

# ***MERGERS AND ACQUISITIONS***

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## ***IMPORTANT QUESTIONS***

## CLASS WORK QUESTIONS

**Question 2:**

**i. The number of shares to be issued by B Ltd.:**

The Exchange ratio is 2:3

So, new Shares =  $1,80,000 \times \frac{2}{3} = 1,20,000$  shares.

**ii. EPS of B Ltd. after acquisition:**

Total Earnings	(₹ 21,00,000 + ₹ 4,50,000)	₹25,50,000
No. of Shares	(6,00,000 + 1,20,000)	7,20,000
EPS	(₹ 25,50,000/7,20,000)	₹ 3.5416 or 3.54

**iii. Equivalent EPS of S Ltd. and gain/loss to shareholders:**

Equivalent EPS of S Ltd. ( $₹ 3.54 \times \frac{2}{3}$ )	₹ 2.36
Less: EPS before merger	2.50
Loss	(0.14)

**iv. New Market Price of B Ltd. (P/E remaining unchanged):**

Present P/E Ratio of B Ltd.	10 times
Expected EPS after merger	₹ 3.54
Expected Market Price ( $₹3.54 \times 10$ )	₹ 35.40

**v. Market Value of merged firm:**

Total number of Shares	7,20,000
Expected Market Price	₹ 35.40
Total value ( $7,20,000 \times 35.40$ )	₹ 2,54,88,000

**vi.**

a) Equivalent EPS of S Ltd.	₹ 2.36
b) BSE price per share before merger announcement	₹ 17.50
c) After the merger announcement 10% increase in price of share	₹ 1.75
d) Present Market Price of share (b + c)	₹ 19.25
e) Return on Market Price per share (a/d)	12.26

**As Mr. X is having another opportunity to earn 14% and expected return on S Ltd.'s share is 12.26%, it is advisable to offload in market.**

**Question 3:**

(a)

**Swap Ratio**

	<b>Abhiman Ltd.</b>	<b>Abhishek Ltd.</b>
Share Capital	200 Lakh	100 Lakh
Free Reserves	<u>800 Lakh</u>	<u>500 Lakh</u>
Total	<u>1000 Lakh</u>	<u>600 Lakh</u>
No. of Shares	2 Lakh	10 Lakh
Book Value per share	₹ 500	₹ 60
Promoter's holding	50%	60%
Non promoter's holding	50%	40%
Free Float Market Cap. i.e. relating to Public's holding	400 Lakh	128 Lakh
Hence Total market Cap.	800 Lakh	320 Lakh
No. of Shares	2 Lakh	10 Lakh
Market Price	₹ 400	₹ 32
P/E Ratio	10	4
EPS	40	8
Profits (₹ 2 X 40 lakh)	₹ 80 lakh	-
(₹ 8 X 10 lakh)	-	₹ 80 lakh

**Calculation of Swap Ratio**

Book Value	1 : 0.12 i.e.	0.12 x 25%	0.03
EPS	1 : 0.2	0.20 x 50%	0.10
Market Price	1 : 0.08	0.08 x 25%	<u>0.02</u>
		Total	<u>0.15</u>

Swap ratio is for every one share of Abhishek Ltd., to issue 0.15 shares of Abhiman Ltd. Hence total no. of shares to be issued.

$$10 \text{ Lakh} \times 0.15 = 1.50 \text{ lakh shares}$$

**(b) Book Value, EPS & Market Price**

Total No of Shares	2 Lakh + 1.5 Lakh = 3.5 Lakh
Total Capital	₹ 200 Lakh + ₹ 150 Lakh = ₹ 350 Lakh
Reserves	₹ 800 Lakh + ₹ 450 Lakh = ₹ 1,250 Lakh
Book Value	$\frac{\text{₹ 350 Lakh} + \text{₹ 1,250 Lakh}}{3.5 \text{ Lakh}} = \text{₹ 457.14 per share}$

$$\text{EPS} = \frac{\text{Total Profit}}{\text{No. of Share}} = \frac{\text{₹ 80 Lakh} + \text{₹ 80 Lakh}}{3.5 \text{ Lakh}} = \frac{\text{₹ 160 Lakh}}{3.5} = \text{₹ 45.71}$$

$$\text{Expected Market Price} = \text{EPS (₹ 45.71)} \times \text{P/E Ratio (10)} = \text{₹ 457.10}$$

**(c) (i) Promoter's holding**

Promoter's Revised Holding	Abhiman 50% i.e.	1.00 Lakh shares
	Abhishek 60% i.e.	<u>0.90 Lakh shares</u>
	<b>Total</b>	<b>1.90 Lakh shares</b>

Promoter's % =  $1.90/3.50 \times 100 = 54.29\%$

**(ii) Free Float Market Capitalisation**

Free Float Market Capitalisation	= (3.5 Lakh – 1.9 Lakh) x ₹ 457.10
	= ₹ 731.36 Lakh

**(iii) (a) & (b)**

Revised Capital	₹ 350 Lakh + ₹ 175 Lakh = ₹ 525 Lakh
No. of shares before Split (F.V ₹ 100)	5.25 Lakh
No. of Shares after Split (F.V. ₹ 5)	5.25 x 20 = 105 Lakh
EPS	160 Lakh / 105 Lakh = 1.523
Book Value	Cap. ₹ 525 Lakh + ₹ 1075 Lakh
No. of Shares	= 105 Lakh = ₹ 15.238 per share

**Question 7:**

	<b>X Ltd.</b>	<b>Y Ltd.</b>
No. of shares ( lakhs)	3	2
Share Capital ( Rs Lakhs)	30	20
P/E ratio	5	4
Market Price per share ( Rs)	30	20
EPS ( Rs)	6	5
Profit ( Rs lakhs)	18	10
Reserves and surplus ( Rs lakhs)	30	20
Share Capital + Reserve & Surplus	60	40
Book Value per share ( Rs)	20	20
Market Capitalization value ( Rs lakhs)	90	40

Swap ratio :

Weight for X Ltd =  $6 \times 0.30 + 20 \times 0.30 + 30 \times 0.40 = 19.8$

Weight for Y Ltd =  $5 \times 0.30 + 20 \times 0.30 + 20 \times 0.40 = 15.5$

Thus, the Swap ratio is 29.8 : 15.5

Shares to be issued to shareholders of Y Ltd =  $(2,00,000 \times 15.5 / 19.8) = 1,56,566$  shares

Total shares after merger =  $3,00,000 + 1,56,666 = 4,56,566$

No of shares to be received by promoters of Y Ltd =  $75,000 \times 15.5 / 19.8 = 58,712$

Promoter's holding : No of shares =  $(1,00,000 + 58,712) = 1,58,712$

Promoter's holding % =  $1,58,712 / 4,56,566 = 34.76\%$

EPS = Total Profit / No of shares =  $(18,00,000 + 10,00,000) / 4,56,566 = 6.13$

Market Capitalization of A Ltd (after acquisition) = Price per share x No of shares

= EPS x PE ratio x No of shares

=  $6.13 \times 5 \times 4,56,566 = \text{Rs.} 1,39,93,748$

Premerger market capitalization value of both firms = 130 lakhs

Gain in market capitalization =  $\text{Rs.} 9,93,748$

**Question 13:**

Total Market Value = Rs. 8,00,00,000 + Rs. 10,00,00,000 = Rs. 18,00,00,000

Total Earnings = Rs. 4,00,00,000 + Rs. 10,00,00,000 = Rs. 14,00,00,000

EPS of Rs. 5.33 implies

$$\text{Number of shares outstanding} = \frac{\text{Rs. } 1,40,00,000}{\text{Rs. } 5.33} = 26,26,642 \text{ shares}$$

$$\text{Market Price Per Share} = \frac{\text{Rs. } 18,00,00,000}{26,26,642} = \text{Rs. } 68.53$$

$$\text{PE Ratio} = \frac{\text{Rs. } 68.53}{\text{Rs. } 5.33} = 12.86$$

**Question 16:**

**Market price per share (MPS) = EPS X P/E ratio or P/E ratio = MPS/EPS**

(i) Determination of EPS, P/E ratio, ROE and BVPS of A Ltd. and B Ltd.

		<b>A Ltd.</b>	<b>B Ltd.</b>
Profit After Tax	(PAT)	₹ 2,74,400	₹ 1,19,000
No. of Shares	(N)	100000	80000
EPS	(PAT/N)	₹ 2.744	₹ 1.4875
Market price per share	(MPS)	40	15
P/E Ratio	(MPS/EPS)	14.58	10.08
Equity Funds	(EF)	₹ 13,00,000	₹ 8,00,000
BVPS	(EF/N)	13	10
ROE	(EAT/EF) × 100	21.11%	14.88%

(ii) Estimation of growth rates in EPS for A Ltd. and B Ltd.

Retention Ratio	(1-D/P ratio)	0.6	0.4
Growth Rate	(ROE × Retention Ratio)	12.67%	5.95%

(iii) Range of Justifiable exchange ratio

- (a) Intrinsic value based = ₹20 / ₹40 = 0.5:1 (upper limit)  
 (b) Market price based =  $\text{MPS}_{DA} / \text{MPS}_{BA}$  = ₹15 / ₹40 = 0.375:1 (lower limit)

(iv) Since, A Ltd. has a higher EPS, ROE, P/E ratio and even higher EPS growth expectations, the negotiable terms would be expected to be closer to the lower limit, based on the existing share prices.

(v) Calculation of Post merger EPS and its effects

<b>Particulars</b>			<b>A Ltd.</b>	<b>B Ltd.</b>	<b>Combined</b>
EAT	(₹)	(i)	2,74,400	1,19,000	3,93,400
Share outstanding		(ii)	100000	80000	132000*
EPS	(₹)	(i) / (ii)	2.744	1.4875	2.980
EPS Accretion (Dilution)	(₹)		0.236	(0.296***)	

(vi) Estimation of Post merger MPS

Particulars			A Ltd.	B Ltd.	Combined
EPS	(₹)	(i)	2.744	1.4875	2.980
P/E Ratio		(ii)	14.58	10.08	14.58
MPS	(₹)	(i) x (ii)	40	15	43.45

\* Shares outstanding (combined) = 100000 shares + (.40 × 80000) = 132000 shares

\*\* EPS claim per old share = ₹2.98 × 0.4 ₹ 1.192

\*\*\*EPS dilution = ₹1.4875 – ₹ 1.192 ₹ 0.296

**Question 30:**

(i) To advise the maximum exchange ratio which CEO of the Acquirer Company should offer to shareholders of Target Company we shall compute the EPS of each company as follows:

	Acquirer Company	Target Company
Net Profit	₹ 80 lakhs	₹ 15.75 lakhs
PE Multiple	10.50	10.00
Market Capitalization	₹ 840 lakhs	₹ 157.50 lakhs
Market Price	₹ 42	₹ 105
No. of Shares	20 lakhs	1.50 lakhs
EPS	₹ 4	₹ 10.50

Maximum Exchange Ratio 4 : 10.50 or 1 : 2.625

**Advise:** Thus, at the most CEO can offer 2.625 shares of Acquirer Company for every one share of Target Company so that he could keep EPS at the current level.

(ii) Let x lakhs be the amount paid by Acquirer company to Target Company. Then to maintain same EPS i.e. ₹ 4 the number of shares to be issued will be:

$$\frac{(80 \text{ lakhs} + 15.75 \text{ lakhs}) - 0.70 \times 15\% \times x}{20 \text{ lakhs}} = 4$$

$$\frac{95.75 - 0.105x}{20} = 4$$

x = ₹ 150 lakhs

**Advise:** Thus, maximum ₹ 150 lakhs can be offered in cash to Target Company to maintain same EPS. Moreover it needs to be ensured that borrowing rate should not exceed 15%.

**Question 34:**

**Working Notes:**

	Day Ltd.	Night Ltd.
Net Earnings	₹ 5 crores	₹ 3.5 crores
No. of Equity Shares	10,00,000	7,00,000
EPS	50	50
P/E	20 times	15 times
MPS	₹ 1000	₹ 750
Market Value	1,00,00,00,000	52,50,00,000

(i) **If takeover is funded by Cash**

Since Market Price of Night Ltd. reflects its full value, cost of takeover to Day Ltd is  
 $55 \text{ crore} - 52.50 \text{ crore} = ₹ 2.5 \text{ crore}.$

(ii) **If the takeover is funded by stock**

Number of shares to be issued to Night Ltd.

$$= ₹ 55 \text{ Crore} / ₹ 1000 = 550000 \text{ Lakhs}$$

Market Value of Merged Firm = ₹ 1,00,00,00,000 + ₹ 52,50,00,000

$$= ₹ 1,52,50,00,000 \text{ i.e. } ₹ 152.50 \text{ Crore}$$

Proportion that Night Ltd.'s shareholders get in Day Ltd.'s Capital Structure will be:

$$= \frac{5.5 \text{ Lakhs}}{5.5 \text{ Lakhs} + 10 \text{ Lakhs}} = 0.3548$$

True Cost of Merger = ₹ 152.50 Crore x 0.3548 – ₹ 55 Crore

$$= -₹ 0.893 \text{ Crore}$$

Since true cost is negative in case of funding from stock, Day Ltd. would better off by funding the takeover by stock.

**Question 37:**

Assumption: Though in the question it is assumed that there is no operating synergy and so no increase on the combined earnings; it is unlikely a bid would be launched if substantial synergy was not estimated.

**Share for share offer**

	<b>AB Ltd.</b>	<b>YZ Ltd.</b>	<b>Combined</b>
Profit before tax (Rs. lakh)	1,266.00	1,125.00	2,391.00
Less: Tax @ 30%	379.80	337.50	717.30
<b>Profit after Tax</b>	<b>886.20</b>	<b>787.50</b>	<b>1,673.70</b>
Number of shares (lakh)	25.00	18.00	40.00
<b>Earnings Per Share (Rs.)</b>	<b>35.45</b>	<b>43.75</b>	<b>41.84</b>
<b>P/E ratio</b>	<b>11</b>	<b>7</b>	
Share price (pre bid) (Rs.)	389.95	306.25	381.53*
Market Value of company (Rs. lakh)	9,748.75	5,512.50	15,261.25
* $\frac{\text{Rs. } 15,261.25 \text{ lakh}}{40 \text{ lakh}} = \text{Rs. } 381.53$			

**Post Bid Price (Combined Entity)**

Rs. 41.84 X 11 = Rs. 460 per share

**Share for Cash offer**

Rs. 460 per share

Thus cash offer is more beneficial for AB Ltd.

**Reasons (partially) for the fall in the market price of the shares in the market**

Wealth of a shareholder of YZ Ltd. holding 6 shares in YZ Ltd. (Rs.306.25 X 6)  
Rs. 1,837.50

Wealth of a shareholder of YZ Ltd. holding 5 shares in combined entity (Rs.381.53 X 5)  
Rs. 1,907.65

Thus there seems to be transfer of wealth from the AB Ltd. to YZ Ltd.

**Value of shares using the Dividend Growth Model**

$$AB = \frac{(35.45 \times 1.04)}{(0.13 - 0.04)} = \text{Rs. } 409.64$$

$$YZ = \frac{(43.75 \times 1.04)}{(0.11 - 0.04)} = \text{Rs. } 650.00$$

This would suggest that AB slightly undervalued, but that YZ is hugely undervalued in the marketplace. It is possible that the market does not believe YZ's growth estimates, given its poor performance to date.

**Question 50:**

**(i) Working Notes:**

**(1) Calculation of Book Value Per Share**

Particulars	Weak Bank (W)	Strong Bank (S)
Share Capital (₹ Lakhs)	150	500
Reserves & Surplus (₹ Lakhs)	80	5,500
	230	6,000
Less: Preliminary Expenses (₹ Lakhs)	50	--
Net Worth or Book Value (₹ Lakhs)	180	6,000
No. of Outstanding Shares (Lakhs)	15	50
Book Value Per Share (₹)	12	120

**(2) Swap Ratio**

Gross NPA	5:40	5/40 x 30%	0.0375
CAR	5:16	5/16 x 28%	0.0875
Market Price	12:96	12/96 x 32%	0.0400
Book Value Per Share	12:120	12/120x 10%	0.0100
			0.1750

Thus, for every share of Weak Bank, 0.1750 share of Strong Bank shall be issued.

**(3) No. of equity shares to be issued:**

$$\frac{150}{10} \times 0.1750 = 2.625 \text{ lakh shares}$$

**(4) Calculation of Capital Reserve**

Book Value of Shares	₹ 180.00 lac
Less: Value of Shares issued	₹ <u>26.25 lac</u>
Capital Reserve	₹ <u>153.75 lac</u>

**Balance Sheet after Merger**

	₹ lac		₹ lac
Paid up Share Capital	526.25	Cash in Hand & RBI	2900.00
Reserves & Surplus	5500.00	Balance with other banks	2000.00
Capital Reserve	153.75	Investment	20100.00
Deposits	48000.00	Advances	30500.00
Other Liabilities	3390.00	Other Assets	2070.00
	<b>57570.00</b>		<b>57570.00</b>

**(ii) Working Notes:**

(1) Calculation CAR % of Bank 'S' after merger

$$\text{CAR / CRWAR} = \frac{\text{Total Capital}}{\text{Risky Weighted Assets}}$$

	Weak Bank	Strong Bank	Merged
Capital Adequacy Ratio (CAR)	5%	16%	
Total Capital	₹ 180 lac	₹ 6000 lac	₹ 6180 lac
Risky Weighted Assets	₹ 3600 lac	₹ 37500 lac	₹ 41100 lac

$$\text{CAR after merger} = \frac{6180}{41100} \times 100 = 15.04\%$$

(2) Calculation of Gross NPA % of Bank 'S' after merger

$$\text{GNPA Ratio} = \frac{\text{Gross NPA}}{\text{Gross Advances}} \times 100$$

	Weak Bank	Strong Bank	Merged
GNPA (Given)	0.40	0.05	
	$0.40 = \frac{\text{GNPA}_R}{₹ 3500 \text{ lac}}$	$0.05 = \frac{\text{GNPA}_S}{₹ 27000 \text{ lac}}$	
Gross NPA	₹ 1400 lac	₹ 1350 lac	₹ 2750 lac

$$\text{GNPA Ratio} = \frac{2750}{30500} \times 100 = 9.02\%$$

**Analysis:** Thus, from above it can be analysed that CAR is slightly reduced from 16% to 15.04%. However, GNPA has been almost doubled.

**Question 51:**

First of all we shall compute PV of Cash Inflows as follows:

$$\text{PVCF} = \frac{200 \text{ crore} (1 - 0.30)}{0.12 - 0.04} = \text{Rs. } 1750 \text{ Crore}$$

Market Value of Liabilities = Rs. 780 Crore + Rs. 40 Crore = Rs. 820 Crore

Net Asset Value = Rs. 930 Crore

Since, the Tripati Tiles is offering Rs. 950 Crore, more than Net Asset Value of Rs. 930 Crore, the company should go further with decision of divestiture of tile business.

**Question 53:**

To find the value of A Ltd. equity shares, subtract the debt of Rs.420 lakh from the total value.

	Recession	Slow growth	Rapid growth
Value of Equity	(40)	100	300
Debt	420	420	420

Total	380	520	720
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It should be noted that in above table there is a negative value of equity in recession, which is not possible because the shares have limited liability. Therefore, we will assume that the shares are zero value and the debt has declined to Rs.380 lakhs because of bankruptcy risk. Therefore the expected value of equity and debt can be calculated as follows:

	<b>Recession Rs. Lakh</b>	<b>Prob.</b>	<b>Slow growth Rs. Lakh</b>	<b>Prob.</b>	<b>Rapid growth Rs. Lakh</b>	<b>Prob.</b>	<b>Expected Value Rs. Lakh</b>
Value of Equity	0	0.20	100	0.50	300	0.30	140
Value of Debt	380	0.20	420	0.50	420	0.30	412
Total	380		520		720		552

To find the value of B Ltd's equity shares subtract debt of Rs.80 lakhs from the total value.

	<b>Recession Rs. Lakh</b>	<b>Prob.</b>	<b>Slow growth Rs. Lakh</b>	<b>Prob.</b>	<b>Rapid growth Rs. Lakh</b>	<b>Prob.</b>	<b>Expected Value Rs. Lakh</b>
Value of Equity	520	0.20	670	0.50	1070	0.30	760
Value of Debt	80	0.20	80	0.50	80	0.30	80
Total	600	0.20	750		1150		840

When the two companies merge we have to add the economic values of equity and debt together. Since the bankruptcy risk is disappeared by combining with a low geared company the negative Rs.40 lakhs also has to used while calculating the combined firm's expected value.

	<b>Recession (0.20) Rs. Lakh</b>	<b>Slow growth (0.50) Rs. Lakh</b>	<b>Rapid growth (0.30) Rs. Lakh</b>	<b>Expected Value Rs. Lakh</b>
Value of Equity	480	770	1370	892
Value of Debt	500	500	500	500
Total	980	1270	1870	1392

<b>Expected Value of Equity</b>		<b>Expected Value of Debt</b>	
	<b>Rs. Lakh</b>		<b>Rs. Lakh</b>
A Ltd.	140	A Ltd.	412
B Ltd.	760	B Ltd.	80
Total	900	Total	492
Combined firm loss in equity capital	8	Increase in debt	8

After the combination, in the absence of synergy, the total economic value of the business remains at Rs.1392 lakhs but the expected value or debt has increased by Rs. 8 lakhs at the

expense of equity. Because, under the recession there is no longer a bankruptcy risk for the debt holders of A Ltd.

The cash flows of the combined company may reduce in volatility because of the portfolio effect and this may further reduce the cost of debt, increasing its value.

**Question 56:**

**Working Notes:**

$$\text{Value of C plc} = \frac{\text{Residual Cash Flow}}{k_e - g} = \frac{4,000,000}{0.1125 - 0} = \text{£}35,555,556$$

$$\text{Value of per share of C plc} = \frac{35,555,556}{5,000,000} = \text{£}7.11$$

$$\text{Book Value of per share of C plc} = \frac{29,750,000}{5,000,000} = \text{£}5.95$$

$$\text{Value of M plc} = \frac{\text{Residual Cash Flow}}{k_e - g} = \frac{6,000,000}{0.125 - 0} = \text{£}48,000,000$$

$$\text{Value of Combined Entity} = \frac{12,000,000}{0.12 - 0} = \text{£}100,000,000$$

Value of Synergy = Value of Combined Entity – Individual Value of M plc and C plc

$$\text{Value of Synergy} = \text{£}100,000,000 - (\text{£}48,000,000 + \text{£}35,555,556) = \text{£}16,444,444$$

- i. Minimum price per share C plc should accept from M plc is £5.95 (current book value).
- ii. Maximum price per share M plc shall be willing to offer to C plc shall be computed as follows:

$$= \frac{\text{Value of C plc as per Residual Cash Flow} + \text{Synergy Benefits}}{\text{No. of shares}}$$

$$= \frac{35,555,556 + 16,444,444}{5,000,000} = \frac{52,000,000}{5,000,000} = \text{£}10.40$$

- iii. Floor Value of per share of C plc shall be £4 (current market price) and it shall not play any role in decision for the acquisition of C plc as it is lower than its current book value.