

## Answer to MTP\_Final\_Syllabus 2012\_Dec'2014\_Set 2

### Paper – 20: Financial Analysis & Business Valuation

Time Allowed: 3 hours

Full Marks: 100

This paper contains 4 questions, representing two separate sections as prescribed under syllabus 2012. All questions are compulsory, subject to the specific guidance/ instructions stated against every question. All workings, wherever necessary, must form a part of your answer. Assumptions, if any, should be clearly stated.

**Question No. 1.** (Answer all questions. Each question carries 10 marks)

1(a). Rainbow Company sells plumbing fixtures on terms of 2/10, net 30. Its financial statements (extracts) over the last 3 years follow:

(Amount in ₹)

	2011-12	2012-13	2013-14
<b>Current Assets:</b>			
Cash	30,000	20,000	15,000
Accounts receivable	2,00,000	2,60,000	2,80,000
Inventory	4,00,000	4,80,000	6,00,000
<b>Non-current Assets:</b>			
Net fixed assets	8,00,000	8,00,000	8,00,000
	<b>14,30,000</b>	<b>15,60,000</b>	<b>16,95,000</b>
<b>Current Liabilities:</b>			
Accounts payable	2,30,000	3,00,000	3,80,000
Accruals	2,00,000	2,10,000	2,25,000
Bank loan, short term	1,00,000	1,00,000	1,40,000
<b>Non-current Liabilities:</b>			
Long-term debt	3,00,000	3,00,000	3,00,000
<b>Shareholders' Fund:</b>			
Equity Share Capital	1,00,000	1,00,000	1,00,000
Retained earnings	5,00,000	5,50,000	5,50,000
	<b>14,30,000</b>	<b>15,60,000</b>	<b>16,95,000</b>
<b>Sales</b>	<b>40,00,000</b>	<b>43,00,000</b>	<b>38,00,000</b>
<b>Cost of goods sold</b>	<b>32,00,000</b>	<b>36,00,000</b>	<b>33,00,000</b>
<b>Net profit</b>	<b>3,00,000</b>	<b>2,00,000</b>	<b>1,00,000</b>

From the above financial statement calculate the relevant ratios and analyse the company's financial performance over the last 3 years. [5+5]

**Answer:**

	2011-12	2012-13	2013-14
Current ratio	$\frac{₹ 6,30,000}{₹ 5,30,000}$	$\frac{₹ 7,60,000}{₹ 6,10,000}$	$\frac{₹ 8,95,000}{₹ 7,45,000}$

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	= 1.19	= 1.25	= 1.20
Acid-test ratio	$\frac{₹ 2,30,000}{₹ 5,30,000}$ = 0.43	$\frac{₹ 2,80,000}{₹ 6,10,000}$ = 0.46	$\frac{₹ 2,95,000}{₹ 7,45,000}$ = 0.40
Average collection period	$\left(\frac{₹ 2,00,000}{₹ 40,00,000} \times 365\right)$ = 18	$\left(\frac{₹ 2,60,000}{₹ 43,00,000} \times 365\right)$ = 22	$\left(\frac{₹ 2,80,000}{₹ 38,00,000} \times 365\right)$ = 27
Inventory turnover	—	$\frac{₹ 36,00,000}{₹ 4,40,000}$ = 8.2	$\frac{₹ 33,00,000}{₹ 5,40,000}$ = 6.1
Total debt to net worth	$\frac{₹ 8,30,000}{₹ 6,00,000}$ = 1.38	$\frac{₹ 9,10,000}{₹ 6,50,000}$ = 1.40	$\frac{₹ 10,45,000}{₹ 6,50,000}$ = 1.61
Long-term debt to total capitalization	$\frac{₹ 3,00,000}{₹ 9,00,000}$ = 0.33	$\frac{₹ 3,00,000}{₹ 9,50,000}$ = 0.32	$\frac{₹ 3,00,000}{₹ 9,50,000}$ = 0.32
Gross profit margin	$\frac{₹ 8,00,000}{₹ 40,00,000}$ = 0.200	$\frac{₹ 7,00,000}{₹ 43,00,000}$ = 0.163	$\frac{₹ 5,00,000}{₹ 38,00,000}$ = 0.132
Net profit margin	$\frac{₹ 3,00,000}{₹ 40,00,000}$ = 0.075	$\frac{₹ 2,00,000}{₹ 43,00,000}$ = 0.047	$\frac{₹ 1,00,000}{₹ 38,00,000}$ = 0.026
Asset turnover	$\frac{₹ 40,00,000}{₹ 14,30,000}$ = 2.80	$\frac{₹ 43,00,000}{₹ 15,60,000}$ = 2.76	$\frac{₹ 38,00,000}{₹ 16,95,000}$ = 2.24
Return on assets	$\frac{₹ 3,00,000}{₹ 14,30,000}$ = 0.21	$\frac{₹ 2,00,000}{₹ 15,60,000}$ = 0.13	$\frac{₹ 1,00,000}{₹ 16,95,000}$ = 0.06

Note: The inventory turnover ratio for 2011-12 cannot be calculated due to the non-availability of information about the closing inventory of 2010-11.

The company's profitability has declined steadily over the period. As only ₹ 50,000 are added to retained earnings, the company must be paying substantial dividends. Receivables are growing slower, although the average collection period is still very reasonable relative to the terms given. Inventory turnover is slowing as well, indicating a relative buildup in inventories. The increase in receivables and inventories, coupled with the fact that net worth has increased very little, has resulted in the total debt-to-worth ratio increasing to what would have to be regarded on an absolute basis as a high level.

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The current and acid-test ratios have fluctuated, but the current ratio is not particularly inspiring. The lack of deterioration in these ratios is clouded by the relative buildup in both receivables and inventories, evidencing a deterioration in the liquidity of these two assets. Both the gross profit and net profit margins have declined substantially. The relationship between the two suggests that the company has reduced relative expenses in 2013-14 in particular. The buildup in inventories and receivables has resulted in a decline in the asset turnover ratio, and this, coupled with the decline in profitability, has resulted in a sharp decrease in the return on assets ratio.

- 1(b). Calculate operating leverage and financial leverage under situations A, B and C and financial Plans I, II, and III respectively from the following information relating to the operating and capital structure of Neelam Co. Also find out the combinations of operating and financial leverages which give the highest value and the least value. How are these calculations useful to the financial manager in a company?

Installed Capacity	1,200 units
Actual Production and Sales	800 units
Selling Price per unit	₹ 15
Variable Cost per unit	₹ 10
Fixed Cost: Situation A	₹ 1,500
Situation B	₹ 2,000
Situation C	₹ 3,000

Capital structure :	Financial Plan		
	I	II	III
Equity	₹ 5,000	₹ 7,500	₹ 2,500
Debt	₹ 5,000	₹ 2,500	₹ 7,500
Cost of debt			12%

[6+1+3]

**Answer:**

### Computation of Operating Leverage

Particulars	Situation A (₹)	Situation B (₹)	Situation C (₹)
Sales (S)	12,000	12,000	12,000
Variable cost (VC)	8,000	8,000	8,000
Contribution (C)	4,000	4,000	4,000
Fixed cost (FC)	1,500	2,000	3,000
Operating profit (OP)	2,500	2,000	1,000
Operating Leverage $\frac{C}{OP}$	1.6	2	4

### Computation of Financial Leverage

	Fin. Plan I	Fin. Plan II	Fin. Plan III
	₹	₹	₹
Situation A :			
Operating profit	2,500	2,500	2,500
Interest	600	300	900

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PBT	1,900	2,200	1,600
Financial Leverage	1.32	1.14	1.56
Situation B:			
Operating Profit	2,000	2,000	2,000
Interest	600	300	900
PBT	1,400	1,700	1,100
Financial Leverage	1.43	1.18	1.82
Situation C :			
Operating Profit	1,000	1,000	1,000
Interest	600	300	900
PBT	400	700	100
Financial Leverage	2.5	1.43	10

Combination of Operating Leverage and Financial Leverage:

Highest Value: Situation C and Financial Plan III under Situation C =  $4 \times 10 = 40$

Least Value: Situation A and Financial Plan II under Situation A =  $1.6 \times 1.14 = 1.82$

The operating leverage and the financial leverage computed as above have a great utility for the finance manager. Since they disclose the extent of both operating, and financial risk assumed by a company under a particular situation, both the leverage should neither be too high nor too low. A high degree of this leverage will indicate that the company is working under a very high risk situation while a too low leverage will indicate that the company is observing extra conservatism at the cost of equity shareholders. A financial manager would try to keep the financial leverage high and the operating leverage low to maximise the earnings per share. In case, the financial leverage is high, he should try to bring down the financial leverage gradually. Analysis of leverages is thus very crucial in financial decision making.

**Question No. 2** (Answer **any two** questions. Each question carries **15 marks**)

**2(a). Peacock Company had the following balance sheets (extracts) and income statements (extracts) over the last 3 years (₹ in thousands):**

	2011-12	2012-13	2013-14
<b>Current Assets:</b>			
Cash	561	397	202
Receivables	1,963	2,860	4,051
Inventories	2,031	2,613	3,287
<b>Total current assets</b>	<b>4,555</b>	<b>5,870</b>	<b>7,540</b>
<b>Non- current Assets:</b>			
<b>Net fixed assets</b>	<b>2,581</b>	<b>4,430</b>	<b>4,364</b>
<b>Total assets</b>	<b>7,136</b>	<b>10,300</b>	<b>11,904</b>
<b>Current Liabilities:</b>			
<b>Payables</b>	<b>1,862</b>	<b>2,944</b>	<b>3,613</b>

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<b>Accruals</b>	<b>301</b>	<b>516</b>	<b>587</b>
<b>Bank loan</b>	<b>250</b>	<b>900</b>	<b>1,050</b>
<b>Total current liabilities</b>	<b>2,413</b>	<b>4,360</b>	<b>5,250</b>
<b>Non- current Liabilities:</b>			
<b>Long-term debt</b>	<b>500</b>	<b>1,000</b>	<b>950</b>
<b>Shareholders' Fund:</b>			
<b>Shareholders' equity</b>	<b>4,223</b>	<b>4,940</b>	<b>5,704</b>
<b>Total liabilities and equity</b>	<b>7,136</b>	<b>10,300</b>	<b>11,904</b>
<b>Sales</b>	<b>11,863</b>	<b>14,952</b>	<b>16,349</b>
<b>Cost of goods sold</b>	<b>8,537</b>	<b>11,124</b>	<b>12,016</b>
<b>Selling, general, and administrative expenses</b>	<b>2,349</b>	<b>2,659</b>	<b>2,993</b>
<b>Profit before taxes</b>	<b>977</b>	<b>1,169</b>	<b>1,340</b>
<b>Taxes</b>	<b>390</b>	<b>452</b>	<b>576</b>
<b>Profit after taxes</b>	<b>587</b>	<b>717</b>	<b>764</b>

Make a common size and index analyses and evaluate trends in the company's financial condition and performance. [(4+4)+7]

**Answer:**

### Common Size and Index Analysis

	2011-12	2012-13	2013-14
	<b>Common Size Analysis</b>		
	(%)	(%)	(%)
<b>Current Assets:</b>			
Cash	7.9	3.8	1.7
Receivables	27.5	27.8	34.0
Inventories	28.4	25.4	27.6
<b>Total Current assets</b>	<b>63.8</b>	<b>57.0</b>	<b>63.3</b>
<b>Non- current Assets:</b>			
Net fixed assets	36.2	43.0	36.7
<b>Total assets</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
<b>Current Liabilities:</b>			
Payables	26.1	28.6	30.4
Accruals	4.2	5.0	4.9
Bank loan	3.5	8.7	8.8
<b>Total Current liabilities</b>	<b>33.8</b>	<b>42.3</b>	<b>44.1</b>
<b>Non- current Liabilities:</b>			
Long-term debt	7.0	9.7	8.0
<b>Shareholders' Fund:</b>			
Shareholders' equity	59.2	48.0	47.9
<b>Total liabilities and equity</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
<b>Sales</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

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Cost of goods sold	72.0	74.4	73.5
Selling, general, and administrative expenses	19.8	17.8	18.3
Profit before taxes	8.2	7.8	8.2
Taxes	3.3	3.0	3.5
Profit after taxes	4.9	4.8	4.7
	<b>Index Analysis</b>		
Current Assets:			
Cash	100.0	70.8	36.0
Receivables	100.0	145.7	206.4
Inventories	100.0	128.7	161.8
Total Current assets	100.0	128.9	165.5
Non- current Assets:			
Net fixed assets	100.0	171.6	169.1
Total assets	100.0	144.3	166.8
Current Liabilities:			
Payables	100.0	158.1	194.0
Accruals	100.0	171.4	195.0
Bank loan	100.0	360.0	420.0
Total Current liabilities	100.0	180.7	217.6
Non- current Liabilities:			
Long-term debt	100.0	200.0	190.0
Shareholders' Fund:			
Shareholders' equity	100.0	117.0	135.1
Total liabilities and equity	100.0	144.3	166.8
Sales	100.0	126.0	137.8
Cost of goods sold	100.0	130.3	140.8
Selling, general, and administrative expenses	100.0	113.2	127.4
Profit before taxes	100.0	119.7	137.2
Taxes	100.0	115.9	147.7
Profit after taxes	100.0	122.1	130.2

### Evaluation of common size analysis:

The common size analysis shows that receivables are growing faster than total assets and current assets, while cash declined dramatically as a percentage of both. Net fixed assets surged in 2012-13, but then fell back as a percentage of the total to almost the 2011-12 percentages. The absolute amounts suggest that the company spent less than its depreciation on fixed assets in 2013-14. With respect to financing, shareholders' equity has not kept up, so the company has had to use somewhat more debt percentagewise. It appears to be leaning more on the trade as payables increased percentagewise. Bank loans and long-term debt also increased sharply in 2012-13, no doubt to finance the bulge in net fixed assets. The bank loan remained about the

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same in 2013-14 as a percentage of total liabilities and equity, while long-term debt declined as a percentage. Profit after taxes slipped slightly as a percentage of sales over the 3 years. In 2012-12, this decline was a result of the cost of goods sold, as expenses and taxes declined as a percentage of sales. In 2013-14, cost of goods sold declined as a percentage of sales, but this was more than offset by increases in expenses and taxes as percentages of sales.

### Evaluation of Index analysis:

Index analysis shows much the same picture. Cash declined faster than total assets and current assets, and receivables increased faster than these two benchmarks. Inventories fluctuated but were about the same percentagewise to total assets in 2013-14 as they were in 2011-12. Net fixed assets increased more sharply than total assets in 2012-13 and then fell back into line in 2013-14. The sharp increase in bank loans in 2012-13 and 2013-14 and the sharp increase in long-term debt in 2012-13 are evident. Equity increased less than total assets, so debt increased more percentagewise. With respect to profitability, net profits increased less than sales, for the reasons indicated earlier.

**2(b)(i). Comment on the financial state/position of a company if it has following cash flow patterns: (each pattern is independent of the other):**

Cash Flow Patterns	Net Cash flows from Operating Activities	Net Cash flows from Investing Activities	Net Cash flows from Financing Activities
(i) Pattern 1	(-)	(-)	(-)
(ii) Pattern 2	(+)	(-)	(-)
(iii) Pattern 3	(-)	(+)	(-)
(iv) Pattern 4	(-)	(+)	(+)
(v) Pattern 5	(+)	(-)	(+)

[5]

**Answer:**

**Statement showing comments on the financial state/position of a company if it has following cash flow patterns: (each pattern is independent of the other)**

Cash Flow Patterns	Net Cash flows From Operating Activities	Net Cash Flows from Investing Activities	Net Cash Flows from Financing Activities	Comments
(i) Pattern - 1	(-)	(-)	(-)	It is highly unusual pattern. The company may be using existing stock of cash to meet the requirement of operations; investment and at the same time repaying loans, and making payment for interest. It is highly unstable pattern for a company.
(ii) Pattern - 2	(+)	(-)	(-)	<ul style="list-style-type: none"> <li>• The company is generating cash from operations to meet its investment requirement and pay interest, debt and dividend to shareholder₹</li> <li>• It represents strong cash flow pattern from</li> </ul>

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				operations. • The company may be growing moderately, or it may be successful company, or mature company.
(iii) Pattern - 3	(-)	(+)	(-)	This pattern is showing that the company is selling its long-term assets and investments and raising cash to repay borrowings and to meet its requirement of operating activities. The company may be in a financial distress or may be moving towards sickness.
(iv) Pattern - 4	(-)	(+)	(+)	It is also a highly unusual pattern. As per this pattern, a company is meeting the requirement of operating activities by raising cash by borrowing or by issuing shares and also by selling its assets and investments. Highly unsustainable pattern; something inherently wrong with the business model.
(v) Pattern - 5	(+)	(-)	(+)	The company is generating cash from operations and raising cash by borrowing money or by issuing shares to meet its investment requirement. The company may be in late part of growth stage.

2(b)(ii). Following are the data on a capital Project A being evaluated by the management of Mehta Ltd.

<b>Project A</b>	
<b>Annual cost saving</b>	<b>₹ 40,000</b>
<b>Useful life</b>	<b>4 years</b>
<b>IRR</b>	<b>14%</b>
<b>Profitability Index (PI)</b>	<b>1.0428</b>
<b>NPV</b>	<b>?</b>
<b>Cost of capital</b>	<b>?</b>
<b>Cost of project</b>	<b>?</b>
<b>Pay-back</b>	<b>?</b>
<b>Salvage value</b>	<b>0</b>

Find the missing values considering the following table of discount factor only:

Discount factor	15%	14%	13%	12%
1 year	0.869	0.877	0.885	0.893
2 years	0.756	0.769	0.783	0.797
3 years	0.658	0.675	0.693	0.712



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<b>4 years</b>	<b>0.572</b>	<b>0.592</b>	<b>0.613</b>	<b>0.636</b>
	<b>2.855</b>	<b>2.913</b>	<b>2.974</b>	<b>3.038</b>

[5]

**Answer:**

### **Computation of Cost of Project A**

At 14% IRR, the sum total of cash inflows is equivalent of Cost of the Project or Initial Cost Outlay.

The following information is given:

Annual Cost saving	₹ 40,000
Useful Life	4 years
IRR	14%

On the basis of discount factor table @ 14%, cumulative present value of cash inflows for 4 years is 2.913.

Thus, total of cash inflows for 4 years for Project M: ₹ 40,000 x 2.913

$$= ₹ 1,16,520$$

Hence, Cost of the Project

$$= ₹ 1,16,520$$

### **Computation of Pay-back Period of the Project A**

$$\begin{aligned} \text{Payback Period} &= \frac{\text{Cost of the Project}}{\text{Annual Cost Saving}} \\ &= \frac{₹1,16,520}{40,000} \\ &= 2.913 \text{ or 2 years 11 months.} \end{aligned}$$

### **Computation of Cost of Capital**

At profitability Index (PI) of 1, cash inflows and outflows are equal. In the present case, (PI) is 1.0428.

$$\begin{aligned} \text{Profitability Index PI} &= \frac{\text{Present Value of Cash Inflows}}{\text{Cost of Project}} \\ &= \frac{\text{Present Value of Cash Inflows (x)}}{₹1,16,520} \end{aligned}$$

$$\text{Or, x} = 1.0428 \times ₹ 1,16,520 = ₹ 1,21,507$$

Hence, present value of Cash Inflows = ₹ 1,21,507

Since Annual Cost Saving is ₹ 40,000. Hence, Cumulative Discount Factor for 4 years

$$\begin{aligned} &= \frac{1,21,507}{40,000} \\ &= 3.038 \end{aligned}$$

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In case one looks at the discount factor table at discount rate of 12%, the Cumulative Discount Factor for 4 years is 3.038.

Hence, the cost of capital is 12%.

Computation of Net Present Value of the Project

NPV = Total Present Values of Cash Inflows - Cost of the Project

= ₹ 1,21,507 - ₹ 1,16,520

= ₹ 4,987.

**2(b)(iii). What are the possible causes of industrial sickness in relation to production management, labour management, marketing management and financial management and administration management? [5]**

**Answer:**

Sickness is thrust upon some industrial units due to change in Government policy, over-spending on essentials, absence of control on borrowings, dishonest practices on the part of the management etc. The causes of sickness may vary from unit to unit. But the common causes may be grouped as under:

- A. Production management:** - Inappropriate product mix, poor quality control, high cost of production, poor inventory management, inadequate maintenance and replacement, lack of timely and adequate modernisation, etc., high wastage, poor capacity utilisation etc.
- B. Labour management:** - Excessively high wage structure, inefficient handling of labour problems, excessive manpower, poor labour productivity, poor labour relations, lack of trained/skilled component personnel etc.
- C. Marketing management:** - Dependence on a single customer or a limited number of customers/single or a limited number of products, poor sales realisation, defective pricing policy, booking of large orders at fixed prices in an inflationary market, weak market organisation, lack of market feedback and market research, lack of knowledge of marketing techniques, unscrupulous sales/purchase practices etc.
- D. Financial management:** - Poor resources management and financial planning, faulty costing, liberal dividend policy, general financial indiscipline and application of funds for unauthorized purposes, deficiency of funds, over-trading, unfavourable gearing or keeping adverse debt-equity ratio, inadequate working capital, absence of cost consciousness, lack of effective collection machinery etc.
- E. Administration management:** - Over-centralisation, lack of professionalism, lack of feedback to management (Management Information System), lack of controls, lack of timely diversification, excessive expenditure on research and development, divided loyalties (where the same management has interest in more than one unit), incompetent management, dishonest management etc.

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2(c)(i). The balance sheets (extracts) of XYZ Ltd. for the past two years are as under:

Equities & Liabilities	31-03-13	31-03-14	Assets	31-03-13	31-03-14
<b>Shareholders' Fund:</b>			<b>Non-current Assets:</b>		
Equity shares	51,000	51,000	Gross fixed assets	61,000	73,000
General reserve	10,000	14,000	Less: accumulated depreciation	16,000	21,000
Surplus	4,000	4,800	Net fixed assets	45,000	52,000
<b>Non-current Liabilities:</b>			Long term investments	30,000	32,000
Public deposits	8,000	2,000	<b>Current Assets:</b>		
Debentures	15,000	17,000	Sundry debtors	16,500	12,000
Term loan	20,000	18,000	Inventories	32,000	34,000
<b>Current Liabilities:</b>			Miscellaneous expenses	9,500	10,000
Trade creditors	8,000	10,800			
Short term bank borrowing	15,000	20,000			
Provision for tax	2,000	2,400			
<b>Total</b>	<b>1,33,000</b>	<b>1,40,000</b>		<b>1,33,000</b>	<b>1,40,000</b>

- 1) One of the important ratios considered by a bank for lending purposes is the ratio of the total outside liabilities to tangible net worth. What is this ratio for XYZ Ltd. for the year ended 31-03-14?
- 2) List out the sources and uses of funds for the year ended 31-03-14 classifying them under the heads long-term and short-term.
- 3) Comment on the uses of funds based on the above. [2+4+1]

**Answer:**

- 1) Total outside liability (for year ended on 31-03-14) = Public deposits + Debentures + Term loan + Trade creditors + Short term bank borrowing + Provision for tax.  
 = ₹ (2,000 + 17,000 + 18,000 + 10,800 + 20,000 + 2,400) = ₹ 70,200  
 Tangible net worth (for year ended on 31-03-14) = Equity shares + General reserve + Surplus - Miscellaneous expenses  
 = ₹ (51,000 + 14,000 + 4,800 - 10,000) = ₹ 59,800  
 The required ratio (total outside liabilities to tangible net worth) for the year ended on 31-03-14 is: ₹ 70,200/₹ 59,800 = 1.17

2)

Long-term sources	₹
Net profit (increase in reserve & surplus) (₹ 4,000 + ₹ 800)	4,800
Depreciation for the year	5,000
Increase in debentures	2,000
<b>Total of long-term sources</b>	<b>11,800</b>

  

Long-term uses	₹
Purchase of fixed assets	12,000
Additional investments	2,000
Repayment of public deposits	6,000
Repayment of term loan	2,000

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Addition to miscellaneous Expenses	500
<b>Total of long-term uses</b>	<b>22,500</b>

Short-term sources	₹
Increase in trade creditors	2,800
Increase in bank borrowing	5,000
Increase in provision for tax	400
Decrease in sundry debtors	4,500
<b>Total of short-term sources</b>	<b>12,700</b>

Short-term uses	₹
Increase in inventories	2,000
<b>Total of short-term uses</b>	<b>2,000</b>

Long-term deficit = ₹ (22,500 – 11,800) = ₹ 10,700

Short-term surplus = ₹ (12,700 – 2,000) = ₹ 10,700

- 3) XYZ Ltd. has diverted short-term funds amounting to ₹ 10,700 raised mainly by resorting to additional market credit and increased short-term bank borrowing, for long term uses like purchase of fixed assets and repayment of public deposits which is not prudent.

### 2(c)(ii). Gyan Co. Ltd.

The summarized Balance Sheets of the Company for the past two years are as under:

	(₹ in lakh)			
	As at 31.03.2014		As at 31.03.2013	
<b>Share Capital and Liabilities:</b>				
Share Capital		75.00		50.00
Cash Credit Loan from Bank @ 16.5% Int.		80.00		100.00
Working Capital Term Loan from Bank @ 16.5% Int.		20.00		---
Unsecured Inter-corporate Loan @ 18% Interest		60.00		---
		<b>235.00</b>		<b>150.00</b>
<b>Assets:</b>				
Fixed Assets Less Depreciation		35.00		37.00
<b>Current Assets</b>				
Inventories including WIP	100.00		70.00	
Debtors	60.00		30.00	
Cash/Bank	10.00		10.00	
	<b>170.00</b>		<b>110.00</b>	
<b>Less: Current Liabilities</b>				
Creditors	120.00		140.00	
Advances etc.	60.00		60.00	
	<b>180.00</b>	<b>(10.00)</b>	<b>200.00</b>	<b>(90.00)</b>
<b>Profit and Loss A/c</b>		<b>210.00</b>		<b>203.00</b>
		<b>235.00</b>		<b>150.00</b>

The following additional information is available:

## Answer to MTP\_Final\_Syllabus 2012\_Dec'2014\_Set 2

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(1) Sales and Profitability for the past two years are as under:

	(₹ in Lakh)	
	Sales	Profit/(Loss)
2012-13	100	(150)
2013-14	350	(7)

(2) By introducing some new products, for which no additional capital expenditure is involved, but Working Capital will be necessary. The company is expecting a 20% growth in sales volume every year and 10% profit (before interest) on sales.

You are required to write a comparative study of the financial statement on the basis of working capital, sales and loss. What are the potentialities the company has in making profits in future if only inter-corporate debt is considered? [3+5]

**Answer:**

**Comparative study of the financial statement:**

- A sum of ₹ 20 lakh has been converted into a working capital term loan from cash credit loan. This shows that the company has already exhausted its limits from the bank and it can expect little assistance from bank by way of working capital.
- There has been a substantial increase in sales in 2013-14 as compared to 2012-13. The increase is 250%.
- The amount of loss has also come down considerably. The loss is only ₹ 7 lakh in 2013-14 as compared to a loss of ₹ 150 lakh in 2012-13. There is almost 100% decline in loss.

**Analysis of the potentialities the company has in making profits in future:**

The above analysis shows that the company has immense potentialities of making profits in future. As a matter of fact if interest of ₹ 10.80 lakh on inter-corporate loan is excluded, the company has made a profit of ₹ 3.80 lakh. The interest rate of 18% for inter-corporate loan seems to be very high as compared to 16.5% charged by the Bank.

The company has achieved a growth in sales of ₹ 250 lakh by arranging an inter-corporate loan of ₹ 60 lakh. The company expects a growth in sales of 20% every year. On this basis it can be estimated that the company will require an additional funds of ₹ 12 lakh (i.e., 20% of ₹ 60 lakh) every year.

The sister companies may be approached by the company to grant a further loan of ₹ 12 lakh. They may be requested to charge a concessional interest rate of 10% on the total loan outstanding. This loan together with the existing loan may be agreed to be paid by the company in convenient installments after the expiry of say 5 years when the company is expected to be out of woods.

## Answer to MTP\_Final\_Syllabus 2012\_Dec'2014\_Set 2

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In order to meet the additional working capital requirements for the year 2015-16 and 2016-17, it is presumed that the bank will grant cash credit limits of ₹ 5 lakh each year at the existing terms. Any further additional requirements of working capital will be met by the company out of its internal resources. Necessary arrangement with the sister companies and the banks will have to be made for providing the necessary assistance and support during this period.

**Question No. 3.** (Answer **all** questions. Each question carries **10 marks**)

**3. (a) K Ltd. processes raw material M to make product A. Contribution per unit of A is ₹ 32. Each unit of A requires two units of M. The company can process maximum 20,000 units of M to produce 10,000 units of A. Demand for product is unlimited at present selling price but annual production is restricted to 6,000 units due to restricted supply of raw materials. B Ltd is the only supplier of the raw material.**

**K Ltd. wishes to acquire controlling interest in B Ltd. to ensure supply of raw material M. B Ltd. makes two products M and N using same production facilities. Machine hour required for each unit of M and N are 4 and 5 respectively. Total machine hour available in a year is 75,000. Contribution per unit of M is ₹ 8 and that per unit of N is ₹ 15. Demand for N is restricted to 5,400 units.**

**Share capital of B Ltd. consists of 50,000 ordinary shares of ₹ 10 each. Tax rate is 40% and cost of capital is 10%.**

**Determine (i) maximum price K Ltd. can offer for 51% interest in B Ltd; (ii) Likely change in value of B Ltd. if the acquisition is successful.** **[8+2]**

**Answer to 3(a):**

**(i)**

	Product M	Product N
Contribution per unit	8.00	15.00
Machine hours required per unit	4	5
Contribution per machine hour	2.00	3.00

Since availability of machine hour is restricted and N gives higher contribution per machine hour, presumably, B Ltd. prefers to produce N to satisfy the entire demand of 5,400 units. This takes 27,000 (5,400 units x 5 machine hours per unit) machine hours, leaving 48,000 machine hours for production of M. The available machine hour permits B Ltd. to produce 12,000 units of M (48,000 machine hours / 4 machine hours per unit), which it supplies to K Ltd.

If the acquisition is successful, K Ltd. will require B Ltd. to use whole of 75,000 hours for production of M. This means, B Ltd. will lose Re 1 per hour (₹ 3.00 – ₹ 2.00) for each of 27,000 hours currently used for production of N.

In 75,000 machine hours, B Ltd. will make 18,750 units of M allowing K Ltd. to produce 9,375 units of A. If acquisition is successful, K Ltd. can expect to produce and sell 9,375 units of A instead of current 6,000 units. The additional contribution expected from additional sale of 3,375 units is ₹ 1,08,000 (3375 units × ₹ 32 per unit).

## Answer to MTP\_Final\_Syllabus 2012\_Dec'2014\_Set 2

If acquisition is successful, K Ltd can expect its PAT to increase by ₹ 64,800 annually [₹ 1,08,000 (1-0.40)]. Since cost of capital is 10%, value of K Ltd. is expected to rise by ₹ 6,48,000 [₹ 16,200 / 0.10] after acquisition. The maximum consideration, that K Ltd. can offer for controlling interest in B Ltd. is ₹ 6,48,000.

B Ltd. has 50,000 shares outstanding, 51% interest in this share capital consists of 25,500 shares.

Maximum price per share = ₹ 25.41 (₹ 6,48,000 / 25,500).

- (ii) If acquisition is successful, the PAT of B Ltd. is expected to fall by ₹ 16,200 annually [₹ 27,000 (1-0.40)]. Since cost of capital is 10%, value of B Ltd. is expected to fall by ₹ 1,62,000 [₹ 16,200 / 0.10] after acquisition.

3. (b) The Optical Machineries Ltd. requests you to ascertain the amount at which the inventory should be included in the financial statement for the year 2013-14. The value of inventory as shown in the books is ₹6,25,000.

To determine the net realizable value of the inventory (on a test check basis), you had selected several items whose book value was ₹1,75,000. You ascertain that except for items (1) to (3) mentioned below, the cost was in excess of the realizable value by ₹14,766.

The following items require special treatment.

- (1) One machine (cost ₹65,000) can now fetch ₹57,500. It was priced at ₹35,000 and was written down to the same figure at the end of 2013-14.
- (2) A pump (cost ₹25,000) was expected to realize ₹17,500. A special commission of 15% would have to be paid to the broker.
- (3) 6 units of Product No. 15710 were in stock valued each at ₹2,760; the selling price was ₹2,250 per unit; selling expenses are 10% of the selling price.

Taking into consideration only the above mentioned items requiring special treatment, compute the value of their inventory as at 31<sup>st</sup> March 2014 you would consider reasonable. [10]

Answer to 3(b):

Books value of selected items is given.

From the given information, realizable value of remaining selected items will have to be found. Then the value of inventory (net realizable value) for all the items to be included in the financial statements of the company for the year 2013-2014 is to be determined.

**Working showing Realisable value of selected Items:**

Particulars	Amount (₹)	Amount (₹)
Book value of Selected items		1,75,000
Less: Book value of items (1) to (3)		

## Answer to MTP\_Final\_Syllabus 2012\_Dec'2014\_Set 2

(1) One Machine	35,000	
(2) One Pump	25,000	
(3) 6 units of product No. 15710 @ ₹2,760	16,560	(76,560)
<b>Remaining Book Value</b>		<b>98,440</b>

It is given in the question that except for the items (1) to (3) the cost was in excess of realizable value by ₹14,766. In order to find out the realizable value of remaining items, this amount should be deducted from the book value of selected items.

The realizable value of remaining selected items will be = (₹98,440 – ₹14,766) = ₹83,674.

Percentage of the cost in excess of realizable value to the book value of selected items =

$$= \frac{14766}{98440} \times 100 = 15\%$$

Statement showing the Inventory Valuation (on Net Realisable Value basis) as on 31.03.2014.

Particulars	Amount (₹)	Amount (₹)
Value of all the items as shown in the books		6,25,000
Less: Book value of special items		(1,75,000)
Book value of the Remaining items		4,50,000
Less: Cost of excess of realizable value by 15% i.e. (4,50,000 x 15%)		(67,500)
Add: Realisable value of remaining selected items		83,674
Add: Realisable value of selected items:		
One machine	57,500	
One Pump (17500 less 15% brokerage)	14,875	
6 units of product No. 15710 [6 x 2250 – 10% selling exp]	12,150	84,525
<b>Value of all items of inventory as on 31.03.2014</b>		<b>5,50,699</b>

**Question No. 4.** (Answer **any two** questions. Each question carries **15 marks**)

**4.(a) (i) A company invested in 5-year bond issues of another company in 2012 carrying a coupon rate of 10% per annum. The interest is payable at half-yearly rates and the principal repayable after 5 years in 2016 end. The current market yield has fallen to any willing buyer. Compute the value of the bond at the end of 2013. Assume par value of each bond ₹2000. [5]**

**Answer to 4(a)(i):**

Par value of each Bond ₹2000; coupon rate (%) 10 per annum.



## Answer to MTP\_Final\_Syllabus 2012\_Dec'2014\_Set 2

Value of the bond as at the end of 2013 is equivalent to present value of future cash flow streams from the bond till its maturity discounted at the prevailing market yield 9%. The bond holder would receive half yearly interests for 2014, 2015 and 2016 and the principal at the end of 2016. Given the market yield in 2010 at 9%.

Value of the Bond of ₹2000 with 6 half-yearly interests of ₹100 each and repayment of principal of ₹2000 at year end 6.

$$= \frac{100}{(1.045)} + \frac{100}{(1.045)^2} + \frac{100}{(1.045)^3} + \frac{100}{(1.045)^4} + \frac{100}{(1.045)^5} + \frac{2100}{(1.045)^6} = ₹2051.58$$

- 4.(a) (ii) Jain Co. Ltd. purchased a machine costing ₹2,50,000 for its manufacturing operations and paid shipping cost of ₹40,000. Jain Ltd. spent an additional amount of ₹20,000 for testing and preparing the machine for use. What amount should Jain Ltd. record as the cost of the machine? [3]**

**Answer to 4(a)(ii):**

As per para 20 of AS – 10, the cost of fixed asset should comprise its purchase price and any attributable cost of bringing the asset to its working condition for its intended use. In this case the cost of machinery includes all expenditures incurred in acquiring the asset and preparing it for use. Cost includes the purchase price, freight and handling charges, insurance transit, cost of special foundations, and costs of assembling installation and testing. Therefore the cost to be recorded is = ₹(2,50,000 + 40,000 + 20,000) = ₹3,10,000.

- 4.(a) (iii) From the following details, compute according to Lev and Schwartz model, the total value of unman resources of the employee groups skilled and unskilled. [7]**

	Skilled	Unskilled
<b>Annual average earning of an employee till the retirement age</b>	₹80,000	₹60,000
<b>Age of retirement</b>	65 Years	62 Years
<b>Discount rate</b>	15%	15%
<b>No. of employees in the group</b>	30	35
<b>Average age</b>	62 years	60 years

**Answer to 4(a)(iii):**

According to Lev and Schwartz 
$$V_x = \sum_{t=x}^T \frac{l(t)}{(1+R)^{T-x}}$$

**Where,**

$V_x$  = The human capital value of a person 'x' years old

T = Retirement Age

## Answer to MTP\_Final\_Syllabus 2012\_Dec'2014\_Set 2

$I(t)$  = The person's annual earnings upto Retirement

$R$  = discount Rate

**Value of skilled employees:**

$$= \frac{80000}{(1+0.15)^{65-62}} + \frac{80000}{(1+0.15)^{65-63}} + \frac{80000}{(1+0.15)^{65-64}} = 52,601.3 + 60,491.5 + 69,565.22 = ₹1,82,658.02$$

Therefore, total value of skilled employees = ₹1,82,658.02 x 30 = ₹54,79,741

**Value of unskilled employees:**

$$= \frac{60000}{(1+0.15)^{62-60}} + \frac{60000}{(1+0.15)^{62-61}} = 45,368.62 + 52,173.91 = ₹97,542.53$$

Therefore, total value of unskilled employees = ₹97,542.53 x 35 = ₹34,13,989

Therefore, value of human resources (skilled and unskilled) = ₹(54,79,741 + 34,13,989) = ₹88,93,730.

**4.(b) (i) Mukesh Ltd. furnishes the following particulars about their investment in shares of Sasco Ltd. for the year 2013-14.**

**Balance of shares held on 1<sup>st</sup> April, 2013 ₹1,31,000 [5000 shares @ ₹10 each]**

**Purchased 1000 shares on 1<sup>st</sup> July 2013 ₹30,000**

**Sold 250 shares on 1<sup>st</sup> August 2013 ₹8,750 @ ₹35 per share cum dividend**

**Sasco Ltd. declared final dividend for 2012-13 on 1<sup>st</sup> September 2013. 20%**

**Received 1 : 5 bonus shares on 1<sup>st</sup> February 2014.**

**Brokerage for each transaction is 2%. Find out cost of shares held by Mukesh Ltd. as on 31<sup>st</sup> March, 2014. [8]**

**Answer to 4(b)(i):**

**Statement of cost**

Date	Particulars	Amount (₹)	Amount (₹)
01.04.13	Balance (5000 shares)		1,31,000
01.07.13	Purchased 1000 shares:		
	Cost (cum-dividend)	30,000	
	Add: Brokerage [30,000 x 2%]	600	
		30,600	
	Less: Dividend for 2012-13 (1000 x 10 x 20%)	2,000	
			28,600
01.08.13	Sold ( 250 shares cum dividend		(6,650)

## Answer to MTP\_Final\_Syllabus 2012\_Dec'2014\_Set 2

01.02.14	Cost of Sales = $250 \times \frac{(1,31,000 + 28,600)}{(5,000 + 1,000)}$ Bonus Shares (1 : 5) = $(5750 \times \frac{1}{5}) = 1150$ shares		NIL
<b>31.03.14</b>	<b>Cost of investment</b>		<b>1,52,950</b>

**Notes:**

**(1) Treatment of dividend received**

Particulars	Amount (₹)
Dividend received from Sasco Ltd. during 2013-14 = $(5750 \times ₹10) \times 20\%$	11,500
Less: Dividend deducted from cost of investment $(1000 \times 10 \times 20\%)$	(2,000)
Add: Dividend included in sales proceeds of 250 shares $(250 \times 10 \times 20\%)$	500
<b>Dividend received to be shown in P/L</b>	<b>10,000</b>

**(2) Profit on sale of investment**

Particulars	Amount (₹)
Sale proceeds of 250 shares	8,750
Less: Brokerage $(8,750 \times 2\%)$	(175)
	8,575
Less: Dividend for 2012-13 included	(500)
Less: Cost of sales	(6,650)
<b>Profit on sales</b>	<b>1,425</b>

4.(b) (ii) The following financial share data pertaining to ALPHA LTD on IT company is made valuable to you:

Year ended March 31 <sup>st</sup>	2014	2013	2012
EBIT (₹)	696.03	325.65	155.86
Non-branded Income (₹)	53.43	35.23	3.46
Inflation compound factor @ 8%	1.000	1.087	1.181
Remuneration of Capital	5% of average Capital employed		
Average Capital Employed (₹)	1200.00		
Corporate Tax Rate	30%		
Capitalization Factor	15%		

You are required to calculate the Brand Value for ALPHA Ltd.

[7]

Answer to 4(b)(ii):

**ALPHA LTD.**

Year ended March 31 <sup>st</sup>	2014	2013	2012
EBIT (Rs.)	696.03	325.65	155.86
Less: Non-brand income (₹)	53.43	35.23	3.46
Adjusted Profits (₹)	642.60	290.42	152.40
Inflation Compound Factor @ 8%	1.000	1.087	1.181
Present Value of Profits for the brand (₹)	642.60	315.69	179.98

## Answer to MTP\_Final\_Syllabus 2012\_Dec'2014\_Set 2

Weight age Factor	3	2	1
Weight age profits (₹)	1927.80	631.38	179.98
Profits (₹)	456.53		
Remuneration of Capital (5% of Average capital employed)	60.00		
Brand Related	396.53		
Corporate tax @ 30%	118.96		
Brand Earning	277.57		
Capitalization Factor	15%		

Brand value: (Return/Capitalization rate) =  $277.57/0.15 = ₹1850.47$  crore

4. (c) Consider two firms that operate independently and have following characteristics:

Particulars	ABC Ltd. ₹in lakhs	XYZ Ltd. ₹in lakhs
<b>Revenues</b>	<b>600</b>	<b>300</b>
<b>COGS</b>	<b>350</b>	<b>180</b>
<b>EBIT</b>	<b>250</b>	<b>120</b>
<b>Expected Growth rate</b>	<b>6%</b>	<b>8%</b>
<b>Cost of capital</b>	<b>9%</b>	<b>10%</b>

Both firms are in steady state with capital spending offset by depreciation. Both firms have an effective tax rate of 40% and are financed only by equity. Consider the following two scenarios:-

Scenario – I: Assume that combining the two firms will create economics of scale that will reduce the COGS to 50% of Revenue.

Scenario – II: Assume that as a consequence of the merger, the combined firm is expected to increase its future growth to 8% while COGS will be 60%.

It is given that scenario I & II are mutually exclusive.

You are required to:

- (1) Compute the values of both the firms as separate entities.
- (2) Compute the values of both the firms together if there were absolutely no synergy at all from the merger.
- (3) Compute the value of cost of capital and the expected growth rate.
- (4) Compute the value of synergy in (i) Scenario – I & (ii) Scenario – II.

$$[(2+2)+1+(1+1)+(4+4)]$$

Answer to 4 (c):

$$(1) \text{ Value of ABC Ltd.} = \frac{FCCF(1+g)}{K_e - g}$$

## Answer to MTP\_Final\_Syllabus 2012\_Dec'2014\_Set 2

$$\begin{aligned}
 &= \frac{\text{EBIT}(1-t)(1+g)}{K_e - g} \\
 &= \frac{250(1-0.40)(1+0.06)}{0.09-0.06} \\
 &= ₹5300 \text{ lakhs}
 \end{aligned}$$

$$\begin{aligned}
 \text{Value of XYZ Ltd.} &= \frac{\text{FCCF}(1+g)}{K_e - g} \\
 &= \frac{\text{EBIT}(1-t)(1+g)}{K_e - g} \\
 &= \frac{120(1-0.40)(1+0.08)}{0.10-0.08} \\
 &= ₹3888 \text{ lakhs.}
 \end{aligned}$$

(2) Value of both firms without synergy = ₹5300 lakhs + ₹3888 lakhs = ₹9188 lakhs

(3) Cost of capital =  $9\% \times \frac{5300}{9188} + 10\% \times \frac{3888}{9188} = 9.42\%$ .

Expected growth =  $6\% \times \frac{5300}{9188} + 8\% \times \frac{3888}{9188} = 6.85\%$ .

(4) Calculation of value of synergy

	Scenario - I (₹)	Scenario - II (₹)
Revenues	900	900
COGS (50% of 900)	450	
(60% of 900)		540
<b>EBIT</b>	<b>450</b>	<b>360</b>
EAT = EBIT (1 - t)	270	216
Cost of capital	9.42%	9.42%
Growth rate	6.85%	8%
Value of the firm with Synergy		
$= \frac{270(1.0685)}{0.0942-0.0685}$	11225.49	
$= \frac{216(1.08)}{(0.0942-0.08)}$		16428.17
Value of the firm without synergy	9188	9188
<b>Value of synergy</b>	<b>2037.49</b>	<b>7240.17</b>