

**Paper – 20: Financial Analysis and Business Valuation**

**Paper 20- Financial Analysis and Business Valuation**

Full Marks: 100

Time allowed: 3 Hours

**Question No. 1 which is compulsory and carries 20 marks and answer any 5 questions from Q. No. 2 to Q. No. 8.**

1.

(a) Sun Ltd. has announced issue of warrants on 1:1 basis for its equity shareholders. The warrants are convertible at an exercise price of 12. Warrants are detachable and trading at ₹7. What is the minimum price of the warrant and the warrant premium if the current price of the stock is ₹16? [6]

(b) Dayal Ltd. furnishes the following information relating to the previous three years, and request you to compute the value of the brand of the company:

Amounts in Lakh ₹

Years	2014	2015	2016
EBIT	75	85.25	150
Loss on Sale of Asset	3		18
Non-Operating Income	12	7.25	8

Inflation was 9% for 2015 and 15% for 2016. If the capitalization factor considering internal and external value drivers to the brand is 14. Determine the brand value. Assume an all inclusive future tax rate of 35%. [8]

(c) From the following information, compute the Trend Ratios (%) of Net Sales and comment about the trend in Net Sales

Particulars	2011-12	2012-13	2013-14	2014-15	2015-16
Sales in Lakhs ₹	5959	6500	6809	6649	7262

[6]

**Answer:**

(a) Sun Ltd.

Minimum Price of warrant = current stock price - exercise price of warrant = ₹ (16-12) = ₹4

Warrant Premium = Trading Price of warrant - minimum price = ₹ (7-4) = ₹3

(b) Valuation of Brand of Dayal Ltd as at 31-3-2016.

(₹ in lakhs)

Particulars	2014	2015	2016
Profit Before Interest and Tax	75.00	85.25	150.00
Add: Loss on Sale Assets	3.00	-	18.00
Less: Non Operating Income	(12.00)	(7.25)	(8.00)
Branded Earnings	66.00	78.00	160.00

Inflation Adjustment Factor	1.09×1.15=1.25	1.15	1.00
Inflation Adjusted Earning as at 31.03.2016	82.50	89.70	160.00
Weight	1	2	3
Product	82.50	179.40	480.00
Weighted Average Earnings Before Tax [(82.50+179.40+480)÷(1+2+3)]			123.65

## Answer to MTP\_Final\_Syllabus 2012\_December 2016\_Set 2

Less: Taxes at 35%	(43.28)
Weighted Average Brand Earnings After Tax	80.37
Capitalization Factor	14
Brand Value	₹1125.18 Lakhs

\* Most recent year is given higher weight.

**(c) Computation of Trend Ratios**

Particulars	2011-12	2012-13	2013-14	2014-15	2015-16
Net Sales(₹ in lakhs)	5959	6500	6809	6649	7262
Net Sales(Trend Ratio)	100.00	109.08	114.26	111.58	121.87

**2. (a) The following financial statement is summarized from the books of Neel Ltd. as at 31<sup>st</sup> March, 2016:**

Equity and Liabilities	(₹)	Assets	(₹)
<b>Shareholders' Fund:</b>		<b>Non-current Assets:</b>	
Paid-up Capital	15,00,000	Fixed Assets	16,50,000
Reserves and Surplus	6,00,000	<b>Current Assets:</b>	
<b>Non-current Liabilities:</b>		Stock-in-trade	9,10,000
Debentures (Long-term)	5,00,000	Book Debts	12,40,000
<b>Current Liabilities:</b>		Investment (Short-term)	1,60,000
Bank Overdraft	12,00,000	Cash	40,000
Sundry Creditors	2,00,000		
	<b>40,00,000</b>		<b>40,00,000</b>

Annual Sales - ₹74,40,000. Gross Profit - ₹7,44,000

You are required to calculate the following ratios for the year and comment on the financial position as revealed by these ratios:

- A. Debt Equity Ratio,
- B. Current Ratio,
- C. Proprietary Ratio
- D. G.P. Ratio
- E. Debtors' Turnover Ratio
- F. Stock turnover Ratio.

Bank overdraft is payable on demand.

[8]

**(b) The Capital of Madhu Co. Ltd. is as follows:**

	(₹)
9% preference shares of ₹10 each	3,00,000
Equity shares of ₹10 each	8,00,000
	<b>11,00,000</b>

The accountant has ascertained the following information:

Profit (after tax at 60%) ₹2,70,000; Depreciation ₹60,000; Equity dividend paid 20%; market price of equity shares ₹50. You are required to state the following, showing the necessary Workings:

- (i) Dividend yield on the equity shares.
- (ii) Cover for the preference and equity dividends
- (iii) Earnings for equity shares

**(iv) Price –earnings ratio**

**[8]**

**Answer:**

**(a)** Before making any comment on the ratios, the ratios should be computed first along with their components which are:

1. Long-term Debts

	₹
Debtures	5,00,000
	5,00,000

2. Shareholders' or Proprietor's Fund

	₹
Share Capital	15,00,000
Reserves & Surplus	6,00,000
	21,00,000

3. Current Assets

	₹
Stock	9,10,000
Book Debts	12,40,000
Investment (Short-term)	1,60,000
Cash	40,000
	23,50,000

4. Current Liabilities

	₹
Bank Overdraft	12,00,000
Sundry Creditors	2,00,000
	14,00,000

5. Total Assets

	₹
Fixed Assets	16,50,000
Current Assets	23,50,000
	40,00,000

6. Cost of Goods Sold

= Sales – G.P.
= ₹ 74,40,000 – ₹ 7,44,000
= ₹ 66,96,000

Computation of Ratios and Comments on them:

(A) Debt-Equity Ratio

$$\text{Debt - Equity Ratio} = \frac{\text{Long - term Debts}}{\text{Proprietor's Fund}} = \frac{\text{₹5,00,000}}{\text{₹21,00,000}} = 0.24 : 1$$

This ratio expresses the claims of Long-term Creditors and Debentureholders against the Assets of the company. Since it is very low it is favourable from the standpoint of Long-term Creditors which supplies maximum safety for them, i.e., they are highly secured.

(B) Current Ratio

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}} = \frac{₹23,50,000}{₹14,00,000} = 1.68 : 1$$

Since this ratio is less than the normal Current Ratio of 2 : 1, it reveals that the liquidity position is not at all satisfactory, i.e., the company is able to pay its maturing obligations as soon as it becomes due as only ₹ 1.68 paise of Current Assets are available against each rupee of Current Liability.

(C) Proprietary Ratio

$$\text{Proprietary Ratio} = \frac{\text{Proprietor's Funds}}{\text{Total Assets}} = \frac{₹21,00,000}{₹40,00,000} = 0.53 : 1$$

This ratio indicates that the company is not so dependent on outsiders' fund or external equities as more than 50% is being contributed by the shareholders.

(D) G. P. Ratio

$$\text{G.P. Ratio} = \frac{\text{Gross Profit}}{\text{Sales}} \times 100 = \frac{₹7,44,000}{₹74,40,000} \times 100 = 10\%$$

This ratio is very low and, as such, not at all satisfactory since it is less than the normal ratio of 25%. This low ratio indicates that there are unfavourable conditions like increase in cost of production or sales and decrease in management efficiency and so on.

(E) Debtors Turnover Ratio

$$\text{Debtors' Turnover Ratio} = \frac{\text{Debtors}}{\text{Sales}} \times 365 = \frac{₹12,40,000}{₹74,40,000} \times 365 = 61 \text{ days}$$

This ratio indicates that the collection policy of the company is faulty since it exceeds its normal level.

(F) Stock-Turnover Ratio

$$\text{Stock - Turnover Ratio} = \frac{\text{Cost of Goods Sold}}{\text{(Average) Stock}} = \frac{₹66,96,000}{₹9,10,000} = 7.36 \text{ times}$$

Since this ratio satisfies the normal ratio of 5 times on an average and, hence, the efficiency of the management is found to be good.

**(b)** Computation of ratios —

(i) Dividend yield on the equity shares:

$$\begin{aligned} &= \frac{\text{Dividend per share}}{\text{Market price per share}} \times 100 \\ &= \frac{₹2(\text{i.e. } 20\% \text{ of } ₹10)}{₹50} \times 100 = 4\% \end{aligned}$$

(ii) Dividend coverage ratio:

$$\begin{aligned} \text{a. Preference} &= \frac{\text{Profits after taxes}}{\text{dividend payable to preference shareholders}} \\ &= \frac{₹2,70,000}{₹27,000(9\% \text{ of } ₹3,00,000)} \end{aligned}$$

= 10 times

b. Equity = 
$$\frac{\text{Profits After taxes} - \text{Preference share dividends}}{\text{Dividend payable to equity shareholders at current rate of ₹2 per share}}$$

$$= \frac{₹2,70,000 - ₹27,000}{₹1,60,000(80,000 \text{ shares} \times ₹2)}$$

$$= \frac{₹2,43,000}{₹1,60,000} = 1.52 \text{ times}$$

(iii) Earning for equity shares:

$$= \frac{\text{Earnings available to equity shareholders}}{\text{Number of the equity share outstanding}}$$

$$= \frac{₹2,43,000}{80,000} = ₹3.04 \text{ per share}$$

(iv) Price- earning (P/E) ratio:

$$\text{P/E ratio} = \frac{\text{Market price per share}}{\text{Earning per share}}$$

$$= \frac{₹50.00}{₹3.04} = 16.44 \text{ times}$$

3. (a) Following figures have been extracted from the records of a company:

Year	2014-15	2015-16
Sales (₹)	12,00,000	16,80,000
Cost of Goods Sold (₹)	8,00,000	12,60,000
Units Sold	40,000	60,000

Analyze the reasons for changes in profit due to changes in sales quality, cost price and selling price. [8]

(b) Using Altman's 1983 Multiple Discriminate Function, calculate Z-score of Somlata & Co. Ltd., where the five accounting ratios are as follows as comment about its financial position:

Working Capital to total Assets = 0.350

Retained Earnings to Total Assets = 50%

EBIT to total Assets = 19%

Book Value of Equity to Book Value of Total Debt = 1.65

Sales to total Assets = 3 times [8]

**Answer:**

(a)

Particulars	2014-15	2015-16	Changes
(i) Sales (₹)	12,00,000	16,80,000	(+) 4,80,000
(ii) Cost of Goods Sold (₹)	8,00,000	12,60,000	(+) 4,60,000
Gross Profit (₹) [i - ii]	4,00,000	4,20,000	(+) 20,000
(iii) Units Sold	40,000	60,000	(+) 20,000
(iv) Selling Price per Unit (₹) [i ÷ iii]	30	28	(-)2
(v) Cost Price per Unit (₹) [ii ÷ iii]	20	21	(+)1

**Statement showing account for change in profit**

Particulars	₹	₹
Changes in profit due to changes in sales:		
1. Increase in profit due to increase in quantity [Change in quantity × Base year's unit selling price = (60,000-40,000) × ₹30]		6,00,000
2. Decrease in profit due to decrease in unit selling price [Change in unit selling price × Base year's quantity = (₹28 - ₹30) × 40,000]		(80,000)
3. Decrease in profit due to change in price and quantity [Changes in unit selling price × Change in quantity = (₹28 - ₹30) × (60,000 - 40,000)]		(40,000)
		4,80,000
Changes in profit due to changes in cost:		
1. Decrease in profit due to increase in quantity [Change in quantity × Base year's unit cost price = (60,000 - 40,000) × ₹20]	(4,00,000)	
2. Decrease in profit due to increase in unit cost price [Change in unit cost price × Base year's quantity = (₹21 - ₹20) × 40,000]	(40,000)	
3. Decrease in profit due to change in price and quantity [Change in unit cost price × Change in quantity = (₹21 - ₹20) × (60,000 - 40,000)]	(20,000)	(4,60,000)
<b>Net Increase in Gross Profit</b>		<b>20,000</b>

Note: Here, the base year is 2014 – 15.

(b) As per Altman's Model (1983) of Corporate Distress Prediction,  
 $Z = 0.717 X_1 + 0.847 X_2 + 3.107 X_3 + 0.420 X_4 + 0.998 X_5$

Here, the five variables are as follows:

X1 = Working Capital to Total Assets = 0.350

X2 = Retained Earnings to Total Assets = 0.50

X3 = EBIT to Total Assets = 0.19

X4 = Market Value of Equity Shares to Book Value of Total Debt = 1.65

X5 = Sales to Total Assets = 3 times

Hence, Z-score = (0.717x0.350) + (0.847x0.50) + (3.107x0.19) + (0.420x 1.65) + (0.998x3)  
 = 0.25095 + 0.4235 + 0.59033+0.693 + 2.994 = 4.95

Note: As the calculated value of Z-score is much higher than 2.99, it can be strongly predicted that the company is a non-bankrupt company (i.e., non-failed company).

4. (a) Pawan Ltd. The summarized Balance Sheet of the company as on 31<sup>st</sup> March 2015 and 2016 were:

Liabilities	2015 (₹)	2016 (₹)	Assets	2015 (₹)	2016 (₹)
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## Answer to MTP\_Final\_Syllabus 2012\_December 2016\_Set 2

Issued Share Capital	1,00,000	1,50,000	Freehold Property at cost	1,10,000	1,30,000
Securities Premium	15,000	35,000	Plant & Machinery at cost	1,20,000	1,51,000
Profit & Loss A/c	28,000	70,000	Furniture & fixture at cost	24,000	29,000
Debentures	70,000	30,000	Stocks	43,000	44,000
Bank Overdraft	14,000	-	Debtors	37,000	51,000
Creditors	34,000	48,000	Bank	-	16,000
Proposed Dividends	15,000	20,000	Premium on Redemption of debentures	-	1,000
Plant:	45,000	54,000			
Fixtures:	13,000	15,000			
	3,34,000	4,22,000		3,34,000	4,22,000

The following additional information is relevant:

- i) There had been no disposal of freehold property in the year.
- ii) The Machine tool which has cost ₹8,000 and in respect of which ₹6,000 depreciation has been provided was sold for ₹3,000, and fixtures, which had cost ₹5,000 in respect of which depreciation of ₹2,000 has been provided, were sold for ₹1,000. The Profit and losses on these transactions had been dealt with through the profit and Loss Account.
- iii) The actual premium of the redemption of debentures was ₹2,000 of which ₹1,000 had been written-off to the Profit and Loss A/c
- iv) No interim dividend has been paid
- v) Interest paid on debentures amounted to ₹4,500

After reading the above financial statements and information's answer the following questions:

- A. Calculate the cash flows from the operating activities. Necessary workings should be part of the answer
- B. Find out those ratios which are essential to analyze the financial position of the company, based on cash flows. Provided –  
 Net cash flows from investing Activities: (-) ₹65,000  
 Net Cash flows from Financing Activities: ₹8,500
- C. Interpret and comment on the financial position of the company, based on the date obtained from above point b) [8]

- (b) A company has an operating leverage of leverage 1.1. as against 1.25 during the previous year. If the current fixed cost is 25% more than that of the previous year, to what extent has the contribution earned by the firm changed over the previous year? [8]

Answer:

(a)

- A. **Calculation of Cash Flows from Operating Activities**  
**For the year ended 31<sup>st</sup> March 2016**

	₹	₹	₹
Net Profit during the year:			
Net Profit for the year 2015-16	70,000		
Less: Net Profit for the year 2014-15	28,000		



## Answer to MTP\_Final\_Syllabus 2012\_December 2016\_Set 2

		42,000	
Add: Non-Operating Expenses			
Depreciation (₹ 15,000 + ₹ 4,000)	19,000		
Loss on Sale of Fixtures	2,000		
Discount on Debenture	1,000		
Proposed Dividend	20,000		
Debenture Interest	4,500		
		46,500	
		88,500	
Less: Non-Operating Income			
Profit on Sale of Plant		1,000	
		87,500	
Add: Decrease in Current Assets or Increase in Current Liabilities:			
Decrease in Current Assets		Nil	
Increase in Current Liabilities:			
Increase in Creditors	14,000		
		14,000	
		1,01,500	
Less: Increase in Current Assets or Decrease in Current Liabilities:			
Increase in Current Assets:			
Increase in Stock	1,000		
Increase in Debtors	14,000		
		15,000	
Net Cash Flows from Operating Activities			86,500

Workings:

### Plant & Machinery A/c

Dr.	₹	Cr.	₹
To Balance b/d	1,20,000	By Bank Account – Sale	3,000
“ Profit & Loss Account – Profit on Sale	1,000	“ Provision for Depreciation	6,000
“ Bank A/c – Purchase	39,000	“ Balance c/d	1,51,000
	1,60,000		1,60,000

### Fixtures & Fittings A/c

Dr.	₹	Cr.	₹
To Balance b/d	24,000	By Bank Account – Sale	1,000
“ Bank Account – Purchase	10,000	“ Profit & Loss Account – Loss on Sale	2,000
		“ Provision for Depreciation	2,000
		“ Balance c/d	29,000
	34,000		34,000

### Provision for Depreciation on Plant & Machinery A/c

Dr.	₹	Cr.	₹
To Plant & Machinery Account	6,000	By Balance b/d	45,000

## Answer to MTP\_Final\_Syllabus 2012\_December 2016\_Set 2

'' Balance c/d	54,000	'' Profit & Loss Account	15,000
	60,000		60,000

### Provision for Depreciation on Fixtures & Fittings A/c

Dr.		Cr.	
	₹		₹
To Furniture & Fixture	2,000	By Balance b/d	13,000
'' Balance c/d	15,000	'' Profit & Loss Account	4,000
	17,000		17,000

### B. Ratios required to analyse financial position:

(i) Ratio of Dividend to Operating Cash Flow (OCF)

$$= \frac{\text{Dividend}}{\text{Operating Cash Flows}} \times 100 = \frac{₹15,000}{₹86,500} \times 100 = 17.34\%$$

(ii) Rate of Depreciation to Cash Flow

$$= \frac{₹19,000}{₹86,500} \times 100 = 21.97\%$$

(iii) Debts Coverage Ratio

$$= \frac{\text{OCF} - \text{Interest} - \text{Dividend}}{\text{Debts}} = \frac{₹86,500 - ₹4,500 - ₹15,000}{₹30,000} = \frac{₹67,000}{₹30,000} = 2.23 \text{ times}$$

(iv) Interest Coverage Ratio

$$= \frac{\text{Operating Cash Flow (OCF)}}{\text{Interest}} = \frac{₹86,500}{₹4,500} = 19.22 \text{ times}$$

(v) Return of Cash to Total Assets

$$= \frac{\text{Operating Cash Flow}}{\text{Total Assets}} \times 100 = \frac{₹86,500}{₹4,21,000} \times 100 = 20.55\%$$

(vi) Dependence of Capital Investment on Internal Fund

$$= \frac{\text{Operating Cash Flow} - \text{Increase in Cash Balance}}{\text{Investing Cash Flow}} = \frac{₹86,500 - ₹30,000}{₹65,000} \times 100 =$$

86.92%

(vii) Return of Cash on Net Worth

$$= \frac{\text{Operating Cash Flow} - \text{Interest}}{\text{Net Worth}} \times 100 = \frac{₹86,500 - ₹4,500}{(₹1,50,000 + ₹35,000 + ₹70,000 - ₹1,000)}$$

$$= \frac{₹82,000}{₹2,54,000} \times 100 = 32.28\%$$

(viii) Dependence of Extra Funds for Capital Expenditure Ratio

$$= \frac{\text{Financing Cash Flow}}{\text{Investing Cash Flow}} \times 100 = \frac{₹8,500}{₹65,000} \times 100 = 13.08\%$$

### C. Comments and Interpretation

Rate of Dividend to Operating Cash Flow is found to be 17.34% which indicates that percentage of cash generated through operational activities which may be considered as good. But if it is found to be 'good', more cash will be required for paying dividend.

Similarly, Rate of Depreciation of Operating Cash Flow ratio is computed as only 21.96% which reveals percentage of cash used to replace fixed assets. It may be considered as normal. But Debt Coverage Ratio is found to be 2.23 times which is very poor and the same is used to redeem the existing debts by the amount of net cash generated from operation.

Interest Coverage Ratio, on the other hand, is found to be 19.22 times. It means ability of the firm to repay interest and also indicates the proportion of interest of 'cash generated from operation'. This ratio is high which invites obstruction to take the benefit of trading on equity. Return of cash to total assets ratio is found to be satisfactory, i.e., percentage of OCF to total assets is 20.55% which is considered as good. Similarly, dependence of capital investments on internal funds ratio is taken as 86.93% which reveals that percentage of OCF to Investing Cash Flow is 86.93% i.e., 86.93%, of capital expenditure has been funded out of cash to be generated from internal funds.

Return of Cash to Net Worth Ratio is found to be 32.28% which may be considered as good, and it indicates that shareholder's fund is efficiently used. Dependence of External Funds to Capital Expenditure Ratio is found to be 13.08% which reveals that external funds are used only a little portion and the rest is used as Working Capital.

From the discussion made so far, it may be concluded that the overall position to be measured in terms of Cash Flow Statement may be considered as sound. But whether such ratios are satisfactory or not can be measured by making proper comparison with the industry average ratio.

$$(b) \text{ Operating Leverage} = \frac{\text{Contribution (C)}}{\text{Contribution} - \text{Fixed cost (F)}}$$

Last year,

$$1.25 = \frac{C}{C - F}$$

$$1.25 (C - F) = C$$

$$1.25C - 1.25F = C$$

$$1.25C - C = 1.25F$$

$$0.25C = 1.25F$$

$$C = 5F$$

Current year,

$$1.10 = \frac{C}{C - 1.25F}$$

$$1.10 (C - 1.25F) = C$$

$$\begin{aligned}
 1.10C - 1.375F &= C \\
 1.10C - C &= 1.375F \\
 0.10C &= 1.375F \\
 C &= 13.75F
 \end{aligned}$$

Increase in contribution in current year over last year:

$$= \frac{\text{Current year contribution} - \text{Last year contribution}}{\text{Last year contribution}}$$

$$= \frac{13.75F - 5F}{5F} \times 100$$

$$\frac{8.75F}{5F} \times 100 = 175\%$$

Therefore, 175% increase in contribution over last year.

**5. (a) Sentek Ltd. furnishes the following cash flow estimate -**

<b>Year 1</b>	<b>₹20.00 Lakhs</b>
<b>Years 2 to 4</b>	<b>Compounded Growth Rate 6.5%</b>
<b>Years 5 to 8</b>	<b>Compounded Growth Rate 9.5%</b>

**Apply 20% Discount Rate and determine the Value of Business.**

**[8]**

**(b) Soft Solution is a small software firm with high growth rate. It has existing assets in which it has capital invested of ₹100 lakh. The other information about Soft solution is as follows**

**The after tax operating Income on assets in place is ₹15 lakh. This return on capital of 15% is expected to be sustained in the future. Cost of capital of Soft Solution is 10%.**

**At the beginning of each of the next five years Soft Solution is expected to make new investments of ₹10 lakh each. These investments are also expected to earn 15% as a return on capital, and the cost of capital is expected to remain 10%.**

**After the year 5, Soft Solution will continue to make Investments, and earnings will grow 5% a year, but the new investments will have a return on capital of only 10%, which is also the cost of capital.**

**All assets and investments are expected to have infinite lives. The assets in place and the investments made in the first five years will make 15% a year in perpetuity, with no growth.**

**Based on the information given estimate the value of Soft Solution, How much of this value comes from the EVA and how much from capital invested?**

**[8]**

**Answer:**

**(a)**

<b>Year</b>	<b>Cash Flows</b>	<b>Discount Factor at 20%</b>	<b>Discounted Cash Flows</b>
1	20,000.00	0.8333	1,666.60
2	2,000.00 + 6.5% = 2,130.00	0.6944	1,479.07
3	2,130.00 + 6.5% = 2,268.45	0.5787	1,312.75
4	2,268.45 + 6.5% = 2,415.90	0.4823	1,165.19
5	2,415.90 + 9.5% = 2,645.41	0.4019	1,063.19
6	2,645.41 + 9.5% = 2,896.72	0.3349	970.11
7	2,896.72 + 9.5% = 3,171.91	0.2791	885.28

## Answer to MTP\_Final\_Syllabus 2012\_December 2016\_Set 2

8	$3,171.91 + 9.5\% = 3,473.24$	0.2326	807.88
<b>Total</b>			<b>9,350.07</b>

Value of Business is based on discounted value of 8 years Cash Flows (CFAT) is ₹ 93.50 Lakhs.

(b) (₹ in lakhs)

Capital invested in assets in place	100
+ EVA from assets in place $[(0.15 - 0.10) / 0.10] \times 100$	50
+ PV of EVA from new investments in year 1 $(0.15 - 0.10) \times 100$	5
+ PV of EVA from new investments in year 2 through 5 $\frac{0.15 - 0.10 \times 100}{1.1 + 1.1^2 + 1.1^3 + 1.1^4}$	15.85
Value of Soft Solution	170.85

The value of existing assets is therefore ₹150 lakhs and the value of future opportunities is ₹20.85 lakhs.

6.(a) Reliable Industries Ltd. (RIL) is considering a takeover of Sunflower Industries Ltd. (SIL). The particulars of two companies are given below

	RIL	SIL
<b>Earnings After Tax (₹)</b>	<b>20,00,000</b>	<b>10,00,000</b>
<b>Equity shares (No.)</b>	<b>10,00,000</b>	<b>10,00,000</b>
<b>EPS (₹)</b>	<b>2</b>	<b>1</b>
<b>P/E Ratio (Times)</b>	<b>10</b>	<b>5</b>

Required:

- i) What is the market value of each company before merger?
- ii) Assuming that the management of RIL estimates that the shareholders of SIL will accept an offer of one share of RIL for four shares of SIL. If there are no synergic effects, what is the market value of the post-merger RIL? What is the new price for share? Are the shareholders of RIL better or worse off than they were before the merger?
- iii) Due to synergic effects, the management of RIL estimates that the earnings will increase by 20%. What is the new post-merger EPS and price per share? Will the shareholders be better off or worse off than before the merger? [8]

(b) Khan Ltd. wishes to acquire Putul Ltd. The shares issued by the two companies are 10,00,000 and 5,00,000 respectively:

(1) Calculate the increase in the total value of Putul Ltd. resulting from the acquisition on the basis of the following conditions:

Current expected growth rate of Putul Ltd.	7%
Expected growth rate under control of Khan Ltd., (without any additional capital investment and without any change in risk of operations)	85
Current Market price per share of Khan Ltd.	₹100
Current Market price per share of Putul Ltd.	₹20
Expected dividend per share of Putul Ltd.	₹0.60

(2) On the basis of aforesaid conditions calculate the gain or loss to shareholders of both the companies. If Khan Ltd. were to offer one of its shares for every four shares of Putul Ltd.

## Answer to MTP\_Final\_Syllabus 2012\_December 2016\_Set 2

- (3) Calculate the gain to the shareholders of both the Companies, if Khan Ltd. pays ₹22 for each share of Putul Ltd., assuming the P/E Ratio of Khan Ltd. does not change after the merger. EPS of Khan Ltd. is ₹8 and that of BCD is ₹2.50. It is assumed that Khan Ltd. invests its cash to earn 10%. [8]

Answer:

(a)

(i) Market value of companies before merger

Particulars	RIL	SIL
EPS (₹)	2	1
P/E ratio	10	5
Market price per share (₹) (EPS × P/E ratio)	20	5
Equity shares (No.)	10,00,000	10,00,000
Total market value (MPS × No. of Eq. Shared)	2,00,00,000	50,00,000

(ii) Post merger effect on RIL

Particulars	₹
Post merger earnings ₹ (20,00,000 + 10,00,000)	30,00,000
Equity shares $\left(10,00,000 + 10,00,000 \times \frac{1}{4}\right)$	12,50,000
As exchange ratio is 1 : 4	
EPS : $(30,00,000 / 12,50,000)$	2.4
P/E ratio	10.00
Market price per share (₹) (EPS × P/E ratio) i.e., $10 \times 2.4$	24
Total Market Value (MPS × No. of EqShares) i.e., $(12,50,000 \times 24)$	3,00,00,000

### Gains from Merger

Post Merger Market value of the firm	= ₹ 3,00,00,000
Less : Pre-Merger market value	
RIL	2,00,00,000
SIL	50,00,000
	= ₹ 2,50,00,000
	= ₹ 50,00,000

### Apportionment of Gains between shareholders

Particulars	RIL	SIL
Post merger market value		
10,00,000 × 24	2,40,00,000	
2,50,000 × 24		60,00,000
Less : Pre merged market value	2,00,00,000	50,00,000
Gain	40,00,000	10,00,000

Thus the shareholders of both the Co. have gained from merger

(iii) Post Merger Earnings

Increase in earning by 20%

New earnings: ₹ 30,00,000 × 120%	= 36,00,000
No. of equity share	= 12,50,000
EPS = ₹ 36,00,000 ÷ 12,50,000	= ₹ 2.88
P/E ratio	= 10
Market price per share = ₹ 2.88 × 10	= ₹ 28.80
Total market value (12,50,000 × 28.80)	= ₹3,60,00,000

**Gains from Merger**

Post Merger Market Value of the firm	₹3,60,00,000
Less: Pre-Merger market value RIL = ₹2,00,00,000 SIL = ₹50,00,000	₹2,50,00,000
	₹ 1,10,00,000

**Apportionment of Gains between Shareholders**

Particulars	RIL	SIL
Post merger market value RIL = (10,00,000 × 28.80) SIL = (2,50,000 × 28.80)	2,88,00,000	72,00,000
Less: Pre merged market value	2,00,00,000	50,00,000
Gain	88,00,000	22,00,000

∴ Hence, shareholders will be better off than before the merger situation.

**(b)**

**(1) For Putul Ltd., before acquisition**

The cost of capital of Putul Ltd. may be calculated by using the following formula:

$$\frac{\text{Dividend}}{\text{Price}} + \text{Growth\%}$$

Cost of Capital i.e.,  $K_e = (0.60/20) + 0.07 = 0.10$

After acquisition g (i.e. growth) becomes 0.08

Therefore, price per share after acquisition =  $0.60 / (0.10 - 0.08) = ₹30$

The increase in value therefore is =  $₹(30 - 20) \times 5,00,000 = ₹50,00,000$

**(2)** To shareholders of Putul Ltd. the immediate gain is  $₹100 - ₹20 \times 4 = ₹20$  per share.

The gain can be higher if price of shares of Khan Ltd. rise following merger which they should undertake.

To Khan Ltd. shareholders	(₹ in lakhs)
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Value of Company now	1,000
Value of Putul Ltd.	150
No. of shares	1,150
Value per share (1,150/11.25)	₹ 102.22

Gain to shareholders of Putul Ltd. = ₹ 102.22 – ₹ (4 × 20) = ₹22.22

Gain to shareholders of Khan Ltd. = ₹ 102.22 – ₹ 100.00 = ₹2.22

**(3) Gain to shareholders of Khan Ltd:-**

Earnings of Putul Ltd. (5,00,000 × 2.50) =	₹ 12,50,000
Less: Loss of Earning in cash (5,00,000 × ₹22 × 0.10)	(₹ 11,00,000)
Net Earning	₹ 1,50,000
Number of Shares	10,00,000
Net increase in Earnings Per Share	0.15

P/E ratio of Khan Ltd. = 100/8 = 12.50

Therefore, Gain per share of shareholders of Khan Ltd. = 0.15 × 12.50 = ₹ 1.88

Gain to the shareholders of Putul Ltd. ₹(22 - 20) = ₹2 per share.

**7.(a) Following are the information of two companies for the year ended 31<sup>st</sup> March, 2016:**

Particulars	Company X	Company Y
Equity Shares of ₹10 each	20,00,000	25,00,000
10% Pref. Share of ₹10 each	15,00,000	10,00,000
Profit after tax	7,50,000	7,50,000

Assume the Market expectation is 18% and 80% of the Profits are distributed.

- i) What is the rate you would pay to the Equity Shares of each company?
  - a) If you are buying a small lot.
  - b) If you are buying controlling interest shares
- ii) If you plan to invest only in preference shares which company's preference shares would you prefer?
- iii) Would your rates be different for buying small lot, if the company 'X' retains 30% and company 'Y' 10% of the profits? [8]

**(b) ABC Ltd Company currently sells for ₹32.50 per share. In an attempt to determine if ABC Ltd is fairly priced, an analyst has assembled the following information.**

- The before-tax required rates of return on ABC Ltd debt, preferred stock, and common stock are 7.0 percent, 6.8 percent, and 11.0 percent, respectively.
- The company's target capital structure is 30 percent debt, 20 percent preferred stock, and 50 percent common stock.
- The market value of the company's debt is ₹145 million and its preferred stock is valued at ₹65 million.
- ABC Ltd's FCFF for the year just ended is ₹28 million. FCFF is expected to grow at a constant rate of 4 percent for the foreseeable future.
- The tax rate is 35 percent.
- ABC Ltd has 8 million outstanding common shares.

What is ABC Ltd's estimated value per share? Is ABC Ltd's stock under priced? [8]



**Answer:**

**(a)**

- (i) Buying a small lot of equity share:** If the purpose of valuation is to provide data base to aid a decision of buying a small (non-controlling) position of the equity of the companies, dividend capitalisation method is most appropriate. Under this method, value of equity share is given by:

$$\frac{\text{Dividend per share}}{\text{Market capitalisation rate}} \times 100$$

$$\text{Company X : } ₹ \frac{2.4}{18} \times 100 = ₹13.33$$

$$\text{Company Y : } ₹ \frac{2.08}{18} \times 100 = ₹11.56$$

- (ii) Buying controlling Interest equity shares:** If the purpose of valuation is to provide data base to aid a decision of buying controlling interest in the company, EPS capitalisation method is most appropriate, Under this method, Value of equity is given by:

$$\frac{\text{Earning per share (EPS)}}{\text{Market capitalisation}} \times 100$$

$$\text{Company X : } ₹ \frac{3}{18} \times 100 = ₹16.67$$

$$\text{Company Y : } ₹ \frac{2.6}{18} \times 100 = ₹14.44$$

- (iii)** Preference Dividend coverage ratios of both companies are to be compared to make such decision.

Preference dividend coverage ratio is given by:

$$\frac{\text{Profit after tax}}{\text{preference dividend}} \times 100$$

$$\text{Company X : } ₹ \frac{7,50,000}{1,50,000} = 5 \text{ times}$$

$$\text{Company Y : } ₹ \frac{7,50,000}{1,00,000} = 7.5 \text{ times}$$

If we are planning to invest only in preference shares, we would prefer shares of Y Company as there is more coverage for preference dividend.

- (iv)** Yes, the rates will be different for buying a small lot of equity shares, if the company 'X' retains 30% and company 'Y' 10% of profits.

The new rates will be calculated as follows:

$$\text{Company X : } ₹ (2.1 / 18) \times 100 = ₹11.67$$

$$\text{Company Y : } ₹ (2.34 / 18) \times 100 = ₹13.00$$

**Working Notes:**

1. Computation of earnings per share and dividend per share (companies distribute 80% of profits)

	<b>Company X</b>	<b>Company Y</b>
Profit after tax	7,50,000	7,50,000
Less: Preference dividend	1,50,000	1,00,000
Earnings available to equity shareholders (A)	6,00,000	6,50,000

## Answer to MTP\_Final\_Syllabus 2012\_December 2016\_Set 2

Number of Equity Shares (B)	2,00,000	2,50,000
Earnings per share (A/B)	3.0	2.60
Retained earnings 20%	1,20,000	1,30,000
Dividend declared 80% (C)	4,80,000	5,20,000
Dividend per share (C /B)	2.40	2.08

### 2. Computation of dividend per share (Company X retains 30% and Company Y 10% of profits)

Earnings available for equity shareholders	6,00,000	6,50,000
Number of equity shares	2,00,000	2,50,000
Retained Earnings	1,80,000	65,000
Dividend Distribution	4,20,000	5,85,000
Dividend per share	2.10	2.34

### (b) The weighted-average cost of capital for XYZ Ltd Company is:

$$WACC = 0.30(7.0\%) (1 - 0.35) + 0.20(6.8\%) + 0.50(11.0\%) = 8.225\%$$

#### The firm value is:

$$\text{Firm value} = FCFF_0 (1 + g) / (WACC - g)$$

$$\text{Firm value} = 28(1.04) / (0.08225 - 0.04) = 29.12/0.04225 = ₹689.23 \text{ million}$$

The value of equity is the firm value minus the value of debt minus the value of preferred stock: Equity = 689.23 - 145 - 65 = ₹479.23 million. Dividing this by the number of shares gives the estimated value per share of ₹479.23 million/8 million shares = ₹59.90.

The estimated value for the stock is greater than the market price of ₹32.50, so the stock appears to be undervalued.

### 8. Write short note on any four of the following

[16]

- Who are the participants in the Merger and Acquisition Process?
- Discuss the major aspects, assumptions and decision rules of the discounted cash flow model.
- Du Pont Analysis
- Efficient Market Hypothesis
- Write a short note on Market Related Off-Balance Sheet Items.

#### Answer:

##### a) Participants in the Merger and Acquisition Process

There are many professionals who play an essential role in the successful completion of a deal.

**(i) Investment Bankers:** Investment bankers are always at the forefront of the acquisition process. They offer strategic and tactical advice, screen potential buyers and sellers, make initial contact with a seller and buyer and provide negotiation support, valuation and deal structuring.

**(ii) Lawyers:** The legal framework surrounding a typical transaction has become so complicated that no one individual can have sufficient expertise to address all the issues. So, legal teams consist of more than a dozen lawyers each of whom represents a specialised aspect of the law.

**(iii) Accountants:** Accountants perform the role of auditors by reviewing the target's financial statements and operations through a series of interviews with senior and middle level managers.

- (iv) Valuation Experts: They build models that incorporate various assumptions such as costs or revenues growth rate.
- (v) **Institutional Investors:** Institutional investors can announce how they intend to vote on a matter and advertise their position in order to seek support and have more influence.
- (vi) **Arbitrageurs:** Arbitrageurs provide market liquidity during transactions. With the number of merger arbitrageurs increasing, they are becoming more proactive in trying to anticipate takeover situations. Their objective is to identify the target before the potential acquirer is required by law to announce its intentions

### b) Major aspects of DCF

1. It weights the time value of money explicitly while evaluating the costs and benefit of a project
2. Focus is on relevant cash inflows and outflows and outflows during the entire life of the project as against income as computed in the accrual accounting sense.

Two main Variations of DCF

1. NPV
2. IRR

#### Assumptions of DCF Model

1. Assumed a world of certainty
2. The original amount of investment can be looked upon as being either borrowed or loaned at some specified rate of return.

#### Decision rules of DCF Model

1. If NPV is greater than 0, accept the project. If NPV is <0, reject. If NPV = 0, the project may be accepted specially when non-financial considerations are strong enough.
2. Rank the projects according to their NPVs and select the project at or above the cut off rate of return
3. Select the project if IRR > Cost of capital.

- c) Du Pont analysis is a method of performance measurement that was started by DuPont Corporation. The Du Pont analysis breaks down return on equity (that is, the returns that investors receive from the firm) into three distinct elements. This analysis enables the analyst to understand the source of superior (or inferior) return by comparison with companies in similar industries (or between industries). The Du Pont identity is less useful for industries, such as investment banking, in which the underlying elements are not meaningful. The company's return on assets, ROA (=net income/ assets) can be expressed as:

$$\text{ROA} = (\text{Net Income/Revenue}) \times (\text{Revenue/Assets}) = \text{Profit Margin} \times \text{Asset Turnover}$$

And the company's return on equity, ROE (=net income/equity), can be expressed as:

$$\text{ROE} = (\text{Net Income/Revenue}) \times (\text{Revenue/Assets}) \times (\text{Assets/Equity}) = \text{ROA} \times \text{Equity Multiplier}$$

Both the company's profitability (as measured in terms of profit margin) and efficiency (as measured in terms of asset turnover) determine its ROA. This ROA, along with the company's financial leverage (as measured in terms of its equity multiplier), contributes to its ROE. The changes in the company's ROE are to be noted and explained through its profit margin, asset turnover, and equity multiplier over time. The objective is to identify

the company's strong area that can be capitalized upon and/or its weak area that must be improved upon.

### d) Efficient Market Hypothesis

The purpose of any stock market of the world is to bring together those people who have funds to invest with those who need funds to undertake investments. Entities which seek to raise equity are asking investor for a permanent investment. Investors may not be incorrect to invest unless they are convinced that they would be able to realize their investments at a fair price at any time in the future.

For these to happen stock market must price shares efficiently. Efficient pricing means incorporating into the share price, determined and or decided for trading, impacts of all factors that could possibly effect. In an efficient market, investors can buy and sell share at a fair price and entities can raise funds at a cost that reflects the risk of the investment they are seeking to undertake.

A considerable body of financial theory has been building a hypothesis that in an efficient market, prices fully and instantaneously reflect all available information. The efficient market hypothesis is, therefore, concerned with information and pricing efficiency.

Three levels or forms of efficiency have been defined. These are depended on the amount of information available to the participants in the market.

**(1) Weak form:** Weak form efficiency implies that current share price reflects all the information which could be gleaned from a study of past share prices. If this holds, then no investor can earn above average return by developing trading rules based on historical process or return information. This form of the hypothesis can be related to the activities of chartists, analysts whose belief in share prices can be charted and a pattern identified that can be used to predict future prices.

**(2) Semi-strong form:** Semi-strong form efficiency implies that the current share price reflects all other published information. If they are sold, then no investors can be expected to earn above average return from trading rules based on any publicly available information. This form of the hypothesis can be related to fundamental analysis, in which estimates of future prices are based on the analysis all known information.

**(3) Strong form:** Strong form efficiency implies that the current share prices incorporates all information, including unpublished information. In other words, the proponents of EMH is of the firm belief that market discounts the effect of any information either in positive or negative direction immediately upon the same being known to any or more of the market participants. Thus the value of equity price gets reset through the next trading transaction.

### e) Market Related Off-Balance Sheet Items:

(A) NBFCs should take into account all market related off-balance sheet items (OTC derivatives and Securities Financing Transactions such as repo / reverse repo/ CBLO etc.) while calculating the risk weighted off-balance sheet credit exposures.

(B) The credit risk on market related off-balance sheet items is the cost to an NBFC of replacing the cash flow specified by the contract in the event of counterparty default. This would depend, among other things, upon the maturity of the contract and on the volatility of rates underlying the type of instrument.

(C) Market related off-balance sheet items would include:

- I. interest rate contracts - including single currency interest rate swaps, basis swaps, forward rate agreements, and interest rate futures;

- II. foreign exchange contracts, including contracts involving gold, - includes cross currency swaps (including cross currency interest rate swaps), forward foreign exchange contracts, currency futures, currency options;
  - III. Credit Default Swaps; and
  - IV. any other market related contracts specifically allowed by the Reserve Bank which give rise to credit risk.
- (D) Exemption from capital requirements is permitted for -
- I. foreign exchange (except gold) contracts which have an original maturity of 14 calendar days or less; and
  - II. instruments traded on futures and options exchanges which are subject to daily mark-to-market and margin payments.