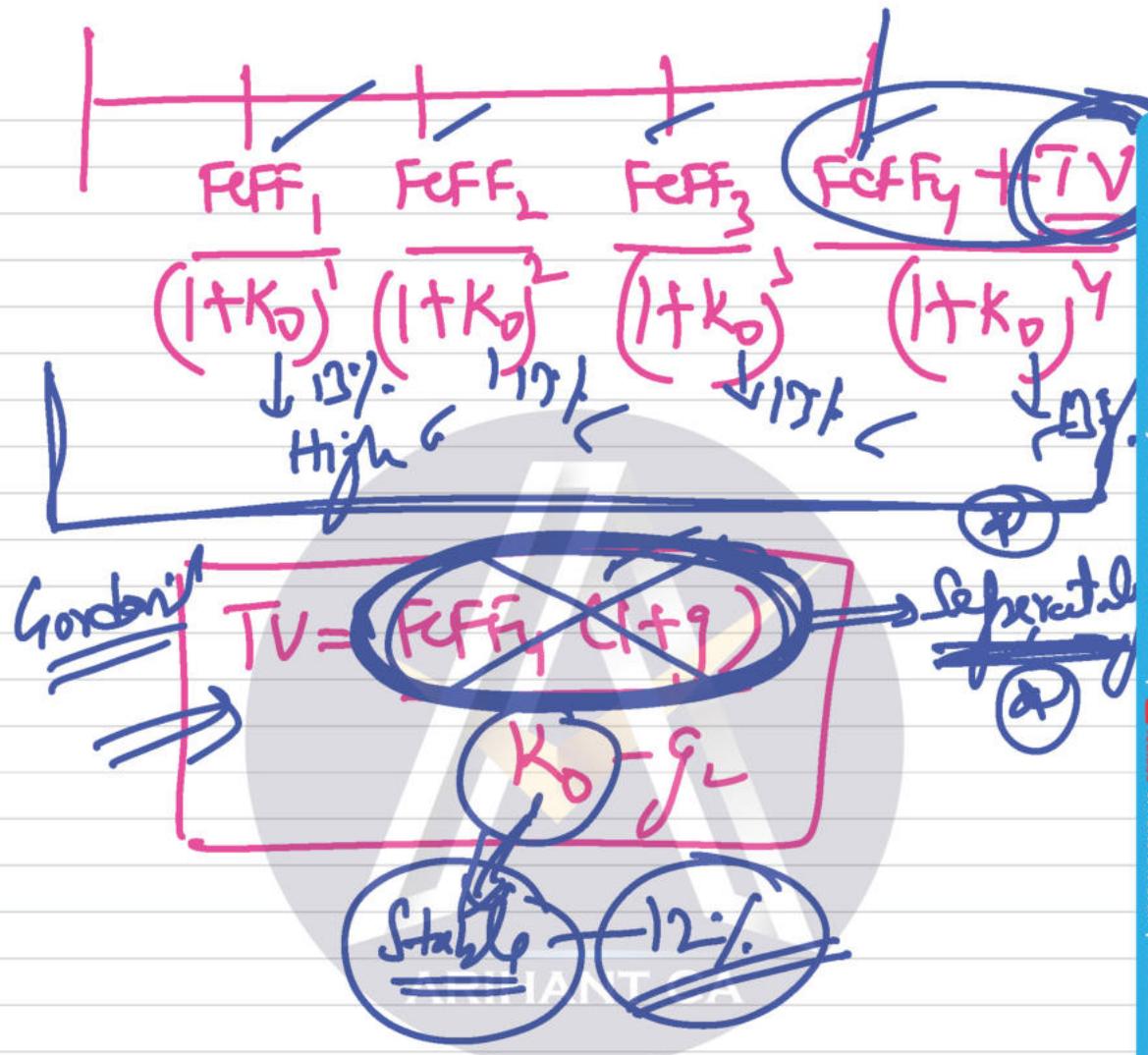$$\boxed{K_e \Rightarrow 14\%}$$

$$K_d \Rightarrow 12.86\% (1 - .30)$$
$$\Rightarrow 9\%$$

D : E
2 : 3

Cal. of K_0

$$\Rightarrow 14\% \times \frac{3}{5} + 9\% \times \frac{2}{5}$$

$$\boxed{K_0 = 12\%} \Rightarrow Stable\ period$$

$$\frac{FCFF_1}{(1+K_0)^1} \quad \frac{FCFF_2}{(1+K_0)^2} \quad \frac{FCFF_3}{(1+K_0)^3} \quad \frac{FCFF_4 + TV}{(1+K_0)^4}$$

$\downarrow 13\%$ 17% $\downarrow 17\% <$ $\downarrow$

High G

Gordon's

$$TV = \frac{FCFF_4 \times (1+g)}{K_0 - g_L}$$

$\longrightarrow$ Seperate Ⓐ

Stable — 12%

Ⓧ Due to change in information, we need to Cal. FCFF for Stable period

‖

include 10% growth

W.N. Cal. of FCFF :—

20% &(×) 10%

Particulars	1	2	3	4	Stable
Revenue	2400	2880	3456	4147.20	4581.92
EBIT	360	432	518.40	622.08	684.29
(−) Tax @ 30%	108	129.60	155.52	186.62	205.29
NOPAT	252	302.40	362.88	435.46	479.0
+ Dep^n	240	288	345.60	414.72	offset
(−)Cap Exp	336	403.20	483.84	580.61	
(−)↑ in w/c	100	120	144	172.80	107.68
FCFF	56	67.20	80.64	96.78	375.32

W.No. Cal. of Change in W/c

Year	Revenue	W/C @ 25%	Change in W/c 'Δ'
0	2000	500	
1	2400	600	100
2	2880	720	120
3	3456	864	144
4	4147·20	1036·80	172·80
Stable	4561·92	1140·48	103·68 ⓐ

W.No. Cal. of TV. — CV Continuing Value

$$TV_4$$

$$TV_y = \frac{\cancel{FCFF_4(1+g_c)}}{K_0 - g_c}$$

$$\Rightarrow \frac{375 \cdot 32}{\cdot 12 - \cdot 10} \Rightarrow ₹18766 \text{ cr.}$$

Value of firm...

Year	CF.S	PVF @ 13%	PV
L	56	·8850	49·56
2	67·20	·7831	52·62
3	80·64	·6931	55·89
4	96·78	·6133	59·36
4	18766	·6133	11507·19

$$V_F = ₹ \underline{11726·62 \text{ cr.}}$$

Q. 5A

Cal. of EBIT

Revenue	7500
− Cost	3000
(−) OE	2250
EBITo	2250

W.No.1 Cal of FCFF :-

	1	2	3 20%	Stab. 8%
Revenue	9000	10800	12960	13996.8
EBIT	2700	3240	3888	4199.04
(−) Tax @ 30%	810	972	1166.40	1259.7
NOPAT	1890	2268	2721.60	2939.33

Invt'. Cap Exp. Net of Dep'n (750-6a)+15%	172.50	198.58	228.13	—
Less: Δ in w/c	375	450	540	259.2
FCFF	1342.50	1619.62	1953.47	2680.1

W.No.- **Cal. of chg. in w/c**

Year	Revenue	W/c @ 25%	Δ
0	7500	1875	—
1	9000	2250	375
2	10800	2700	450
3	12960	3240	540
Stable	13996.80	3499.20	259.20

$$TV = \frac{FCFF_3 \cancel{(1+g)}}{K_o - g}$$

$$\Rightarrow \frac{2680.13}{.15 - .08} \Rightarrow \frac{38287.57}{CY}$$

Year	CF'S	PVF@15%	PV
L	1342.50	.8696	1167.44
2	1619.62	.7561	1224.59
3	1953.47	.6575	1284.41
3	3828757	.6575	25174.08

$$VF_0 \ ₹ \ 28850.52 \text{cr}$$

$\underline{\underline{W.No}}$ PAT = 1400

Sales = 20,000

$$\frac{PAT}{Sales} \times 100 = \frac{1400}{20,000} \times 100 = \underline{\underline{7\%}}$$

FA 8000 $\longleftrightarrow$ Sales = 20,000

CA 4000 $\longleftrightarrow$ Sales = 29,000

$\% \Rightarrow FA = \frac{8000}{29,000} \times 100 \Rightarrow \underline{\underline{40\% \text{ of Sales}}}$

$\% \Rightarrow CA \Rightarrow \frac{4000}{29,000} \times 100 = \underline{20\% \text{ of Sales}}$

1) **Value of Old Strategy :-**

$$PAT \rightarrow FCF = \underline{1400} \cdots \cdots L$$

$$\Rightarrow \frac{1400}{.15} \Rightarrow ₹ \; 9333.33$$

2) **Value of New Strategy :-**

	1	2	3	$\frac{Stable}{4}$
Sales	24000	28800	34560	34560
PAT @ 7% of Sales	1680	2016	2419.20	2419.20
+Dep^n	800	960	1152	
−CapEmp	2400	2880	3456	

ARIHANT CA

(-) Tin w/c   800   960   1152   —

FeF   -720   (→864   (-)1036.80   2419

W.No.   Cal. of Dep^n & Capital Expenditure

$FA = \%$ of Sales $= 40\%$ of Sales

	1	2	3	4
Cl. FA	9600	11520	13824	13824

FA A/c Year I

Op Bal.	8000	Dep^n $\dfrac{\ }{8000 \times 10\%}$	800
Cap Exp (Bal fig.)	2400	Cl. Bal.	9600

Year 2

OP Bal.	9600	Dep @ 10%	960
Cap Exp (Bal. fig.)	(2880)	Cl. Bal.	11520
	12,480		12,480

Year 3

OP Bal.	11520	Dep @ 10%	1152
Cap Exp. (Bal. fig.)	(3456)	Cl. Bal.	13824
	14976		14976

Year 4

Op Mal	13824	Dep @ 10%	1382.40

(offset)

Cap Exp	1382.40	Cl. Mal.	13824

| 15206.40 | | | 15206.40 |

W.No → Cal. of Change in w/c

CA is 20% of Sales

Year	Sales	W/C @ 20%	'Δ'
0	20,000	4000	—
1	24000	4800	800
2	28800	5760	960
3	34560	6912	1152
Stdy	34560	6912	—

$$\frac{FcF}{(1+\cdot15)^1} \quad \frac{FcF}{(1+\cdot15)^2} \quad \frac{FcF + TV}{(1+\cdot15)^3}$$

$$TV \Rightarrow \frac{2919 \cdot 20}{\cdot 15}$$

$$\Rightarrow \boxed{16128}$$

$$\frac{-720}{(1+\cdot15)^1} \quad \frac{-814}{(1+\cdot15)^2} \quad \frac{-1026 \cdot 80 + 1612\,}{(1+\cdot15)^3}$$

$$\Rightarrow ₹ \; \underline{\underline{8643.31}}$$

Increment Value due to adoption of the New Sales Strategy

$$(New - old)$$

Value under New Straty — Value under old Strategy

$$\Rightarrow \quad 8643.31 \quad — \quad 9333.\underline{33}$$

$$\Rightarrow \; (-) \; \underline{\underline{690.02}}$$

(Loss due to adoption of New Sales strategy)

$$\underline{\underline{Q.6A}}$$

W.No.1 Cal. of $K_e = ?$

Using CAPM :-

$$K_e = R_F + \beta [R_M - R_F]$$

$$\Rightarrow 8.7\% + .10 [10.3\% - 8.7\%]$$

$$\boxed{K_e \Rightarrow 8.86\%}$$

W.No.2

No. of eq. shares $\Rightarrow \dfrac{1300 \text{ cr.}}{40}$

$$\Rightarrow \underline{\underline{32.5 \text{ cr. shares}}}$$

W.No.3   Cal. of FCFE :-   (₹cr)

$$PAT/EFE \qquad 290$$

$$+ Dep^n \left[39 \times 32.5 cr.\right] \times 73\% \qquad 925.275$$

$$(-) CapExp. \left[47 \times 32.5 cr.\right] \times 73\% \qquad 1115.075$$

$$(-) \uparrow WW/c \left[3.45 \times 32.5 cr.\right] \times 73\% \qquad 81.851$$

$$\underline{FCFE} \qquad ₹ \, \underline{18.35 \, cr.}$$

$$\underline{Value \; of \; Equity}$$

$$\frac{FCFE_0 \,(1+g)}{Ke-g_L} \Rightarrow \frac{18.35\,(1+.08)}{.0886-.08}$$

$$Value \; of \; Eq. \Rightarrow ₹ \, \underline{\underline{2304.42 \; cr.}}$$

Value per Share

$$\Rightarrow \frac{\text{Value of Equity}}{\text{No. of eq. Shares}}$$

$$\Rightarrow \frac{2304.42 \text{ cr.}}{32.5 \text{ cr.}}$$

Value per Share $= ₹\ 70.905/\text{Share}$

W.No.1   Value of XY Ltd. based on DCF

Year	CF's	PVF@8%	₹ Lakh PV
2007	105	·93	97.65
2008	120	·86	103.20
2009	125	·79	98.75
2010	120	·74	88.80
2011	100	·68	68
2011 (TV)	200	·68	136

₹ 592.40 lakh

W.No.2   Value of XY Ltd. based on

NAV Approach :-

		₹ lakh
Fixed Assets (Net)		150
CA	(Net)	200
Less :- Loans		100
		₹ 250 lakh

(a) Value of Business of XY Ltd.

$$\Rightarrow \frac{592.40 + 250}{2}$$

$$\Rightarrow ₹ 421.20 \text{ lakh}$$

(b) No. of eq. Shares to be issued by AB Ltd :-

$$\text{Issue Price} = \frac{530 + 430}{2} = 500/sh$$

No of Shares $\Rightarrow$ $\dfrac{421 \cdot 20\,lakh}{500/Shu}$

$\Rightarrow$ 84240 (Shares)

(c) Basis of Allocation:-

Fully paid-up $84240 \times \dfrac{200}{200+50}$

$\Rightarrow$ 67392 Shares
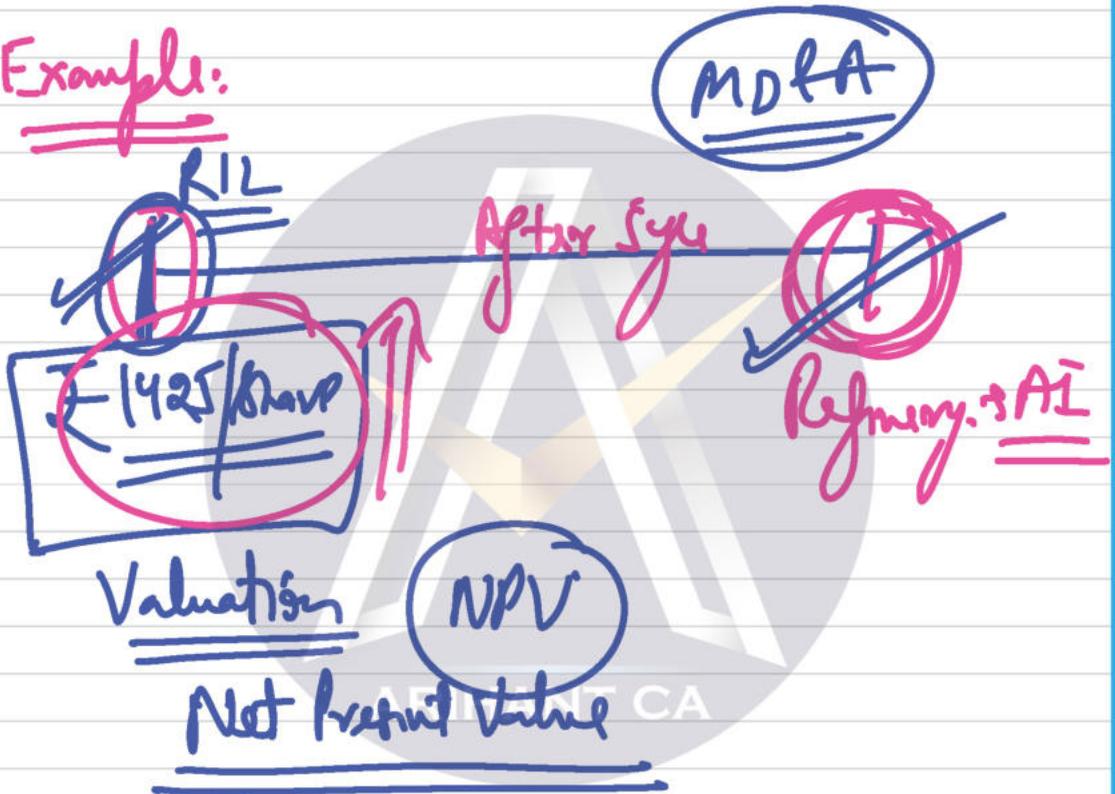
Partly paid-up $\Rightarrow 84240 \times \dfrac{50}{250}$

$\Rightarrow 16848$ Shares

BUSINESS VALUATION

Concept :- Valuation with NPV Decision :-

Example :

MD & A

RIL

After 5yr

① → ₹1425/Share

Refinery. & AI

Valuation   NPV

Net Present Value

①——————————|

NPV ⇒ No. of CI's − No. of COS

+ve

$$\underline{\text{Revised MPS}} = \boxed{\frac{1425}{\text{cmp}} \genfrac(){0pt}{0}{+}{-} \frac{\text{NPV} / \text{Share}}{}}$$

$\underline{\text{Effect on MPS due to Investment in}}$

$\underline{\text{New projects}:-}$

$$\boxed{\text{Revised MPS} \Rightarrow \underset{\text{MPS}}{\text{Existing}} \genfrac(){0pt}{0}{+}{-} \text{NPV} / \text{Share}}$$

Q.9A

$MPS = 10/share$ $DPS \Rightarrow \dfrac{19,20,000}{12,00,000}$

$\Rightarrow 1.6/share$

DY $\Rightarrow$? (Discount Rate)

$$\boxed{P_0 = \dfrac{DPS}{DY}} \quad -b \quad DY = \dfrac{DPS}{MPS}$$

$$\Rightarrow \dfrac{1.6}{10}$$

Discount Rate $\Rightarrow$ $\boxed{DY = 16\% \ p.a.}$

(i) Cal. NPV :-

$$\dfrac{(-)8,00,000}{(1+.16)^1} \quad \dfrac{-8,00,000}{(1+.16)^2} \quad \dfrac{3,60,000 + TV}{(1+.16)^3}$$

$$TV \Rightarrow \frac{CF}{DR} = \frac{3,69,000}{\cdot 16}$$

$$\Rightarrow 22,50,000$$

Year	CF's	PVF@16%	PV
L	−8,00,000	0·862	(689600)
2	−8,00,000	0·743	(594400)
3	3,60,000	0·641	230760
3 TV⇒22,50,000		0·641	1442250

	NPV (+)	389010 ✓

Since, NPV is positive, the co. Should accept the project.

(ii) Effect on MPS :-

AM. 1 :-

$$\overbrace{CMP = 10/Share} \pm \overbrace{NPV/Share}$$

$$\Rightarrow \underline{Revised\ MPS}$$

Revised MPS $\Rightarrow$ Existing MPS $\pm$ NPV/Share

$$\Rightarrow 10/Share + \frac{389010}{12,10,000}$$

$$\Rightarrow 10/Share + 0.324/Share$$

Revised MPS $\Rightarrow$ $\boxed{10.324/Share}$

AM. 2 (As per ICAI)

$$\frac{\begin{matrix}19,20,000 \\ (-) \\ 8,00,000\end{matrix}}{(1+\cdot16)^1} + \frac{\begin{matrix}19,20,000 \\ (-) \\ 8,00,000\end{matrix}}{(1+\cdot16)^2} + \frac{\begin{bmatrix}19,20,000 \\ + \\ 3,60,000\end{bmatrix} + TV}{(1+\cdot16)^3}$$

$$TV \Rightarrow \frac{CF}{DR} \Rightarrow \frac{19,20,000 + 3,60,000}{\cdot16}$$

$$\Rightarrow 1,42,50,000$$

Year	CF's	PVF@16%	PV
1	11,20,000	0.862	9,65,440
2	11,20,000	0.743	8,32,160
3	22,80,000	0.641	14,61,480
3	1,42,50,000	0.641	91,34,250

Revised Value ₹ 1,23,93,330

Value / Share ⇒ $\dfrac{1,23,93,330}{12,00,000}$

⇒ 10.328 / Share

⇒ If the co. accepts the project, MPS of the Co. will increase from ₹10 to ₹10.328 / Share

$$g = 25\% \qquad \underline{\underline{0.9\,B}} \quad \boxed{\text{any.}}$$
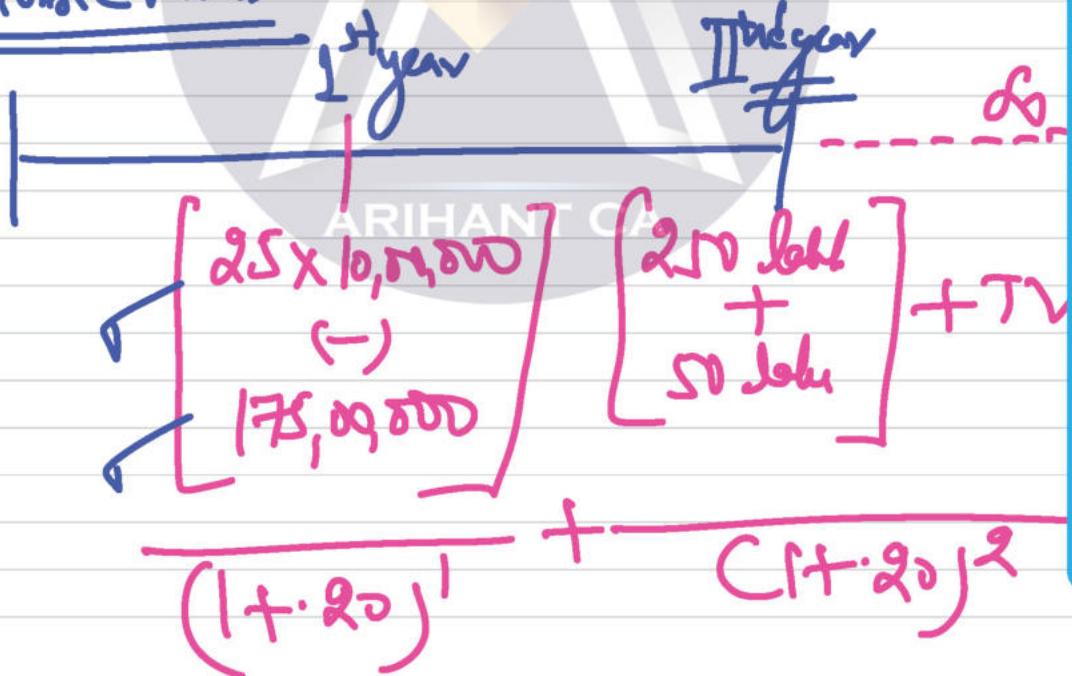
$$EPS = 25/\text{share}$$

$$DPS = 25/\text{share}$$

$$MPS = 125/\text{share}$$

$$DY \Rightarrow \frac{DPS}{MPS} = \frac{25}{125} = \underline{\underline{20\%\ p.a.}}$$

Revised MPS:-

$$\frac{\begin{bmatrix} 25 \times 10,00,000 \\ (-) \\ 175,00,000 \end{bmatrix}}{(1+.20)^1} + \frac{\begin{bmatrix} 250\ lakh \\ + \\ 50\ lakh \end{bmatrix} + TV}{(1+.20)^2}$$

$$TV \Rightarrow \frac{300 \text{ lakhs}}{.20} \Rightarrow 1500 \text{ lakhs}$$
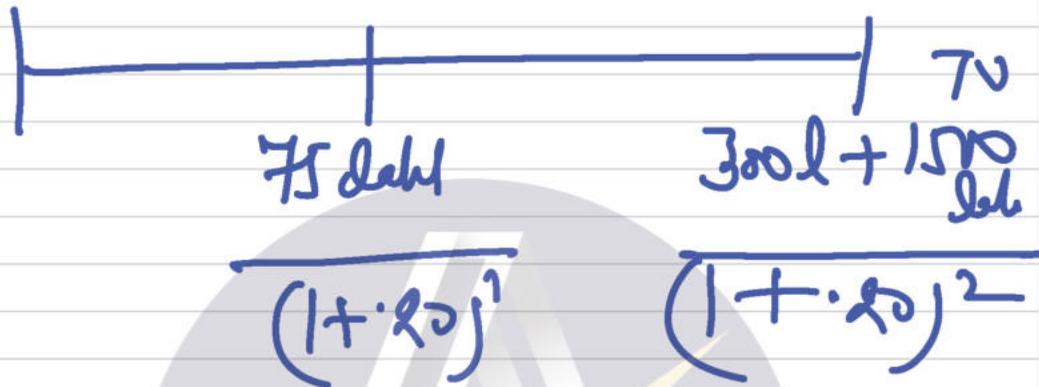
$$\Rightarrow \text{Revised Value} \Rightarrow 1312.50 \text{ lakhs}$$

$$\text{Revised MPS} \Rightarrow \frac{1312.50 \text{ lakhs}}{10 \text{ lakhs}}$$

$$\Rightarrow 131.25 / \text{Share}$$

⇒ If Co. accepts the project, share price of the co. will increase from ₹125 to 131.25/Share

$\Rightarrow$ Existing DPS = 25/Share

Revised DPS $\Rightarrow$ $\dfrac{25 \times 10l + 51,00,000}{10 \ lakh}$

$\Rightarrow$ 30/Share

Dividend will increase from ₹ 25 to ₹ 30/Share due to acceptance of this project.

Concept: **Market Value Added:-**

(MVA)

From Equity shareholder's point of view

From overall Co. Point of view

Q.I: From eg. shareholder's point of view:-

Equity SH's

| 100 cr. |

Eg. SH's fund

Value gt.v a period

50 cr.

MV of Equity

50 cr.

$$MVA = 50\,cr.$$

MVA $\Rightarrow$ MV of Equity — Equity SH's fund

No. of eq. Shares $\times$ MPS

$\begin{bmatrix} ESC \\ + RLS \\ (-)\ losses \end{bmatrix}$

GkII: From overall Co's Point of view! —

All long-term Investor's!

500 cr.

750 cr.

VB as on today

Total Capital
Invested

$\boxed{250 \text{ Cr.}} \longrightarrow MVA$

$$MVA = V_B \text{ as on} \longleftrightarrow \begin{array}{c} \text{Total Capital} \\ \text{Invested} \end{array}$$
Today

$$\Downarrow$$

$V_B \rightarrow$ DCF

$\rightarrow$ FMP^s

$$\left.\begin{array}{c} ESC \\ +R/S \\ -\text{Losses} \end{array}\right] \begin{array}{c} E_S H'^S \\ fund \end{array}$$

$+$ Pref. Share Capital

$+$ Debentures

$+$ LTL/Bonds

Total Capital Invested

Q.10A

W-No.1 Total Capital Invested ($ million)

$$Eq. \text{ share Capital} = 100$$

$$+ R\!\!\!/S \qquad\qquad 325$$

$$+ Loans \qquad\qquad \underline{180}$$

$$\$ \underline{\underline{605 \text{ millions}}}$$

W-No 2 $NOPAT = EBIT\ (1 - tax)$

$$\Rightarrow 180\ (1 - \cdot 35)$$

$$NOPAT \Rightarrow \$ \underline{\underline{117 \text{ million}}} \checkmark$$

(i) $EVA \Rightarrow NOPAT - K_o \times$ Capital Invested

$$\Rightarrow \$ 117_{\text{million}} - 12\% \times \$ 605_{\text{million}}$$

$$EVA® \Rightarrow \$117 \text{ million} - \$72.6 \text{ million}$$

$$\Rightarrow \$44.40 \text{ million}$$

(ii) __MVA__ [Eq SH's point of view]

$\Rightarrow$ MV of Equity — Eq. SH's fund

$$\Rightarrow \begin{bmatrix} \$10 \text{ million shares} \\ X \\ \$50 \end{bmatrix} - (100 + 325)$$
$$\$ \text{million}$$

$\Rightarrow$ $\$500$ million — $\$425$ mille

MVA $\Rightarrow$ $\$75$ million

(i) Cal. of WACC :-

$$K_e = RF + \beta[RM - RF]$$

$$\Rightarrow 7\% + 1.40[12\% - 7\%]$$

$$\Rightarrow \underline{14\%}$$

(ii) $$K_d \Rightarrow \text{Intt.}(1-\text{tax})$$

$$\Rightarrow 8\%(1-.30) \Rightarrow 5.6\%$$

(iii) Value of Eq% $$= ESC + RES$$

$$\Rightarrow 250 + 250$$

$$= 500 \text{ lakh}$$

(iv) $$V_D \Rightarrow \frac{250 \text{ lakh}}{750 \text{ lakh}}$$

Total

i) WACC :- $K_e W_e + K_d W_d$

$$= 14\% \times \frac{500}{750} + 5.6\% \times \frac{250}{750}$$

$$\Rightarrow 11.20\%$$

(II) EVA :- NOPAT $- K_o \times$ Capital Invested

$$\Rightarrow 280\ lal - 11.2\% \times 750\ l.$$

$$\Rightarrow 176\ lakh\ ✓$$

W.N :- Cal. of NOPAT :- (₹ lakh)

Sales   1000

(—) operating Expenses   600

$620 - (250 l \times 8\%)$

EBIT	400
(−) Tax @ 30%	120
NOPAT	280 lakhs

(iii) <u>MVA:-</u> (From overall Co. Point of View)

MV of DY Ltd	900 lakhs
(−) Capital Employed	750 lakhs
MVA	₹ 150 lakhs

Q.11B (SM)

K_0 → weights → BV = ? wrong
weights

① wrong

MV

Correct weight ③

Correct K_0 ④

Correct V_F ⑤
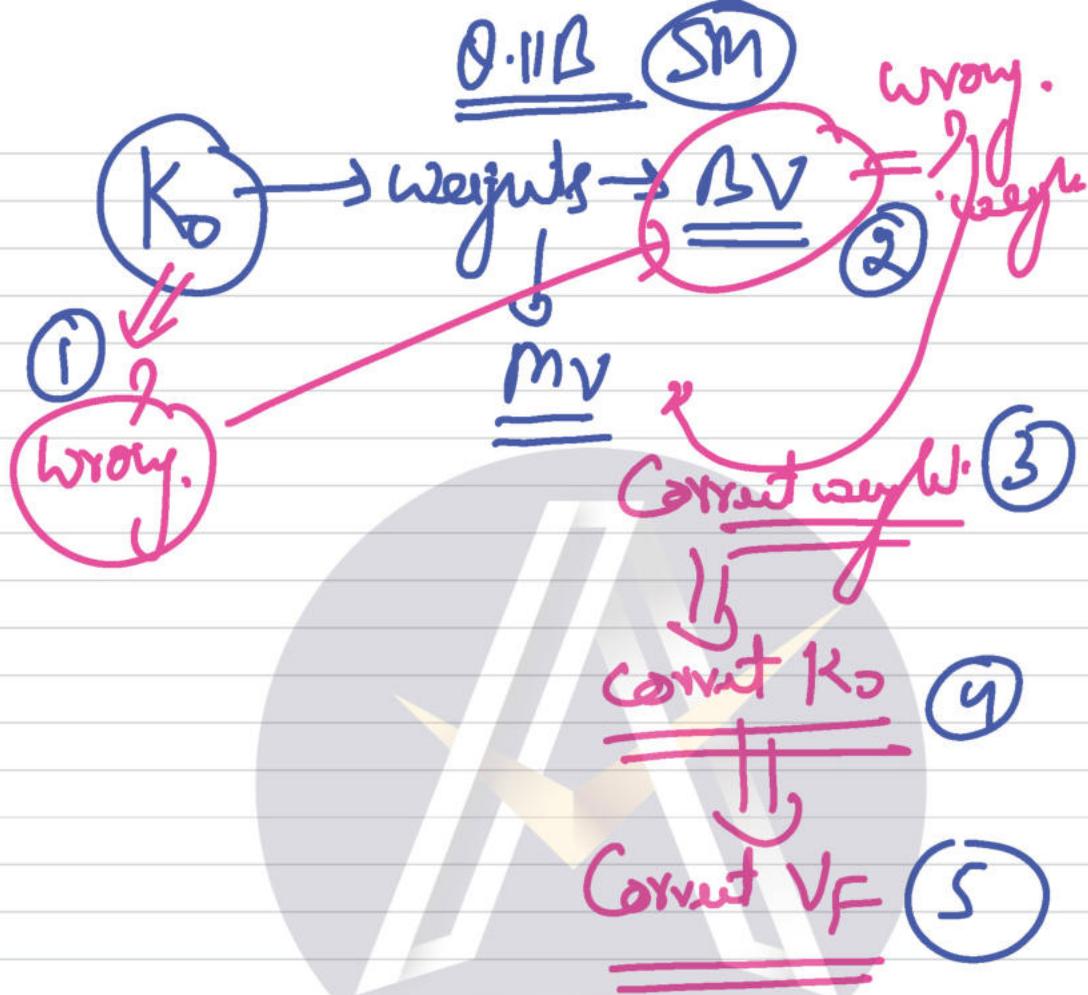
W.No.1 Cal. of Wrong K_0 :-

$$V_F = \frac{CF_1}{K_0 - g_c}$$

1800 lakh = 54 lakh

$$K_0 - \cdot 09$$

$$K_0 = \frac{54}{1800} + \cdot 09$$

(wrong) $\boxed{K_0 = 12\%}$

W-No. 2   Cal. of Wray weights

$$K_0 = K_e W_e + K_d W_d$$

$$\cdot 12 = \cdot 20 \times x + \cdot 10(1-x)$$

$$\cdot 12 = \cdot 20x + \cdot 10 - \cdot 10x$$

$$0 \cdot 02 = \cdot 10x$$

$$x = \frac{0 \cdot 02}{0 \cdot 10} = \underline{\underline{0 \cdot 20}}$$

$$\underline{\underline{AV}} \left[\begin{array}{l} W_e = 0 \cdot 20 \\ W_d = 1 - \cdot 20 = 0 \cdot 80 \end{array} \right] \text{wray weight}$$

W.No:3 Cal. of Correct weights:—

$$W_e \Rightarrow 0.20 \times 3 \Rightarrow 0.60$$

$$W_d = 0.80 \times \frac{9}{10} \Rightarrow 0.72$$

$$1.32$$

$$MV \; weights \; (Eq.) = \frac{.60}{1.32}$$

$$MV \; weights \; (Debt) = \frac{.72}{1.32}$$

W.No:4 Cal. of Correct K_0:—

$$K_0 \Rightarrow K_e W_e + K_d W_d$$

$$\Rightarrow 20\% \times \frac{.60}{1.32} + 10\% \times \frac{.72}{1.32}$$

$$\Rightarrow 14.54\%$$

Final Answer:-

$$V_F = \frac{CF_1}{K_0 - g_c}$$

$$\Rightarrow \frac{₹54 \text{ lakhs}}{0.1454 - .09}$$

$$V_F \Rightarrow ₹974.73 \text{ lakhs} \quad \checkmark$$

Q.12A

WN.1 Cal. of Distributed & Undistributed profits:-

EBIT	32,00,000
Less: Intt on Deb. (64,00,000 × 12%)	768000
EBT	2432,000
Less: Tax @ 35%	851200
PAT	1580800
Less: Pref. Dividend (40,00,000 × 8%)	3,20,000
EFE	1260,800

Note: Eq. Dividend:

(80,00,000 × 8%)

$$6,40,000 \longrightarrow 50\%.$$

Retained Earnings $\qquad$ $6,20,800 \longrightarrow 5\%$.

W.No.2

Cal. of Yield per Share :-

Assume FV = 100

No. of eq. Share $\Rightarrow \dfrac{80,00,000}{100}$

$\Rightarrow 80,000$ Shares

Yield $\Rightarrow$ 50% of Distributed profits

$+$

5% of Undistributed profits

$\Rightarrow 6,40,000 \times 50\% + 620800 \times 5\%$

ARIHANT CA

Yield $\Rightarrow$ 3,2,000 + 31040

$$\Rightarrow \underline{351040} \; \checkmark$$

Yield/Share $\Rightarrow \dfrac{351040}{80,000} \Rightarrow \underline{4.39/Share}$

Q.NO.3 Cal. of Intt. & Pref. Div. Coverage
Ratio:-

$ICR = \left(\dfrac{EBIT}{Intt.}\right)$ Pref. Div CR $= \left(\dfrac{PAT}{Pref. Div}\right)$

Pref. Div. & Intt. Coverage Ratio:- 🔴✦

$$\Rightarrow \dfrac{PAT + Interest.}{Pref. Div. + Intt.}$$

$$\Rightarrow \frac{15,80,800 + 768000}{3,29500 + 7,68,000}$$

$$\Rightarrow \underline{\underline{2.16 \text{ times}}} \checkmark$$

W.N.Y Capital gearing ratio :-

$$\Rightarrow \frac{\text{Fixed bearing funds}}{\text{Variable Income funds}}$$

$$\Rightarrow \frac{\text{Pref. Share Capital + Deb.}}{\text{SSC + R\&S}}$$

$$\Rightarrow \frac{40 \text{ lakhs} + 64 \text{ lakh}}{80 \text{ lakh} + 32 \text{ lakhs}}$$

$$\Rightarrow \underline{\underline{0.93 \text{ times}}} \checkmark$$

Cal. of Discount Rate / K_e :- TVM

Normal rate of return = 9.6%

(+) Risk Premium:-

(i) For low Prof. & Intt. Coverage   0.84%

$$[3 - 2.16] \times 1\%$$

(ii) For High Capital gearing   0.36%
     ratio:-

$$[0.93 - 0.75] \times 2\%$$

K_e / DR 10.80%

Final Answer:

Value of Equity per Share:-

$$\Rightarrow \frac{4.39------6}{.1080}$$

$VE/\text{share} \Rightarrow ₹ 40.65/\text{share}$

Q.12C

EMH →
1) **Weak form** → Past [425]
2) **Semi-strong** → Past + Public
3) **Strong** → Past + Public + Insider

(S Analysis)

In semi-strong form of stock market, the share price should accurately reflect new relevant information when it is made publicly available including implent Inc. onepurser scheme & redemption of Bonds.

W·No·1 Cal. of Net Savings due to early

redemption of the Bonds:-

1) Total outflow due to redemption of
the Bonds:-

$$\$ 60,09,000 + \$ 3,50,000$$

$$\Rightarrow \$ \underline{63,50,000} ✓$$

2) Savings due to Early Redemption:-

$$\frac{9}{(1+\cdot10)^1} \quad \frac{9}{(1+\cdot10)^2} \quad \frac{9}{(1+\cdot10)^3} \quad \frac{9}{(1+\cdot10)^4} \quad \frac{9+60}{(1+\cdot10)^5}$$

$$\Rightarrow \$9,00,000 \left[PVAF @ 10\%, 5 years \right]$$
$$3.791$$

$69,00,000 [PVF$^+$ @ 10%, 5th year]

$$0.621$$

$$\Rightarrow \$71,37,900$$

Net Saving $\Rightarrow$ $71,37,900 $-$ $63,50,000

$$\Rightarrow \$787900$$

Final Answer:-

1) Value of Existing Equity:- $140,00,000

$$\left[\frac{\$70,00,000}{\$1} \times \$2 \right]$$

2) Value of New Equity $144,00,000

$$\left[\ \$ 150,00,000 - 4\% \ \right] \ \text{(P)}$$

3) Expected NPV from $ 22,00,500
New Project

4) Net Savings due to early $ 7,87,900
redemption (W.No.1)

Exp. Value of Equity $ 3,13,87,900

÷ No. of eq. Shares

Existy   70,00,000   3,70,00,500
                                Shares

New $\dfrac{150,00,000}{.50}$

       = 3,00,00,000
               the

Expected Price per Share $ 0.848/Share

Concept:- EVA Valuation:-

EVA Ⓡ ⟹ Excess Return over Minimum

⇓⇓

| Extra Income |

⇓⇓

Valuation

⇓⇓

| Extra Value |

⇓⇓

| MVA |

MKT. Valued Added

C.Vux.

$$EVA \to Valuation \Longrightarrow \boxed{MVA}$$

$$\boxed{V_B = V_E + V_D}$$

$$MVA \Rightarrow V_B - \text{Total Capital Invested}$$

$$\text{or} \quad V_B = \boxed{\text{Total Capital Invested}} + \boxed{MVA}$$

Value Addition

MVA $\Rightarrow$

$$\frac{EVA_1}{(1+K_o)} \quad \frac{EVA_2}{(1+K_o)^2} \quad \frac{EVA_3^{+iv}}{(1+K_o)^3}$$

TV 1) Constant Model Assumption

$$EVA_3 \text{-----} \textit{ß}$$
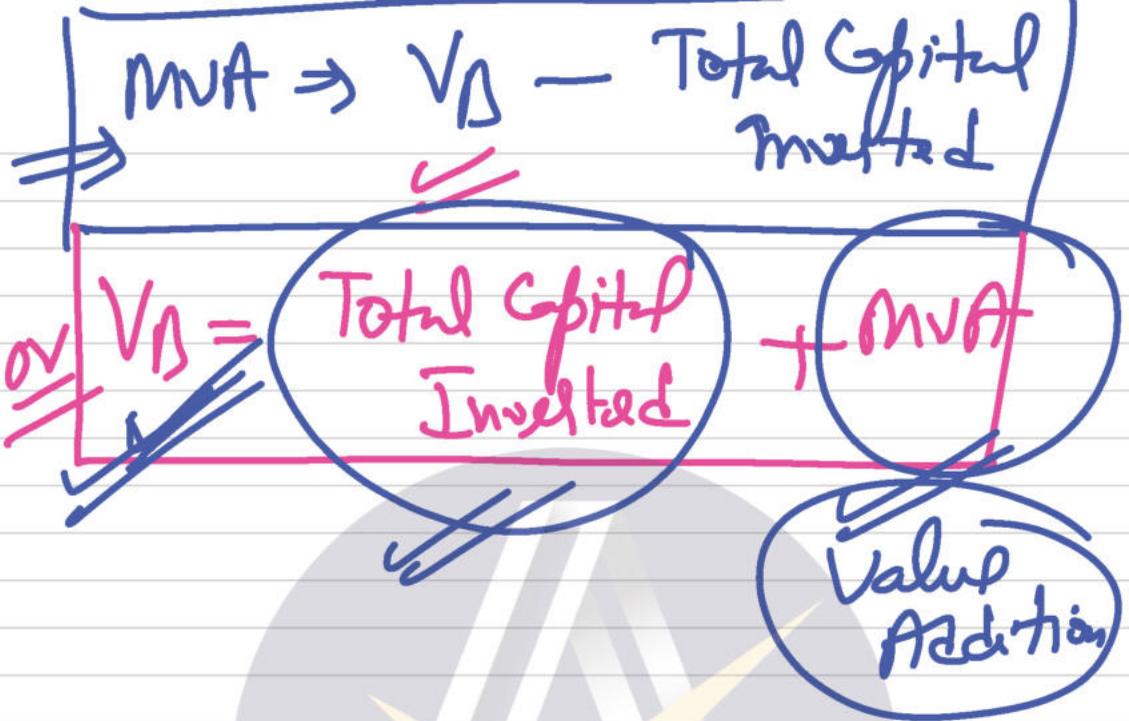
$$TV = \frac{EVA_3}{K_0}$$

2) Constant growth Model Assumption:-

$$\frac{EVA_3 \, (1+g)}{K_0 - g_c} \Rightarrow \underline{TV}$$

3) Already given

W.No 1 — Cal. of EVA :-

$$EVA_{(R)} \Rightarrow NOPAT - K_o \times \frac{Capital}{Invested}$$

2011 :- $14,00,000 - 8.42\% \times 1,00,00,000$

$\Rightarrow 14,00,000 - 8,42,000$

$\boxed{EVA_1} \Rightarrow ₹ 5,58,000$

2012 $EVA_2 = 16,00,000 - 8.42\% \times 1,10,00,000$

$\Rightarrow ₹ 6,73,800$

$|\underset{EVA_1}{\rule{0pt}{0pt}}|\underset{EVA_2}{\rule{0pt}{0pt}} + TV$

$$\overline{(1+K_0)^1} \qquad \overline{(1+K_0)^2}$$

$$TV \Rightarrow \frac{\text{EVA}_2 \, (1+g_c)}{K_0 - g_c}$$

$$\Rightarrow \frac{6738000 \, (1+ \cdot065)}{\cdot0842 - 0\cdot065}$$

$$TV_{2012} \Rightarrow 3\,73\,74\,844$$

MVA $\Rightarrow$

$$\frac{55800000}{(1+\cdot0842)^1} + \frac{\begin{array}{c}6738000\\+\\3\,73\,74\,844\end{array}}{(1+\cdot0842)^2}$$

$$MVA \Rightarrow ₹ \; 3\,28\,83\,002$$

$$V_B \Rightarrow \text{Total Capital Invested} + MVA$$

$$\Rightarrow 90,00,000 + 328,83,002$$

$$\Rightarrow \underline{418,83,002} \checkmark$$

Concept:- Chop-Shot Approach:-

OR

Break-up Value Approach:-

$$\frac{XLtd. = 100\ cr}{\coprod}$$

S_1 S_2 S_3 (VB)
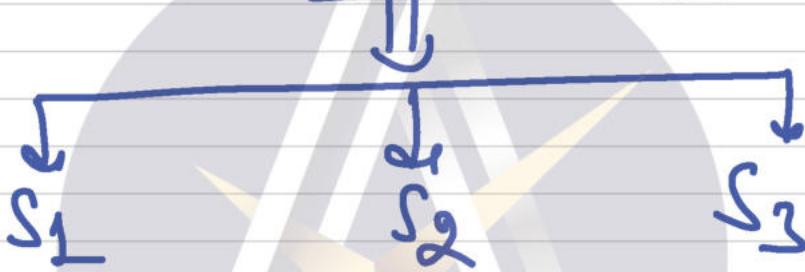
Parameters				
Sales	✓	✓	✓	VB
OI	✓	✓	✓	VB
NI	✓	✓	✓	VB
Assets	✓	✓	✓	VB
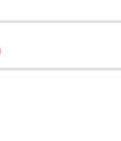
Weights $\longrightarrow$ Simple Avg.

$\downarrow$ $\downarrow$ $\neq$

given   otherwise

Avg $\boxed{V_0}$

Example   (Relative Valuation)

Capital to Sales Ratio $= \underline{\underline{1.50}}$

$$\frac{C}{Sales} = 1.5$$

$\hookrightarrow \underline{\checkmark}$

$\boxed{\text{Capitalized Value} \Rightarrow \boxed{Sales} \times 1.5}$

Business segment	C/S	Sales	Capitalized Value
Consumer Wholesale (CS)	.75	₹ 15,00,000	₹ 11,25,000
Speciality Services (SS)	1.10	₹ 8,00,000	₹ 8,80,000
Assorted Centre (AC)	1.00	₹ 20,00,000	₹ 20,00,000
			₹ 40,05,000

V_B

Business Sy.	C/Asset	Assets	Capitalized Value
CC	.60	₹ 7,50,000	₹ 4,50,000
SS	.90	₹ 7,00,000	₹ 6,30,000
AC	.60	₹ 30,00,000	₹ 18,00,000
		V_B →	₹ 28,80,000

Backing by.	C/OI	OI	Capitalized Value
CW	10	₹1,50,000	₹10,50,000
SS	7	₹1,50,000	₹10,50,000
AC	6	₹6,00,000	₹36,00,500

$$VB \quad ₹\ 56,50,500$$

Chop-shop Value / Break-up Value :-

$$\Rightarrow ₹\ 41,05,000 + ₹\ 28,80,000$$

$$+ ₹\ 56,50,000$$

$$\overline{ 3 }$$

$$\Rightarrow ₹\ 41,78,333$$

BUSINESS VALUATION

Q.15 Inf.

Method 1 :-

(a) Net Asset Method : —   (₹ Lakhs)

Value of Land & Building   3662.11

$$1500 \text{ Lakhs } (1+\cdot 25)^4$$

Plant & Machinery   2800.00

A/c Receivable   2400.00

Stock   2100.00

Bank/Cash   400.00

         Total Assets   11362.11

Less: External Liabilities :-

Sundry Creditors	1100·00
Bank OD	100·00
Tax Payable	400·00
Dividend Payable	400·00
Long-term loans	1000·00

Net Assets   ₹ 8362·11

Table

(b) Estimated Profits for Next 5 years :-

(₹ lakhs)

1510 lakhs $(1+·12)$	⇒	1691·20
1510 lakhs $(1+·12)^2$	⇒	1894·14
1510 lakhs $(1+·12)^3$	⇒	2121·44
1510 lakhs $(1+·12)^4$	⇒	2376·01
1510 lakhs $(1+·12)^5$	⇒	2661·14

$$\text{₹}\ \overline{10743 \cdot 93}$$

<div align="right">lakh</div>

Total Value :- (Method 1)

$$8362 \cdot 11 \ + \ 10743 \cdot 93$$

$$\Rightarrow \text{₹}\ 19106 \cdot 04 \ \text{lakhs} \ \checkmark$$

XYZ Ltd Current Mkt. Value :-

$$\text{No. of eg. Shares} = \frac{1000 \ \text{lakhs}}{25} \Rightarrow \ 40 \ \text{lakhs Shares}$$

$$\text{Mkt. Value} \Rightarrow 40 \ \text{lakhs} \times 470$$

$$\Rightarrow \text{₹}\ 18,800 \ \text{lakhs} \ \checkmark$$

The Premium is :-

$$\Rightarrow \text{₹}\ 19106 \cdot 04 \ - \ \text{₹}\ 18,800$$

$$\Rightarrow \text{₹}\ 306 \cdot 04 \ \text{lakhs} \ \checkmark$$

Per share Premium:-

$$\Rightarrow \frac{306.04 \text{ lakhs}}{40 \text{ lakhs}} \Rightarrow 7.65/\text{share}$$

% Premium $\Rightarrow \dfrac{7.65}{470} \times 100 = 1.63\%$

$\Rightarrow$ this is not a sound basis for Valuation as it ignores the TVM.

Method 2 :-

Dividend Valuation Model:-

$$P_0 = \frac{D_0 (1+g)}{K_e - g_c} \qquad g = 12\%$$

$$K_e = R_F + \beta [R_M - R_F]$$
$$= 10\% + 1.05 [16\% - 10\%]$$

$$\Rightarrow \underline{16.3 \% \ p.a.}$$

$$D_0 \Rightarrow \frac{760 \ lakhs}{40 \ lakhs} \Rightarrow \underline{19/share}$$

$$P_0 \Rightarrow \frac{19(1+.12)}{.163-.12} \Rightarrow \underline{₹ \ 494.88/share}$$

The Premium is :—

$$\Rightarrow \left[₹494.88 - ₹470 \right] \Rightarrow \underline{24.88/share}$$

% Premium $\Rightarrow \dfrac{24.88}{470} \times 100 \Rightarrow \underline{5.29\%}$

above the CMP.

Q16

First, we need to Cal. VB usesly CF_1 :—

$$CF_1 \,(\text{pre-tax}) = 200 \,\text{Cr.} \,(1 - \cdot 30)$$

$$\text{After-tax} \Rightarrow \underline{140 \,\text{cr}} \quad \boxed{CF_1 \cdot}$$

$$g = 4\%$$

$$DR = 12\%$$

$$PV \,\text{of} \, CF's \Rightarrow \frac{140 \,\text{cr.}}{\cdot 12 - \cdot 04} \qquad \boxed{\dfrac{CF_1}{DR - g_c}}$$

$$\Rightarrow ₹ 1750 \,\text{cr}$$

$$\underline{\underline{\text{less: Mveg liab.}}} \qquad ₹ 820 \,\text{cr.}$$

$$\overline{(780 \,\text{cr.} + 40 \,\text{cr})}$$

$$\text{Net Asset Value} \qquad \underline{₹ 930 \,\text{cr.}}$$

Since, Tripathi tiles is offering ₹ 950 cr. more than the Net Asset Value of ₹ 930 cr. the Co. should go for the decision of divesture of tiles business.

W.No.1   Cal. of EPS :—

Margin of Division 'A'   25,00,000

$$\left[50\,cr. \times 10\% \right] \times 5\%$$

Division 'B'   48,00,000

$$\left[20\,cr. \times 30\% \right] \times 8\%$$

Division 'C'   1,70,000

$$\left[8.5\,cr. \times 2\% \right] \times 10\%$$

_____

Earning   74,70,000

÷ No. of eq. Shares   3,00,000
_____

EPS   ₹ 24.90 / Share

(i) Valuation ⟶ **CMP**

Expected MPS based on one year forecast:-

1 year ①
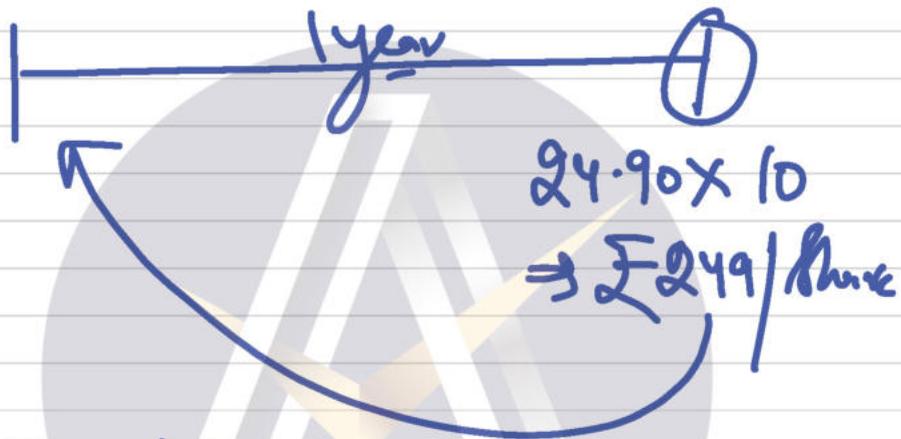
24.90×10
$\Rightarrow ₹249/\text{Share}$

PV of Expected MPS:-

$$\frac{249}{(1+.18)^1} \Rightarrow ₹ 249 \times .847$$

$$\Rightarrow ₹ 210.90$$

$$P_0 = ₹ 210.90 \Longrightarrow CMP = ₹ 250$$

$$\underline{O/V}$$

I would not like to purchase the
share as the Valuation is less than
CMP of ₹250.

$\downarrow$ The stock is o/v.

(ii) If Earnings is expected to grow @ 15% ...

@ 30%
D/S

Year	EPS	D/S
1	24.90 (1+.15) ⟹ 28.64	— D/S
2	28.64 (1+.15) ⟹ 32.93	— D/S₂
3	32.93 (1+.15) ⟹ 37.87	11.36 D/S₃
4	37.87 (1+.15) ⟹ 43.55	13.07 D₄
5	43.55 (1+.15) ⟹ 50.08	15.02 D₅

D₁   D₂   D₃   D₄   D₅+P₅
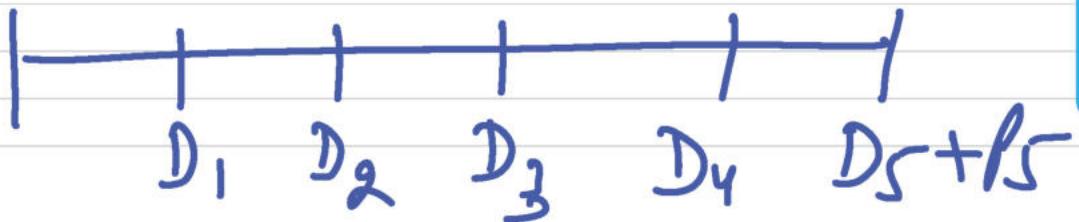
$$P_5 \Rightarrow \frac{D_5(1+g_c)}{K_e - g_c} \Rightarrow \frac{15.02(1+.15)}{.18 - .15}$$

$$P_5 \Rightarrow \boxed{575.77/\text{Shu}}$$

Value of the share as on today:-

Year	CF'S	PVF@18%	PV
1	—	.847	—
2	—	.718	—
3	11.36	.609	6.92
4	13.07	.516	6.74
5	15.02	.437	6.56
5	575.77	.437	251.61

Value of Share as on today   ₹ 271.83

Thus, the maximum Price I would be willing to pay for the Shave shall be ₹ 271.83 / Shave

Q.7 (SM) As per ICAI

As per ICAI, we assume that life of
The co. is 3 years only.

Method 1:- MKt. Value Approach:-

$$V_B \Rightarrow \text{No. of eq. share} \times MPS$$

$$\Rightarrow 1.5 \text{cr.} \times 400$$

$$\Rightarrow ₹ 600 \text{cr}$$

Method 2:- DCF Approach:-

$$\underset{250}{\vdash} \quad \underset{300}{\vdash} \quad \underset{400 + \cancel{TV}}{\vdash} \Big\} cr.$$

NF @ 12%
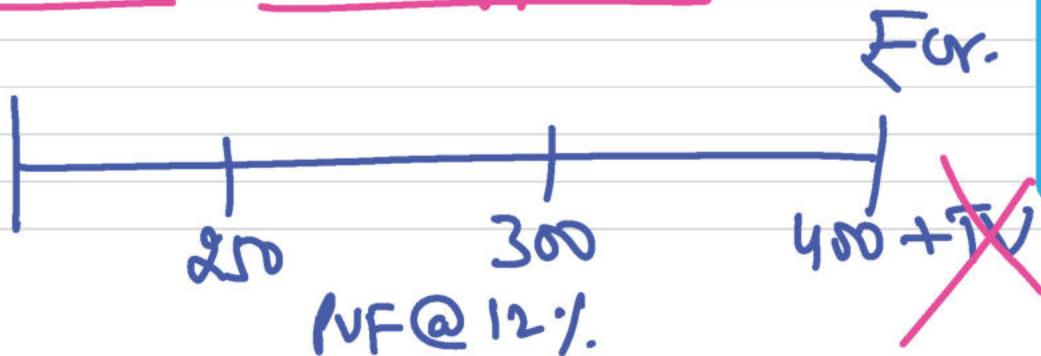
$TV = \dfrac{100}{2}$ ⊗

Year	CF'S	PVF@12%	PV
1	250	·893	223·25
2	300	·797	239·10
3	400	·712	284·80

$$₹ \; 747·15 \; cr.$$

$$\text{Per share Value} = \dfrac{747·15}{1·5} = 498·10/sh$$

Range of Values :-

	Minimum	Maximum
1) Value	600 cr.	747·15 cr.
2) Per share	400/shr	498·10/shr

Q.5E

W.No.1 Cal. of WACC / K_0 :-

$$K_0 \Rightarrow K_e W_e + K_d W_d$$

$$\Rightarrow 16\% \times \frac{12}{20} + 12\% \cdot (1 - .30) \times \frac{8}{20}$$

$$K_0 \Rightarrow 12.96\%$$

W.No.2 Cal. of Dep^n :- (₹ in lakhs)

Year	Op. Bal.	Add	Total	Dep @15%	Cl. Bal
1	17	.50	17.50	2.63	14.87
2	14.87	.80	15.67	2.35	13.32
3	13.32	2	15.32	2.30	13.02
4	13.02	2.50	15.52	2.33	13.19

5	13.19	3.50	16.69	2.50	14.19
6	14.19	2.50	16.69	2.50	14.19
7	14.19	1.50	15.69	2.35	13.34
8	13.34	1.00	14.34	2.15	12.17

W.No. 3   Cal. of change in W/C   ($ millions)

Year	Revenue	W/C @20%	Δ in W/C
0	—	3	—
1	8	1.60	↓ in w/c 1.40
2	10	2	↑ in w/c 0.40
3	15	3	↑ in w/c 1
4	22	4.40	↑ in w/c 1.40
5	30	6	↑ in w/c 1.60
6	26	5.20	↓ in w/c .80
7	23	4.60	↓ in w/c 0.60
8	20	4	↓ in w/c 0.60

Cal. of FCFF ($ million)

Year	Saly	V/C	FML	Adv	Dep^n	EBIT
1	8	3.2	1.6	0.50	2.63	0.07
2	10	4	1.6	1.50	2.25	0.55
3	15	6	1.6	1.50	2.20	3.60
4	22	8.80	1.6	3	2.33	6.27
5	30	12	2	3	2.50	10.50
6	26	10.90	2	3	2.50	8.10
7	23	9.20	2	1	2.35	8.45
8	20	8	2	1	2.15	6.85

Year	NO PAT $\frac{EBIT(1-tax)}{}$	+ Dep^n	− Cap Ex	± Δ Wc	FCFF
1	0.05	2.63	.50	+1.40	3.58
2	0.38	2.25	.80	−.40	1.58

3	2.52	2.20	2	−1	1.82
4	4.39	2.23	2.50	−1.40	2.82
5	7.35	2.50	3.50	−1.60	4.75
6	5.67	2.50	2.50	+0.80	6.47
7	5.91	2.35	1.50	+.60	7.36
8	4.77	2.15	1	+.60	6.54

$$TV = \frac{FCFF_8 \,(1+g)}{K_0 - g}$$

$$\Rightarrow \frac{6.54\,(1+.05)}{.1296 - .05}$$

$$\Rightarrow \underline{\$ \text{ million}} \; \underline{\underline{86.27}} \;\checkmark$$

(i) Value of firm :-

1	3.58	0.885	3.168
2	1.53	0.784	1.200
3	1.82	0.694	1.263
4	2.82	0.614	1.731
5	4.75	0.544	2.584
6	6.47	0.481	3.112
7	7.16	0.426	3.125
8	6.54	0.377	2.466
8	86.27	0.377	32.524

$$V_F \Rightarrow \$ \; 51.18$$

$$\text{million}$$

(ii) **Value of Equity :—**

$$V_E = V_F - MV \text{ of Debt}$$

$$= 51.18 - 8 \Rightarrow \$43.18$$

$$\text{million} \checkmark$$

Q.5F

W.No.1   Cal. of Tax rate   (₹ lakhs)

EBIT	245
(−) Int.	218·125
EBT	26·875
(−) PAT	17·2
Amt. of Tax	9·675

$$\% \, Tax = \frac{9·675}{26·875} \times 100 = 36\%$$

W.N.2   Equity ⇒ 75₹ × 66 ⇒ 4950 lol

Debt ⇒ 1934 lol

₹ 6884 lol

$$K_0 \Rightarrow K_e W_e + K_t W_d \quad (2010 - 2014)$$

$$= 16\% \times \frac{4950}{6884} + 7.22\% \times \frac{1934}{6884}$$

$$K_0 \Rightarrow \boxed{13.53\%} \text{ p.a.} \quad [2010 - 2014]$$

$$\%\,Interest \Rightarrow \frac{218.125}{1934} \times 100 \Rightarrow 11.28\%$$

$$K_t = Int (1 - tax) = 11.28 (1 - .36)$$

$$\Rightarrow 7.22\%$$

Revised WACC :— (Year 2014 onwards)

$$K_0 \Rightarrow 16\% \times \frac{4950}{6302.80} + 7.22\% \times \frac{1353.80}{6302.80}$$

$$\Rightarrow 14.11\% \text{ p.a.}$$

Equity ⟹ 4950 lakh

Debt [1934 – 30%] ⟹ 1353.80 lakh

₹ 6303.80 lakh

W. No. 4   Cal. of TV/CV :-

(2014 onwards)

FCFF ⟹ 240.336 lakh   includes 'g'

$$TV = \frac{FCFF}{DR - g}$$

$$= \frac{240.336}{.1411 - .06}$$

⟹ ₹ 2963.45 lakh ✓

$$\vdash\!\!-\!\!-\!\!-\!\!-\!\!-\!\!17.53\%\!\!-\!\!-\!\!-\!\!-\!\!-\!\!\vdash\!\!-\!\!-14.11\%$$

W.No. Change in W/c

Increase in W/c $\Rightarrow$ 44 × 8%

$$= \boxed{3.52 \text{ Debit}} \quad \widehat{2010}$$

$\oplus$ 8%   Trm W/c

W.No. Cal. of FCFF :−

	2010	2011	2012	2013	2014
EBIT(1−tn) NOPAT 245(1−.36) = 156.80	169.344	182.89	197.52	213.12	230.39
(−) Trm w/c	3.52	3.80	4.10	4.43	4.78
FCFF	165.824	179.09	193.42	208.89	225.61

Final Answer:

Year	CF's	PVF@13.53%	PV
2010	165.824	0.881	146.09
2011	179.09	0.776	138.97
2012	193.42	0.683	132.11
2013	208.89	0.602	125.75
2014	225.61	0.530	119.57
2014 (TV)	2962.45	0.530	(1570.62)

$$V_B \Rightarrow \frac{2233.12}{lakh}$$

as on today

$$V_E \Rightarrow V_B - M \text{ vg Debt}$$

as on today   as on today.

$$\Rightarrow 2233 \cdot 12 \quad (-) \; 1934$$

$$\text{(leftarrow)}$$

$$\cancel{1278 \cdot 80}$$

$$V_E \Rightarrow ₹ 299 \cdot 12 \text{ lakh}$$

$$\text{Value/Share} \Rightarrow \dfrac{299 \cdot 12 \text{ lakh}}{75 \text{ lakh}}$$

$$= ₹ 3 \cdot 99 / \text{share}$$

$$P_0 = ₹ 3 \cdot 99 \Longrightarrow CMP = 66 / \text{share}$$

$$\underline{\underline{\text{over-valued}}}$$

Decision

The stock is O/V.

Q.4H

W.No. 1   Cal. of NOPAT

$$EBIT(1-tax) = NOPAT$$

$$\left[EBIT + \text{Bad-debt provision} \right] (1-.30)$$

$$= (800 + 40)(1-.30)$$

$$\Rightarrow 588 \text{ lakh}$$

As per ICAI :

EBIT − Tax Amt + Bad-debts provision

$$\Rightarrow 800 - 231 + 40$$

$$\Rightarrow 609 \text{ lakh}$$

W.No.2   Cal. of Invested Capital

ESC	1000
RES	600
LTD	200
Add.:- Bad-debt Provision	40
Invested Capital	**1840 lakh**

W.No.3   Cal. of K_o :- 2

$$K_o \Rightarrow K_e W_e + K_d W_d$$

$$\Rightarrow 12\% \times \frac{1640}{1840} + 15\% (1-30) \times \frac{200}{1840}$$

$$\Rightarrow 11.84\%$$

As per ICAI

$$12\% \times \frac{1610}{1800} + 15\%(1-30)\times \frac{200}{1800}$$

$$\Rightarrow 11.84\%$$

EVA(R) $\Rightarrow$ 588 lakh $- 11.84\% \times 1840$ lakh

$$\Rightarrow 370.14 \text{ lakh}$$

As per ICAI
EVA(R)

609 lakh $- 11.84\% \times 1840$ lakh

$$\Rightarrow ₹472.144 \text{ lakh}$$