Paper – 20: Financial Analysis & Business Valuation

Section – A [Financial Analysis]

1. **Basanti Ltd., a large professionally managed consumer durable manufacturer, is seeking a medium term loan of ₹ 500 lakh essentially to finance part of its working capital requirements, following its decision to significantly improve credit terms to its customers, with a view to substantially increasing the demand for its products. The following are the company's summarized financial data, compiled from published accounts:**

(₹ lakhs)

Particulars	2014-15	2013-14
Gross fixed assets at cost	2,200	2,000
Accumulated depreciation	(1,600)	(1,500)
Trade investments	100	100
Inventories	480	390
Receivables	590	400
Trade creditors	(170)	(90)
Tax and other provisions	(400)	(400)
Net assets employed	1,200	900
Financed by:		
Equity capital	300	300
Reserves	250	200
Long-term loans	400	200
Overdraft and short-term facilities	250	200
	1,200	900
Sales income	1,800	1,600
Profit before interest and tax (PBIT)	280	280
Interest	100	60
Tax	100	120
Dividends	30	30
Retentions	50	70

The company's fully paid-up equity shares having face value of ₹ 10 per share are quoted at ₹ 15 per share in the stock market. It is known that the plant utilization of the company's facilities is around 60% of its capacity, and there are adequate technical and marketing skills in the company to handle a much higher volume of business.

Answer the following:

A. Calculate the ratios which can be considered as the key indicators having bearing on the company's financial position.

B. Make an analysis on the basis of the ratios, calculated above having impact on the company's financial position and its credit and liquidity status from prospective lender's view point.

Answer of 1:

Working Notes:

A. Calculation of Capital Employed **(₹ lakhs)**

Particulars		2014-15	2013-14
Gross fixed assets		2,200	2,000
Less: Accumulated Depreciation		1,600	1,500
Net Fixed Assets	(i)	600	500
Trading Investments	(ii)	100	100
Current Assets			
Inventories + Receivables		1,070	790
Less: Current liabilities		820	690
(Trade creditors, provisions and overdrafts)			
	(iii)	250	100
Capital Employed	(i) + (ii) + (iii)	950	700

	Calculation of Ratios	(All ₹ in lakhs)	
		2014-15	2013-14
(i)	Return on Capital Employed $\frac{\text{PBIT}}{\text{Capital employed}} \times 100$	$\frac{₹\,280}{₹\,950} \times 100 = 29.47\%$	$\frac{₹\,280}{₹\,700} \times 100 = 40\%$
(ii)	Sales Margin $\frac{\text{PBIT}}{\text{Sales}} \times 100$	$\frac{₹\,280}{₹\,1,800} \times 100 = 15.56\%$	$\frac{₹\,280}{₹\,1,600} \times 100 = 17.5\%$
(iii)	Sales to Capital Employed $\frac{\text{Sales}}{\text{Capital Employed}}$	$\frac{₹\,1,800}{₹\,950} = 1.89$	$\frac{₹\,1,600}{₹\,700} = 2.29$
(iv)	Debt Equity ratio $\frac{\text{Long-term Debt}}{\text{Shareholders Equity}}$	$\frac{₹\,400}{₹\,550} = 0.73$	$\frac{₹\,200}{₹\,500} = 0.40$
(v)	Current Ratio $\frac{\text{Current Assets}}{\text{Current Liabilities}}$	$\frac{₹\,1,070}{₹\,820} = 1.30$	$\frac{₹\,790}{₹\,690} = 1.14$
(vi)	Quick Ratio $\frac{\text{Current Assets} - \text{Stock}}{\text{Current Liabilities} - \text{Overdraft}}$	$\frac{₹\,590}{₹\,570} = 1.04$	$\frac{₹\,400}{₹\,490} = 0.82$
(vii)	Inventory Turnover $\frac{\text{Sales}}{\text{Inventories}}$	$\frac{₹\,1,800}{₹\,480} = 3.75$	$\frac{₹\,1,600}{₹\,390} = 4.10$
(viii)	Receivables Turnover $\frac{\text{Sales}}{\text{Receivables}}$	$\frac{₹\,1,800}{₹\,590} = 3.05$	$\frac{₹\,1,600}{₹\,400} = 4.00$

(ix)	Interest Cover $\frac{\text{PBIT}}{\text{Interest}}$	$\frac{₹\ 280}{₹\ 100} = 2.80$	$\frac{₹\ 280}{₹\ 60} = 4.67$
(x)	Dividend Cover $\frac{\text{PAT}}{\text{Dividends}}$	$\frac{₹\ 80}{₹\ 30} = 2.67$	$\frac{₹\ 100}{₹\ 30} = 3.33$
(xi)	Dividend Yield $\frac{\text{Dividend Yield}}{\text{Market value of Equity}} \times 100$	$\frac{₹\ 30}{₹\ 450} \times 100 = 6.67\%$	$\frac{₹\ 30}{₹\ 450} \times 100 = 6.67\%$
(xii)	Return on Equity $\frac{\text{PAT}}{\text{Shareholders' Funds}} \times 100$	$\frac{₹\ 80}{₹\ 550} \times 100 = 14.55\%$	$\frac{₹\ 100}{₹\ 500} \times 100 = 20\%$

B. Analysis:

(i) The return on capital employed is reduced from 40% to 29.47% and sales margin is reduced from 17.5% to 15.56%.

(ii) There is an increase in capital employed from ₹ 700 lakhs to ₹ 950 lakhs. It has resulted in decrease of investment turnover from 2.29 to 1.89 times.

(iii) The long-term debt component is doubled in one year and the debt-equity ratio shows a sharp increase from 0.40 to 0.73. The ideal debt-equity ratio is 2 : 1. The current debt position is within the manageable level with least financial risk.

(iv) The working capital position and short-term liquidity position have improved during the last financial year i.e. 2014-15.

(v) The inventory turnover and receivables turnover shows excessive investment in stock and receivables over the requirement of increased sales.

(vi) The interest service coverage ratio has fallen from 4.67 times to 2.80 times and the dividend cover has shown decline from 3.33 times to 2.67 times.

(vii) The return on equity has fallen from 20% to 14.55%. However, the dividend yield remains unchanged.

The overall financial position is deteriorating and the financing of working capital is not warranted as per present financial position unless there is a definite growth in sales is proved.

2. From the summarised balance sheets of Sunrise Ltd. as at 31st March 2014 and 31st March 2015 respectively, prepare a cash flow statement and comment on the financial position based on cash flow information.

Extracts of Balance Sheets as at 31.03.14 & 31.03.15 are as follows:

Particulars	31.03.14 ₹	31.03.15 ₹

Equity Share Capital	**75,000**	**1,20,000**
8% Redeemable Preference Share Capital	**1,00,000**	**80,000**
Reserve for Replacement of Machinery	**15,000**	**10,000**
Long term Loans	**—**	**40,000**
Bank overdraft	**22,000**	**—**
Trade Creditors	**84,450**	**75,550**
Proposed dividends on equity Shares	**12,000**	**24,000**
Profit & Loss A/c	**1,00,350**	**1,02,700**
Fixed Assets at cost	**2,40,070**	**2,53,730**
Less: Dep.	**90,020**	**98,480**
	1,50,050	**1,55,250**
Investments	**61,000**	**76,000**
Stock	**98,000**	**1,04,000**
Trade Debtors	**88,000**	**85,000**
Bank	**11,750**	**32,000**

Additional Information:

(1) During the year, additional equity shares were issued to the extent of ₹ 25,000 by way of bonus shares fully paid up.
(2) Final dividend on preference shares and an interim dividend of ₹ 4,000 on equity shares were paid 31st March 2015.
(3) Proposed dividends for the year ended 31st March 2014 were paid in October 2014.
(4) Movement in Reserve for Re-placement of Machinery Account represents transfer to Profit And Loss Account.
(5) During the year, one item of Plant was up valued by ₹ 3,000 and credit for this was taken in the Profit & Loss Account.
(6) ₹1,700 being expenditure on fixed assets for the year ended 31st March 2014 wrongly debited to Sundry Debtors then, was corrected in the next year.
(7) Fixed assets costing ₹ 6,000 (accumulated depreciation ₹ 4,800) were sold for ₹ 250. Loss arising therefrom was written off.
(8) Preference shares redeemed in the year (June 14) were out of a fresh issue of equity shares. Premium paid on redemption was 10%.

Answer the following questions:

A. Prepare cash flow statement for the year ended 31.03.15. Also show the necessary workings.
B. Analyse and interpret the cash flow statement on the basis of the relevant ratios and comment on them.

Answer of 2:

A. Sunrise Ltd.

Cash Flow Statement for the year ended 31.03.2015

	₹	₹	₹
1. Cash flows from Operating Activities:			
Operating profit		71,560	
Add : Decrease in Sundry debtors		1,300	
[(88,000-1700)- 85,000)]		72,860	
Less : Increase in Stock	6,000		

Decrease in Trade Creditors	8,900		
		14,900	
Net Cash from Operating Activates			57,960
2. Cash flows from Investing Activities :			
Sale of fixed assets		250	
Less : Purchase of fixed assets	14,960		
Purchase of investment	15,000	29,960	
Net cash used in Investing Activities			(-) 29,710
3. Cash flows from Financing Activities:			
Proceeds from issue of equity share	20,000		
Proceed from long term borrowing	40,000		
		60,000	
Less : Redemption of Preference shares —	22,000		
— (including Premium)			
Dividend on equity shares for 2013- 14	12,000		
Interim dividend on equity shares for 2014-15	4,000		
Final dividend on Preference Share	8,000	46,000	
Net cash from Financing Activities			14,000
Increase in cash and cash equivalent over the year			42,250
Add: cash and cash equivalent at the beginning of the year (₹ 11,750 – ₹ 22,000)			(-) 10,250
Cash and cash equivalent at the end of the year			32,000

Working notes:

Dr. Fixed Assets A/c Cr.

	₹		₹
To Balance b/d	2,40,070	By Bank—Sale proceeds	250
" Adjusted P & L A/c	3,000	" Depreciation Provision	4,800
—revaluation		" Adjusted P & L A/c	950
" Trade debtors—Rectification	1,700	—loss on disposal	
" Bank—Purchase (Balancing figure)	14,960	" Balance c/d	2,53,730
	2,59,730		2,59,730

Dr. Depreciation Provision A/c Cr.

	₹		₹
To Fixed Assets	4,800	By Balance b/d	90,020
" Balance c/d	98,480	" Adjusted P & L A/c	13,260
		—Current Depn. (Bal. figure)	
	1,03,280		1,03,280

Dr. Equity Share Capital A/c Cr.

	₹		₹
To Balance c/d	1,20,000	By Balance b/d	75.000
		" Adjusted P&L A/c	25,000
		" Bank A/c—Fresh issue	20,000
	120,000		1,20,000

Dr. Adjusted Profit & Loss A/c Cr.

	₹		₹
To Depreciation Provision	13,260	By Balance b/d	1,00,350
" Fixed Assets	950	" Fixed Assets	3,000
—loss on sale		—Revaluation profit	
" Equity Share Capital		By Reserve for replacement of	
—Bonus issue	25,000	Machinery	5,000
" Premium on redemption	2,000	" Operating Profit (Bal. figure)	71,560
" Interim dividend on Equity shares	4,000		
" Proposed dividend on			
Equity shares	24,000		
" Dividend on Preference Shares	8,000		
To Balance c/d	1,02,700		
	1,79,910		1,79,910

Note:

1. As per AS-3, interest paid on long term loan should be considered in Financing Activities. But the amount of this interest is not given in the problem. So, it is assumed that the loan was taken on the last date of the accounting year and no interest was paid or accrued during the year.
2. While finding out the difference in debtors balance over the year, the balance of debtors as on 31st march 2013 has been rectified for error of last year.
3. Bank overdraft has been considered as negative component of cash and cash equivalent.

B. Comments on the financial position of Sunrise Ltd.:

Following ratios based on the cash flow information will enable us to comment on the financial position of Sunrise Ltd.:

1. Ratio of Dividend to operating cash flow (OCF) = $\frac{\text{Dividend payment}}{\text{operating cash flow}} = \frac{₹\ 24,000}{₹\ 57,960} \times 100$

   = 41.41%

2. Debt coverage ratio = $\frac{\text{Operating cash flow (OCF)}}{\text{Long term debt}} = \frac{₹\ 57,960}{₹\ 40,000} = 1.45$ times

3. Quality of earning ratio $= \frac{\text{OCF}}{\text{Operating Profit}} = \frac{₹\ 57,960}{₹\ 71,560} \times 100 = 80.99\%$

4. Rate of dependence on external fund for capital expenditure

$$= \frac{\text{Financing cash flow before dividend}}{\text{Investing cash flow}} \times 100$$

$$= \frac{₹\,14,000 + ₹\,24,000}{₹\,29,210} \times 100 = 130.09\%$$

5. Cash return on net worth

$$= \frac{\text{Operating cash flow}}{\text{Net Worth}} \times 100$$

$$= \frac{₹\,57,960}{\text{Total assets} - (\text{Outside liabilities} + \text{Prop. div.})} \times 100$$

$$= \frac{₹\,57,960}{₹\,4,52,250 - ₹\,1,39,550} \times 100$$

$$= \frac{₹\,57,960}{₹\,3,12,700} \times 100$$

$$= 18.54\%$$

Based on the above ratios, the financial position may be interpreted as below:

1. The ratio of dividend to OCF reveals that as much as 41.41% of cash generated through operation has been disbursed outside the business in the form of dividend. So the rate of drainage of cash for non- earning purpose seems to be high.
2. The quality of earnings ratio indicates that 80.99% of operating profit has been realised in cash. This ratio should be further improved by more efficient working capital management.
3. The long term solvency position of the firm is quite comfortable as is indicated by debt coverage ratio which is 1.45 times. It signifies that the firm is more than able to redeem the debt at once by internally generated fund.
4. From the ratio of external fund to investing cash flows, it appears that the entire capital expenditure has been financed by fund from outside. The rate of dependence on external sources could have been reduced had the quality of income ratio been better.
5. The cash return to net worth ratio 18.54% appears to be satisfactory.

The overall financial position appears to be satisfactory. However if these ratios are compared with the industry's average ratios they would be more informative.

3.(a) In connection with a proposal to secure additional finance for meeting its expansion as well as the working capital requirements, the following figures have been projected to a bank by a borrower. The figures have been adjusted for borrowal, debt redemption and interest payments.

		1	2	3	4	5	6	7
Current ratio	**Borrower**	**2.0**	**2.0**	**2.5**	**2.2**	**2.0**	**2.5**	**2.0**
	Industry's average	**1.8**	**1.8**	**2.0**	**2.0**	**2.5**	**2.5**	**2.5**
Debt equity ratio	**Borrower**	**1.8**	**1.8**	**1.6**	**1.6**	**1.5**	**1.5**	**1.2**
	Industry's average	**1.5**	**1.5**	**1.8**	**1.8**	**1.8**	**1.6**	**1.8**

Return on investment	Borrower	20	20	18	18	15	15	18
	Industry's average	18	18	20	20	18	18	18

You are required to ascertain the trend (base year = 1) and interpret the result. Kindly indicate how the bank would react to the proposal of financing put forward by the borrower.

3.(b) Amro Ltd. is evaluating a proposal to acquire new equipment. The new equipment would cost ₹ 3.5 million and was expected to generate cash inflows of ₹ 4,70,000 a year for nine years. After that point, the equipment would be obsolete and have no significant salvage value. The company's weighted average cost of capital is 16%.

The management of Amro Ltd. seemed to be convinced with the merits of the investment but was not sure about the best way to finance it. Amro Ltd. could raise the money by issuing a secured eight-year note at an interest rate of 12%. However, Amro Ltd. had huge tax loss carry forwards from a disastrous foray into foreign exchange options. As a result, the company was unlikely to be a position of tax-paying for many years. The CEO of Amro Ltd. thought it better to lease the equipment than to buy it. The proposals for lease have been obtained from Kiran Leasing Ltd. and Megha Leasing Ltd. The terms of the lease are as under:

	Kiran Leasing Ltd.	Megha Leasing Ltd.
Lease period offered	9 years	7 years
Number of lease rentals payments with initial lease payment due on entering the lease contract	10	8
Annual lease rentals	₹ 5,44,300	₹ 6,19,400
Lease terms equivalent to borrowing cost (Claim of lessor)	11.5% p.a.	11.41% p.a.
Leasing terms proposal coverage	Entire ₹ 3.5 million cost of equipment	Entire ₹ 3.5 million cost of equipment
Tax rate	35%	35%

Both the leasing companies were in a tax-paying position and write-off their investment in new equipment using following rate:

Year	1	2	3	4	5	6
Depreciation	20%	32%	19.20%	11.52%	11.52%	5.76%

You are required to answer the following:

1. **Calculate the Net Present Value (NPV) to Amro Ltd. of the two lease proposals.**
2. **Does the new equipment has a positive NPV with (I) ordinary financing, (II) lease financing? Discuss.**
3. **Calculate the NPVs of the leases from the lessors' viewpoint. Is there a chance that they could offer more attractive terms?**
4. **Evaluate the terms presented by each of the lessor.**

Answer of 3(a):

Trend statement (base = year 1)

	Current ratio	Debt equity ratio	Return on investment

Year	Borrower	Industry	Borrower	Industry	Borrower	Industry
1	100	100	100	100	100	100
2	100	100	100	100	100	100
3	125	111	89	120	90	111
4	110	111	89	120	90	111
5	100	139	83	120	75	100
6	125	139	83	107	75	100
7	100	139	67	120	90	100

Interpretation:

(i) **Current ratio :** While the projected industry trend is steadily upward (from 100 in base yr. 1 to 111 in years 3-4 and to 139 in years 5-7), it is likely to witness a fluctuating trend in the case of the borrower. In spite of oscillating position, however, the borrower's current ratio is not likely to decrease below 2:1. The borrower is not likely to encounter any major problems in meeting his short-term debt obligations.

(ii) **Debt – equity (D/E) ratio:** The D/E ratio of the borrower is likely to decrease at a steady pace by one-third over the projected 6-year period. In absolute terms also, D/E ratio of 1.5:1 or 1.2:1 is satisfactory. In contrast, the industry's D/E ratio is marked by an upward trend. The long term solvency position of the borrower is stronger vis-à-vis industry. The margin of safety to the bank seems to be adequate.

(iii) **Return on investment (ROI):** As per the projected trend, the industry figures appear to be better. The ROI is the lowest in years 5 and 6 (15%) and is the highest in years 1 and 2 in the case of the borrower. In contrast, it is maximum (20%) for the industry in years 3-4 and 18% in all other years. The only positive feature for the borrower is that while industry trend reflects decline from year 4 onwards, it is upward for the former from year 7.

Thus, as the current ratios of the borrower are satisfactory in spite of decline, it is safe for the bank to lend for working capital requirements of the borrower. In the case of long-term (expansion) requirements, the bank can seek additional data to determine debt-service coverage ratio, (more appropriate measure), as the projected D/E ratios are satisfactory.

Answer of 3(b):

(1) NPV (Net Present Value) to Amro Ltd. of Kiran Leasing Ltd. – lease proposal:
Investment decision: Present value of operating cash inflows
Present value at 16% = ₹ 4,70,000 × 4.6065 = ₹ 21,65,055 (A)
Financing decision: Present value of cash outflows
Present value at 12% = ₹ 5,44,300 + ₹ 5,44,300 × 5.3282 = ₹ 34,44,439 (B)
Hence, Net Present Value = (A)-(B) = (₹ 12,79,384)

NPV to Amro Ltd. of Megha Leasing Ltd. – lease proposal:
Investment decision: Present value of operating cash inflows
Present value at 16% = ₹ 4,70,000 × 4.6065 = ₹ 21,65,055 (A)
Financing decision: Present value of cash outflows
Present value at 12% = ₹ 6,19,400 + ₹ 6,19,400 × 4.5638 = ₹ 34,46,218 (B)
Hence, Net Present Value = (A)-(B) = (₹ 12,81,163)

(2) NPV of new equipment with ordinary financing investment decision: Present value of operating cash inflows
Present value at 16% = ₹ 4,70,000 × 4.6065 = ₹ 21,65,055 (A)
Financing decision: Present value of cash outflows = ₹ 35,00,000 (B)

Hence, Net Present Value = (A)-(B) = (₹ 13,34,945)
Comment: The company has a negative NPV with ordinary financing as well as lease financing.

(3) Since, the lease terms are equivalent to the borrowing costs as per the claim of lessor, hence the borrowing cost of 12% is considered.

NPV to Kiran Leasing Ltd. (₹ '000)

Year	Equipment cost (₹)	Depreciation (₹)	Depreciation tax shield (₹)	After tax lease payment (₹)	After tax cash flows (₹)	Present value factor at 7.8%	After tax cash flows (Present value) (₹)
0	(3,500)	700	245	353.795	(2,901.21)	1	(2,901.21)
1		1,120	392	353.795	745.795	0.928	692.0978
2		672	235.2	353.795	588.995	0.861	507.1247
3		403.2	141.12	353.795	494.915	0.798	394.9422
4		403.2	141.12	353.795	494.915	0.74	366.2371
5		201.6	70.56	353.795	424.355	0.687	291.5319
6				353.795	353.795	0.637	225.3674
7				353.795	353.795	0.591	209.0928
8				353.795	353.795	0.548	193.8797
9				353.795	353.795	0.509	180.0817
Total						7.299	159.1453

Discount rate = 12% × (1 – 0.35) = 7.8%
NPV = ₹ 1,59,145.

The NPV of Kiran Leasing Ltd. is positive. They could reduce the lease terms by 1,59,145 divided by cumulative PV factor at 7.8% (7.299) multiplied by (1-0.35), i.e. ₹ 33,544.11 to make their proposal more attractive.

NPV to Megha Leasing Ltd. (₹ '000)

Year	Equipment cost (₹)	Depreciation (₹)	Depreciation tax shield (₹)	After tax lease payment (₹)	After tax cash flows (₹)	Present value factor at 7.8%	After tax cash flows (Present value) (₹)
0	(3,500)	700	245	402.61	(2,852.39)	1	(2,852.39)
1		1,120	392	402.61	794.61	0.928	737.3981
2		672	235.2	402.61	637.81	0.861	549.1544
3		403.2	141.12	402.61	543.73	0.798	433.8965
4		403.2	141.12	402.61	543.73	0.74	402.3602
5		201.6	70.56	402.61	473.17	0.687	325.0678
6				402.61	402.61	0.637	256.4626
7				402.61	402.61	0.591	237.9425
Total						6.242	89.8921

NPV = ₹ 89,892
Megha Leasing Ltd. could improve the proposal by reducing the lease terms by ₹ 89,892 divided by cumulative PV factor at 7.8% (6.242) multiplied by (1-0.35), i.e. ₹ 22,155.62 to make their proposal more attractive.

(4) From Amro Ltd.'s point of view, the leasing terms offered by Kiran Leasing Ltd. gives the least NPV. Amro Ltd. is not getting tax shield on leasing, depreciation and interest because of heavy losses incurred in the earlier years. With proper negotiations, the leasing terms can be reduced marginally.

4.(a) A company is considering the following investment projects:

Projects	Cash Flows (₹)			
	C_0	C_1	C_2	C_3
W	(-10,000)	+10,000		
X	(-10,000)	+7,500	+7,500	
Y	(-10,000)	+2,000	+4,000	+12,000
Z	(-10,000)	+10,000	+3,000	+3,000

(i) Rank the projects according to each of the following methods: (I) Payback, (II) ARR, (III) IRR and (IV) NPV, assuming discount rates of 20 and 30 percent.

(ii) Assuming the projects are independent, which one should be accepted? If the projects are mutually exclusive, which project is the best?

4.(b) Compute the Liquid Ratio from the following information for the year ended 31st March 2015 and also interpret the result:

Particulars	₹
Land and Building	55,000
Plant and Machinery	40,000
Stock	30,000
Debtors	42,000
Bills receivable	25,000
Prepaid Expense	5,000
Cash at bank	15,000
Cash in hand	10,000
Creditors	25,000
Outstanding Salary	5,000
Bank Overdraft	3,000
Bills payable	4,000
Proposed Dividend	6,000
Long – Term Liabilities	46,000
Provision for Bad debts	2,000

Answer of 4(a):

(i) (I) Project Cumulative Cash Inflows:

Amount in (₹)

Years	W	X	Y	Z
1	10,000	7,500	2,000	10,000
2		15,000	6,000	13,000
3			18,000	16,000

Cash Outflows:

	W	X	Y	Z
Cash Outflows (₹)	(10,000)	(10,000)	(10,000)	(10,000)

Computation of Payback Period:

	W	X	Y	Z
Pay Back Period	= 1 year	$1\text{year} + \frac{2,500}{7,500}$ = 1.33 years	$2\text{ years} + \frac{4,000}{12,000}$ = 2.33 years	= 1 year

(II)

$$ARR = \frac{(CFAT - Depreciation) \times 1/No.\ of\ years}{Average\ investment}$$

$$Project\ W: \frac{(₹10,000 - ₹10,000)1/1}{(₹10,000)\frac{1}{2}} = 0\%$$

$$Project\ X: \frac{(₹15,000 - ₹10,000)1/2}{(₹10,000)\frac{1}{2}} = \frac{₹2,500}{₹5,000} = 50\%$$

$$Project\ Y: \frac{(₹18,000 - ₹10,000)1/3}{(₹10,000)\frac{1}{2}} = \frac{₹2,667}{₹5,000} = 53\%$$

$$Project\ Z: \frac{(₹16,000 - ₹10,000)1/3}{(₹10,000)\frac{1}{2}} = \frac{₹2,000}{₹5,000} = 40\%$$

(III) IRR

Project W: The net cash proceeds in year 1 are just equal to investment. Therefore, r = 0%

Project X: This project produces an annuity of ₹ 7,500 for two years. Therefore, the required PVAF is: ₹10,000/₹7,500 = 1.33

This factor is found under 32% column. Therefore, r = 32%

Project Y: Since cash flows are uneven, the trial and error method will be followed. Using 20% rate of discount the NPV is + ₹ 1,390. At 30% rate of discount, the NPV is – ₹ 634. The true rate of return should be less than 30%. At 27% rate of discount it is found that the NPV is – ₹ 90 and at 26% + ₹ 108. Through interpolation, we find r = 26.5%.

Project Z: In this case also by using the trial and error method, it is found that at 37.6% rate of discount NPV becomes almost zero. Therefore, r = 37.3%.

(IV) NPV

Project W:

At 20% - ₹10,000 + ₹10,000 x 0.833 = - ₹ 1,670

At 30% - ₹10,000 + ₹10,000 x 0.769 = - ₹ 2,310

Project X:

At 20% - ₹10,000 + ₹7,500 (0.833 + 0.694) = + ₹ 1,453

At 30% - ₹10,000 + ₹7,500 (0.769 + 0.592) = + ₹ 208

Project Y:

At 20% - ₹10,000 + ₹ 2,000 x ₹ 0.833 + ₹ 4,000 x 0.694 + ₹12,000 x 0.579 = + ₹ 1,390
At 30% - ₹10,000 + ₹ 2,000 x ₹ 0.769 + ₹ 4,000 x 0.592 + ₹12,000 x 0.455 = - ₹ 634

Project Z:
At 20% - ₹10,000 + ₹10,000 x 0.833 + ₹ 3,000 (0.694 + 0.579) = +₹ 2,149
At 30% - ₹10,000 + ₹10,000 x 0.769 + ₹ 3,000 (0.592 + 0.455) = + ₹ 831

The projects are ranked as follows according to the various methods:

Ranks					
Project	PBP	ARR	IRR	NPV (20%)	NPV (30%)
W	1	4	4	4	4
X	2	2	2	2	2
Y	3	1	3	3	3
Z	1	3	1	1	1

(ii) Payback and ARR are unsound methods for choosing between the investment projects. Between the two DCF investment criteria, NPV and IRR, NPV gives consistent results. In the present case, except Project W all the three projects should be accepted if the discount rate is 20%. Only Projects X and Z should be undertaken if the discount rate is 30%.

If it is assumed that the projects are mutually exclusive, then under the assumption of 30% discount rate, the choice is between X and Z (W and Y are unprofitable). Both criteria IRR and NPV give the same results Z is the best. Again under the assumption of 20% discount rate, ranking according to IRR and NPV is same. In the both cases, project Z should be accepted.

Answer of 4(b):

Components of Liquid Assets and Liquid Liabilities:

Liquid Assets	**₹**	**₹**
Debtors	42,000	
Less: Provision for Bad Debts	2,000	40,000
Bills receivable		25,000
Cash at bank		15,000
Cash in hand		10,000
		90,000

Liquid Liability	**₹**	**₹**
Creditors		25,000
Outstanding Salary		5,000
Bills payable		4,000
Proposed dividend		6,000
		40,000

$$\therefore \text{ Liquid ratio} = \frac{\text{Liquid Assets}}{\text{Liquid Liabilities}} = \frac{₹90,000}{₹40,000} = 2.25:1.$$

Interpretation and Significance:

It can be stated that liquid ratio is, practically, the true test of liquidity. It measures the capacity of the firm to pay-off its liabilities as soon as they become mature for payment. Thus, a high liquid ratio indicates that the firm is quite able to pay-off its current obligations without difficulty, whereas, a low liquid ratio will create an opposite situation i.e. it is not possible for the firm to pay-off its current obligations, which indicates the liquidity position is not sound at all.

Although it is stated that a 1:1 ratio is considered as good but the same cannot safely be concluded since if percentage of debtors is more than other liquid assets, and if the same is not realised (if the debtors do not pay), it indicates that problem will arise to liquidate current obligations although the normal liquid ratio is maintained. Similarly, a low liquid ratio does not ensure a bad liquidity position since stocks are not absolutely non-liquid in character. Thus, a high liquid ratio does not always prove a satisfactory liquidity position if the firm has slow—paying customers, and vice versa in the opposite case i.e. a low liquid ratio may ensure a sound liquidity position if the firm has fast-moving stocks.

5.(a) Using Altman's Multiple Discriminant Function, calculate Z - score of Neel & Co. Ltd., where the five accounting ratios are as follows and comment about its financial position:
Working Capital to Total Assets = 0.250
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

5.(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%**

Answer of 5(a):

As the Book Value of Equity to Book Value of Total Debt is given in the problem in place of Market value of equity to Book Value of Total Debt, the value of Z - score is to be computed as per Altman's 1983 Model of Corporate Distress Prediction instead of Altman's 1968 Model of Corporate Distress Prediction that is otherwise followed.

As per Altman's Model (1983) of Corporate Distress Prediction —

$Z = 0.717X_1 + 0.847X_2 + 3.107X_3 + 0.420X_4 + 0.998X_5$

Here, the five variables are as follows:

X_1 = Working Capital to Total Assets = 0.250

X_2= Retained Earnings to Total Assets = 0.50

X_3= EBIT to Total Assets = 0.19

X_4 = Book Value of Equity Shares to Book Value of Total Debt = 1.65

X_5 = Sales to Total Assets = 3 times

Hence, Z - score = (0.717 x 0.25) + (0.847 x 0.50) + (3.107 x0.19) + (0.420 x1.65) + (0.998 x3)

= 0.17925 + 0.4235 + 0.59033 + 0.693 + 2.994 = 4.88

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)

Answer of 5(b):

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
$\text{Operating Leverage}\left(\frac{C}{OP}\right)$	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
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 x10 = 40
Least Value: Situation A and Financial Plan II under Situation A = 1.6 x 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.

6.(a) The following ratio of A Ltd. and their corresponding industry average are available:

Ratios	A Ltd.	Industry average
Current	**1.80**	**2.10**
Liquid	**0.85**	**2.25**
Stock to working capital	**25%**	**20%**
Inventory turnover	**6.5**	**8.2**
Debt collection period	**35 days**	**30 days**
Return on assets	**9.2%**	**10.7%**
Earnings per share	**₹ 3.50**	**₹ 2.75**

You are required to comment on the financial position and performance of A Ltd.

6.(b) Percentage change in quantity given. Percentage change in other factors to be found out to account for change in gross profit. The following data of Del Ltd. are given:

	2013-14 (₹)	2014-15 (₹)
Sales	**18,00,000**	**22,50,000**
Cost of goods sold	**13,50,000**	**19,00,000**

The volume increased over the year 20%. You are required to calculate:

(i) % change in sales price;
(ii) % change in cost price;
(iii) Change in gross profit on various accounts.

Answer of 6(a):

In order to comment on the financial position and the performance of the company, we should classify the ratios of the company as well as those for the industry into three categories according to: (i) liquidity, (ii) efficiency of activities and (iii) profitability.

(i) Ratios indicating liquidity:

	Industry average	A Ltd.	Difference
Current ratio	2.10	1.80	14.29% below the average
Liquid ratio	2.25	0.85	62.2% below the average
Stock to working capital	20%	25%	25% higher the average

The liquidity position, i.e. the short-term debt paying capacity of the firm is not sound enough as the current ratio is 14.29% below the industry average. However, the most alarming fact is that the immediate debt paying capacity of A Ltd. is abnormally poor as indicated by its liquid ratio which is 62.2% below the industry average. It appears that the higher percentage of stock to working capital compared to industry average has led to its poor immediate debt paying capacity.

(ii) Ratios indicating efficiency of activities:

	Industry average	A Ltd.	Difference
Inventory turnover	8.2	6.5	20.7% below the average
Debt collection period	30 days	35 days	5 days longer the average

The inventory turnover ratio indicates how rapidly the inventory is turning into receivables through sales. A high inventory turnover ratio is the indicative of efficient inventory management. As the inventory turnover ratio is 20.7% below the industry average, the company is less efficient in managing its inventory. The debt collection period indicates how quickly the firm realises its receivables. A lower debt collection period is the indication of better receivables management. In this respect also the firm is less efficient as its debt collection period is 5 days longer than the industry average.

(iii) Ratios indicating profitability:

	Industry average	A Ltd.	Difference
Return on assets	10.7%	9.2%	14.0% below the average
Earnings per share	₹ 2.75	₹ 3.50	27.3% above the average

The overall profitability of A Ltd. is poor compared to industry average as its return on assets is 14.0% below the industry average. However the profitability of equity shareholder is better for A Ltd. as its EPS is 27.3% higher than industry average. This has been possible for A Ltd. for using cheaper debt capital.

Answer of 6(b):

1. Calculation of % change in sales price:
   Elimination of quantity factor from sales in 2014-15:
   Sales in 2014-15 at the quantity of 2013-14 [assuming price is constant]
   = 100/120 × ₹ 22,50,000 [since quantity increase in 2014-15 over 2013-14 is 20%]
   = ₹ 18,75,000

Actual sales in 2013-14 = ₹ 18,00,000
So the increase in sales in 2014-15 due to price factor only = ₹ 18,75,000 - ₹ 18,00,000
= ₹ 75,000
Therefore, % changes in sales due to price factor:

$$= \frac{\text{Increase in sales price due to price factor}}{\text{Base year sales}} \times 100$$

$$= \frac{₹\ 75,000}{₹\ 18,00,000} \times 100 = 4.1667\%$$

2. Calculation of % change in cost of goods sold:
Elimination of quantity factor from cost of goods sold in 2014-15:
Cost of goods sold in 2014-15 at the quantity of 2013-14
= 100/120 × ₹ 19,00,000
= ₹ 15,83,333
Actual cost of goods sold in 2013-14 = ₹ 13,50,000
So the increase in cost in 2014-15 due to price factor only = ₹ 15,83,333 - ₹ 13,50,000
= ₹ 2,33,333

$$= \frac{\text{Change in cost of goods sold due to price factor}}{\text{Base year cost of goods sold}} \times 100$$

$$= \frac{₹\ 2,33,333}{₹\ 13,50,000} \times 100 = 17.284\%$$

Statement showing changes in sales, cost of goods sold & gross profit for the year 2014-15 over 2013-14

	Sales (₹)	Cost of goods sold (₹)	Gross profit (₹)
2014-15	22,50,000	19,00,000	3,50,000
2013-14	18,00,000	13,50,000	4,50,000
Change	4,50,000	5,50,000	(1,00,000)
A. Change in sales and gross profit attributable to:			
1. Quantity factor, i.e. amount by which increased volume affected sales and gross profit, taking the price factor constant: % change in sales volume × base year sales = 20% of ₹ 18,00,000	3,60,000	—	3,60,000
2. Price factor, i.e. amount by which change in selling price affected sales and gross profit, taking the quantity factor constant: % change in sales price × base year sales = 4.1667% of ₹ 18,00,000	75,000	—	75,000
3. Quantity-price factor, i.e. amount by which change in quantity as well as selling price affected sales and gross profit:			

Change in quantity × change in price × base year sales = 20% × 4.1667% of ₹ 18,00,000	15,000	—	15,000
B. Change in cost of goods sold attributable to:			
1. Quantity factor, i.e. amount by which increased volume affected cost and gross profit, taking the cost price as a constant: % change in quantity × base year cost = 20% of ₹ 13,50,000	—	2,70,000	(2,70,000)
2. Cost factor, i.e. amount by which change in cost price affected cost of goods sold, taking the quantity factor constant: % change in cost price × base year cost = 17.284% of ₹ 13,50,000	—	2,33,334	(2,33,334)
3. Quantity-cost factor, i.e. amount by which change in quantity as well as cost price affected cost and thereby gross profit: Change in quantity × change in cost × base year cost = 20% × 17.284% of ₹ 18,00,000	—	46,666	(46,666)
	4,50,000	5,50,000	(1,00,000)

7.(a) Following are the Balance Sheets (Extracts) of P Ltd. and Q Ltd. as on 31.03.2015:

	P Ltd. (₹ in lakhs)	Q Ltd. (₹ in lakhs)
Assets:		
Non-current Assets:		
Fixed Assets (Net)	**635**	**513**
Current Assets:		
Cash	**27**	**72**
Sundry Debtors	**220**	**226**
Stock	**100**	**174**
Prepaid Expenses	**11**	**21**
Other Current Assets	**10**	**21**
	1,003	**1,027**
Equities & Liabilities:		
Shareholders' Fund:		
Share Capital	**610**	**450**
Reserves	**48**	**43**
Non-current Liabilities:		
Fixed Liabilities	**225**	**318**
Current Liabilities:		
Trade Payables:		
Sundry Creditors	**40**	**154**
Other Current Liabilities	**80**	**62**
	1,003	**1,027**

From the above data, prepare a common-size statement and make comments on them.

7.(b) The following informations are related to the Balance Sheets of Titas Ltd. as at 31.03.14 and 31.03.15:

	31.03.14 (₹ in lakhs)	31.03.15 (₹ in lakhs)
Share capital	300.00	300.00
Reserves	225.00	240.00
6% Debentures (unsecured)	75.00	75.00
Mortgage on freehold property	27.00	14.25
Creditors	45.00	45.00
Proposed dividend	22.50	23.25
Provision for taxation	21.00	37.50
Secured overdraft (by a floating charges on assets)	15.00	82.50
Freehold property (at cost)	225.00	240.00
Plant & Machinery (at cost less depreciation)	135.00	165.00
Investment in shares of companies under the same management (unquoted)	150.00	150.00
Investment in shares of other companies (quoted) [Market value 2014-15: ₹ 120 lakhs, 2013-14: ₹ 150 lakhs]	112.50	112.50
Stock	52.50	75.00
Debtors	45.00	75.00
Bank	10.50	—

The following additional informations are also available for the year 2014-15:

1. **Credit sales: ₹ 675 lakhs;**
2. **Credit purchases: ₹ 520 lakhs;**
3. **Overhead: ₹ 83.75 lakhs;**
4. **Depreciation on Plant & Machinery: ₹ 17.50 lakhs;**
5. **Dividend for 2013-14 was paid in full;**
6. **Amount paid towards taxation for the year 2013-14 — ₹ 21.50 lakhs;**

In view of credit squeeze, the company has been asked by the bank to reduce the overdraft substantially within six months, if possible by 50%.

Prepare a cash flow statement and comment on the financial position of the company on the basis of information of cash flow statement and suggest remedial measures to overcome the financial crisis.

Answer of 7(a):

Common-Size Balance Sheets (Extracts) for the year ended 31.03.2015

	P Ltd.		Q Ltd.	
	Amount (₹ lakhs)	%age	Amount (₹ lakhs)	%age
Assets:				
Non-current Assets:				
Fixed Assets (Net)	635	63.31	513	49.95
Current Assets:				
Cash	27	2.69	72	7.01
Sundry Debtors	220	21.93	226	22.01

Stock	100	9.97	174	16.95
Prepaid Expenses	11	1.10	21	2.04
Other Current Assets	10	1.00	21	2.04
	1,003	100	1,027	100
Equities & Liabilities:				
Shareholders' Fund:				
Share Capital	610	60.82	450	43.82
Reserves	48	4.78	43	4.18
Non-current Liabilities:				
Fixed Liabilities	225	22.43	318	30.97
Current Liabilities:				
Trade Payables:				
Sundry Creditors	40	3.99	154	14.99
Other Current Liabilities	80	7.98	62	6.04
	1,003	100	1,027	100

Comments:

1. Leverage position: The above common-size balance sheets reveal that the shareholders fund of P Ltd. is as high as 65.6% of total equities & liabilities while that of Q Ltd. it is only 48%. A larger portion of shareholders fund in the total financing is safe as it reduces the financial risk — risk of repayment of liability of the company. So the financial structure of Q Ltd. is comparatively riskier. However, Q Ltd. is likely to enjoy the benefit of trading on equity (i.e. higher return on equity in favourable condition) more as compared to P Ltd. as the proportion of non-current liabilities of Q Ltd. is 30.97% while that of P Ltd. it is 22.43%.
2. Financing of assets: Both the companies are following the policy of financing fixed assets from long term sources of financing. Theoretically this is a sound policy. In P Ltd., the investment in fixed assets accounts for 63.31% of total investment while long-term financing accounts for 88.03% of the total equities. These figures in Q Ltd. are 49.95% and 78.97% respectively. Since long term funds of both the companies exceeds their respective investments in fixed assets, a part of their long term fund has been used for financing working capital also. However, Q Ltd. has used more long term fund than P Ltd. for working capital.
3. Liquidity position: So far working capital is concerned, both the companies stand in a comfortable position. In P Ltd., investments in current assets comprise 36.69% of total investment while current liabilities are 11.97% of total equities. In Q Ltd. investments in current assets are 50.05% and financing from current liabilities is 21.03%. So, the ratio of current assets to current liabilities of these companies is 3.07 and 2.38 respectively.

The overall analysis of the common-size balance sheet shows that both the companies have satisfactory long term and short term financial position. In comparison, P Ltd. has better financial position than that of Q Ltd.

Answer of 7(b):

Titas Ltd.

Cash Flow Statement for the year ended 31.03.2015

		(₹ in lakhs)	
1. Cash flows from operating activities:			
Operating profit		98.25	

Less: increase in stock	22.50		
increase in debtors	30.00		
		52.50	
Net cash from operation		45.75	
Less: income tax paid		21.50	
Net cash from operating activities			24.25
2. Cash flows from investing activities:			
Purchase of Plant & Machinery		47.50	
Purchase of Freehold Property		15.00	
Net cash used in investing activities			(-)62.50
3. Cash flows from financing activities:			
Mortgage loan repaid		12.75	
Payment of dividend		22.50	
Payment of interest		4.50	
Net cash used in financing activities			(-)39.75
Decrease in cash over the year			(-)78.00
Add: cash & cash equivalent at the beginning of the year			(-)4.50
cash & cash equivalent at the end of the year			(-)82.50

Note:

(1) Interest on debenture has been considered under financing activities as per AS-3. But the rate of interest on mortgage loan is not given in the problem. It has been assumed that this loan has been used for financing working capital requirement. Accordingly, interest on this loan has been considered in operating activities as per AS-3. So nothing has been done with the interest on mortgage loan as it is already adjusted with operating profit.

(2) Bank overdraft has been considered as negative component of cash and cash equivalent.

Working notes:

Dr. (1) Plant & Machinery A/c Cr.

	₹ in lakhs		₹ in lakhs
To Balance b/d	135.00	By Adjusted Reserves	17.50
" Bank—Purchase (Bal. figure)	47.50	"Balance c/d	165.00
	182.50		182.50

Dr. (2) Provision for Taxation A/c Cr.

	₹ in lakhs		₹ in lakhs
To Bank	21.50	By Balance b/d	21.00
" Balance c/d	37.50	" Adjusted Reserves A/c	38.00
	59.00		59.00

Dr. (3) Adjusted Reserves A/c Cr.

	₹ in lakhs		₹ in lakhs
To Plant & Machinery — Depreciation	17.50	By Balance b/d	225.00

" Debenture interest	4.50	" Operating profit	98.25
" Provision for taxation	38.00		
" Proposed dividend	23.25		
" Balance c/d	240.00		
	323.25		323.25

Comments on the financial position of the company:

From the Cash Flow Statement it is apparent that the increase in bank O/D is due to the following factors:

	₹ in lakhs
Capital expenditures	62.50
Repayment of loan	12.75
Payment of interest and dividend over operating cash flow [₹ 24.25 - (22.50 + 4.50) lakhs]	02.75
	78.00

So the firm embarked upon expansion programe with bank O/D. This was not a prudent policy as this form of financing is costly. The firm seems to have followed a very conservative policy in using long-term debt as is evident from its debt equity ratio i.e., long term debt to long term fund ratio which was only (89.25/629.25)= 0.14. The firm could have raised long-term debt to finance the capital expenditure. So it can now raise long-term debt to reduce the bank O/D by 50%. In case it is not possible now, it can dispose of the required number of shares in other companies.

The firm should also try to improve its quality of earning by efficient working capital management so that it does not face similar liquidity crisis in future.

8.(a) 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	**(+)**	**(-)**	**(+)**

8.(b) Following are the Balance Sheet (Extracts) of Mayuri Ltd. as on 31.03.2014 and 31.03.2015. Prepare Comparative Balance Sheet of Mayuri Ltd. and interpret it. (₹ crores)

Balance Sheet as at	**31.03.2014**	**31.03.2015**
Equity and Liabilities:		
Shareholders' Fund:		
Share capital	**6,393.21**	**6,453.39**
Equity share suspense	**60.14**	**---**
Equity share warrants	**---**	**1,682.40**
Reserves and surplus	**57,513.78**	**73,312.81**

Non-current Liabilities:		
Deferred tax liability	**6,982.02**	**7,872.54**
Current Liabilities:		
Secured loans	**9,569.12**	**6,600.17**
Unsecured loans	**18,256.61**	**29,879.51**
Current liabilities	**16,865.53**	**21,045.47**
Provisions	**1,712.87**	**2,992.62**
	1,17,353.28	**1,49,838.91**
Assets:		
Non-current Assets:		
Net fixed assets	**63,660.46**	**61,883.63**
Capital work-in-progress	**9,528.13**	**25,005.84**
Investments	**16,251.34**	**22,063.60**
Current Assets:		
Inventories	**10,136.51**	**12,247.54**
Sundry debtors	**3,732.42**	**6,227.58**
Cash and bank balances	**1,835.35**	**4,280.05**
Other current assets	**3.07**	**72.54**
Loans and advances	**12,206.00**	**18,058.13**
	1,17,353.28	**1,49,838.91**

Answer of 8(a):

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	(+)	(-)	(-)	• The company is generating cash from operations to meet its investment requirement and pay interest, debt and dividend to shareholde₹ • It represents strong cash flow pattern from 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.

Answer of 8(b):

Comparative Balance Sheet of Mayuri Ltd **(₹ in crores)**

Balance Sheet as at	31.03.2014 (₹)	31.03.2015 (₹)	Absolute change (₹)	% Change
Equity and Liabilities:				
Shareholders' Fund:				
Share capital	6,393.21	6,453.39	60.18	0.941
Equity share suspense	60.14	---	(60.14)	(100.00)
Equity share warrants	---	1,682.40	1,682.40	100.00
Reserves and surplus	57,513.78	73,312.81	15,799.03	27.469
Non-current Liabilities:				
Deferred tax liability	6,982.02	7,872.54	890.52	12.754
Current Liabilities:				
Secured loans	9,569.12	6,600.17	2,968.95	(31.026)
Unsecured loans	18,256.61	29,879.51	11,622.90	63.664
Current liabilities	16,865.53	21,045.47	4,179.94	24.784
Provisions	1,712.87	2,992.62	1,279.75	74.714
	1,17,353.28	1,49,838.91	32,485.63	27.682
Assets:				
Non-current Assets:				
Net fixed assets	63,660.46	61,883.63	1,776.83	(2.791)
Capital work-in-progress	9,528.13	25,005.84	15,477.71	162.442
Investments	16,251.34	22,063.60	5,812.26	35.765
Current Assets:				
Inventories	10,136.51	12,247.54	2,111.03	20.826

Sundry debtors	3,732.42	6,227.58	2,495.16	66.851
Cash and bank balances	1,835.35	4,280.05	2,444.70	133.200
Other current assets	3.07	72.54	69.47	2,262.866
Loans and advances	12,206.00	18,058.13	5,852.13	47.944
	1,17,353.28	1,49,838.91	32,485.63	27.682

Interpretation:

(i) The share capital has increased by ₹ 60.18 crores during the current accounting year. This would be a transfer of amount from Equity Share Suspense A/c to Equity Share Capital.
(ii) During the current year, the company has issued Equity share warrants worth ₹ 1,682.40 crores.
(iii) The reserves and surplus have increased to ₹ 73,312.81 crores from ₹ 57,513.78 crores.
(iv) The secured loans have reduced by ₹ 2,968.95 crores over previous year. The company has redeemed non-convertible debentures worth ₹ 1,228.14 crores and repaid the term loans amounting to ₹ 40.59 crores during the current accounting period.
(v) The company has raised unsecured loans amounting to ₹ 11,622.90 crores during the current year which shows an increase over the previous year by 63.66%. The increase in unsecured loans represents ₹ 9,560.71 crores are long-term in nature and the balance amount of ₹ 2,059.59 are in short-term nature.
(vi) The current liabilities and provisions have increased by 24.78% and 74.71% respectively.
(vii) There is a slight fall in net fixed assets by 2.79%.
(viii) The company has incurred substantial amount of ₹ 15,477.71 crores on the upcoming projects during the current accounting period.
(ix) During the current accounting period the investment in long-term investments is increased by ₹ 4,703.42 crores and the current investments have increased by ₹ 1,108.84 crores.
(x) The current assets have increased by ₹ 7,120.36 crores which amounts to 45.33% increase.
(xi) The loans and advances have increased by 47.94% which amounts to ₹ 5,852.13 crores during the current accounting period over the previous year.

9.(a) Describe Sustainable Growth Rate (SGR).

9.(b) On the basis of the following figures derived from the Accounts of Gold Ltd., prepare a report on the level of efficiency of financial and operational management of the company:

Years	Capital Turnover Ratio	Net Profit on Sales (%)	ROI (%)	Current Ratio
1	1.0	8	8	6.0
2	2.0	10	20	4.0
3	3.0	11.5	34.5	2.0
4	4.5	14	63	0.5

Answer of 9(a):

Sustainable Growth Rate (SGR) is the maximum growth rate at which the firm can grow by using both internal as well as external debt but without changing its debt-equity mix. The SGR is computed with two additional assumptions as follows:

(i) The firm does not intend to issue new equity shares as it is a costly source of finance.
(ii) The firm has a target capital structure (i.e. debt-equity ratio) which it will like to maintain.

The SGR can be computed on the basis of the following equation:

$$SGR = \frac{ROA \times b}{1 - (ROE \times b)}$$

Where
ROE = Return on Equity or Shareholders' Funds
b = Retention Ratio

The sustainable growth rate can increase on account of any of the following reasons:

(i) Increase in net profit ratio,
(ii) Increase in assets turnover ratio,
(iii) Increase in debt equity ratio,
(iv) Increase in retained earnings ratio or decrease in dividend payout ratio, and
(v) Issue of new shares.

SGR helps a company in adopting a suitable policy for its long term performance. In case a company grows at a rate higher than its sustainable growth rate, it has a better operating performance. This is reflected by higher net profit ratio or assets turnover ratio. In case a firm feels that it is not possible for it to improve its operating performance nor it is prepared to take greater risk by increasing its debt equity ratio, it should prefer to grow at a rate not higher than SGR to conserve its financial resources and to avoid the possibility of bankruptcy in future.

Answer of 9(b):
Year 1:

1. Company's Capital Turnover ratio is one, which indicates that the Company is able to generate sales just one time in relation to its capital employed.
2. The Net Profit ratio is a modest 8%, which reflects a low level of profitability.
3. Since the Company's Net Profit ratio is only 8% & it is able to generate sales equal to just 1 time that of capital employed, consequently its ROI is also a meager 8%.
4. The Current Ratio is far away from being ideal, indicating the underutilization & ineffective management of current assets.

Year 2:

1. The Company has now able to double its sales in relation to its capital employed, which is worth notice.
2. Even, its Net Profit ratio has increased slightly by 2%, which is due to increase in sales as mention in point (1).
3. The combined effect of increase in Capital Turnover Ratio & Net Profit ratio has magnified the Company's ROI from 8% to 20%, thus fostering Company's investment avenue.
4. The Current Ratio has improved in relation to the past year but still there is ineffective utilization of Current Assets.

Year 3:

1. The Company is on a good path leading towards development, which is clearly reflective from its Capital Turnover Ratio, as it has been able to increase its sales, equal to thrice of its

capital employed as compared to twice in the past year.
2. Increase in sales & operating efficiency for proper utilization of current assets has had a positive effect/impact on Net Profit Ratio, which is gradually improving.
3. ROI of the Company has magnified manifold due to dual effect of sharp increase in Capital Turnover Ratio & Net Profit Ratio.
4. The short-term solvency position of Company is now ideal (2:1). Current assets are being effectively managed & utilised & there is a good amount of cover for the current debts.

Year 4:

1. The utilisation of Capital to generate turnover has improved from 3 times in the last year to 4.5 times in the current year. This shows high efficiency of management in utilization of its long term funds.
2. The Net Profit Ratio is improving step by step & now it has reached upto the level of 14%.
3. ROI of the Company has almost doubled its self in comparison to last year. This is due to better utilisation of Capital employed by the management.
4. The short-term solvency position is alarming. It is quite surprising to see that the company is using Current Liabilities to finance its Fixed Assets as can be seen from the ratio that Current Assets are only half of that of Current Liabilities. It demands immediate attention at the company which is short of working capital and the Company is not in a position to pay its current liabilities from its Current Assets. If the short-term creditors are to be paid immediately, the Company may have to sell its long-term investments.

10.(a) The capital of E. Ltd. is as follows:

	₹
9% Preference shares, ₹ 10 each	**3,00,000**
Equity shares of ₹ 10 each	**8,00,000**
	11,00,000

Additional information: Profit (after tax at 35 per cent), ₹ 2,70,000; Depreciation, ₹ 60,000; Equity dividend paid, 20 per cent; Market price of equity shares, ₹ 40.

You are required to compute the following, showing the necessary workings:

(i) Dividend yield on the equity shares.
(ii) Cover for the equity dividends.
(iii) Earnings per shares.
(iv) Price-earnings ratio.

10.(b) A ₹ 1,000 par value bond bears a coupon rate of 14 percent and matures after 5 years. Interest is payable semi-annually. Compute the value of the bond if the required rate of return is 16 percent. Given $PVIFA_{8\%,\ 10\ years} = 6.710$ and $PVIF_{8\%,\ 10\ years} = 0.463$.

Answer of 10(a):

(i) Dividend yield on the equity shares: $= \frac{\text{Dividend per share}}{\text{Market price per share}} \times 100 = \frac{₹\ 2\ [0.20 \times ₹\ 10]}{₹\ 40} \times 100$

= 5 per cent

(ii) Cover for the equity dividends =

$$\frac{\text{Profit after taxes - Preference share dividend}}{\text{Dividend payable to equity shareholders at current rate of ₹ 2 per share}}$$

$$= \frac{₹\,2,70,000 - ₹\,27,000}{₹\,1,60,000\,[80,000 \text{ shares x } ₹\,2]} = 1.52 \text{ times}$$

(iii) Earnings per equity share: $= \frac{\text{Earnings available to equity shareholders}}{\text{Number of equity shares outstanding}} = \frac{₹\,2,43,000}{80,000}$

$= ₹\,3.04$ per share

(iv) Price-earning (P/E) ratio $= \frac{\text{Market price per share}}{\text{Earnings per share}} = \frac{₹\,40}{₹\,3.04} = 13.2$ times

Answer of 10(b):

In this case the number of half yearly period is 10, the half-yearly interest payment is ₹ 7, and the discount rate applicable to a half-yearly period is 8 percent. Hence the value of the bond is:

$$V = \sum_{t=1}^{10} \frac{7}{(1.08)^t} + \frac{1000}{(1.08)^{10}}$$

= 7 ($PVIFA_{8\%,\ 10\ years}$) + 1,000 ($PVIF_{8\%,\ 10\ years}$)

= 7 (6.710) + 1,000 (0.463)

= 46.97 + 463

= ₹ 509.97

11.(a) From the following Profit and Loss Account (Extracts) of Taj Ltd., prepare a Gross Value Added Statement. Show also the reconciliation between gross value added and profit before taxation:

Profit and Loss Account (Extracts) for the year ended 31st March, 2015

Particulars	Notes	₹ Lakhs	
Income			
Sales			**206.42**
Other income			**10.20**
			216.62
Expenditure			
Production and operational expenses	**1**	**166.57**	
Administration expenses	**2**	**6.12**	
Interest and other charges	**3**	**8.00**	
Depreciation		**5.69**	**186.38**
Profit before tax			**30.24**
Provision for tax			**3.00**
			27.24
Investment allowance reserve written back			**0.46**
Balance as per last Balance Sheet			**1.35**
			29.05

Transferred to:			
General reserve		**24.30**	
Proposed dividend		**3.00**	**27.30**
Surplus carried to Balance Sheet			**1.75**
			29.05

Notes:

(1) Production and Operational Expenses

	(₹ lakhs)
Increase in stock	**30.50**
Consumption of raw materials	**80.57**
Consumption of stores	**5.30**
Salaries, wages, bonus and other benefits	**11.80**
Cess and local taxes	**4.20**
Other manufacturing expenses	**34.20**
	166.57

(2) Administration expenses include inter alia audit fees of ₹ 1 lakh, salaries and commission to directors ₹ 2.20 lakhs and provision for doubtful debts ₹ 2.50 lakhs.

(3) Interest and Other charges

	(₹ lakhs)
On fixed loans from financial institutions	**3.90**
On debentures	**1.80**
On working capital loans from bank	**2.30**
	8.00

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

Year	**2013-14**	**2014-15**
Sales (₹)	**12,00,000**	**16,80,000**
Cost of Goods Sold (₹)	**8,00,000**	**12,60,000**
Units Sold	**40,000**	**60,000**

Analyse the reasons for changes in profit due to changes in sales quantity, cost price and selling price.

Answer of 11(a):

Value Added Statement of Taj Ltd. for the year ended 31st March, 2015

Particulars	₹ lakhs	₹ lakhs	%
Sales		206.42	
Less: Cost of bought –in materials and services			
Production and operational expenses	150.57		
Administration expenses	3.92		
Interest on working capital loans	2.30	156.79	
Value added by manufacturing and trading activities		49.63	
Add: Other income		10.20	
Total Value Added		59.83	
Application of Value Added:			
To Employees:			

Salaries, wages, bonus and other benefits		11.80	19.72
To Directors:			
Salaries and commission		2.20	3.68
To Government:			
Cess and local taxes	4.20		
Income-tax	3.00	7.20	12.03
To Providers of Capital:			
Interest on debentures	1.80		
Interest on fixed loans	3.90		
Dividend	3.00	8.70	14.54
To provide for Maintenance and expansion			
Depreciation:	5.69		
General reserve [₹ (24.30 – 0.46) lakhs]	23.84		
Retained profit [₹ (1.75 – 1.35) lakhs]	0.40	29.93	50.03
		59.83	100.0

Reconciliation between Total Value Added and Profit before Taxation

(₹ lakhs)

Profit before tax		30.24
Add back:		
Depreciation	5.69	
Salaries, wages, bonus and other benefits	11.80	
Directors' remuneration	2.20	
Cess and local taxes	4.20	
Interest on debentures	1.80	
Interest on fixed loans	3.90	29.59
Total Value Added		59.83

Answer of 11(b):

Particulars	**2013-14**	**2014-15**	**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 changes in Profit

Particulars	**₹**	**₹**
Changes in profit due to changes in sales:		
1. Increase in profit due to increase in quantity [Change in quantity x Base year's unit selling price = (60,000-40,000) x ₹30]		6,00,000
2. Decrease in profit due to decrease in unit selling price [Change in unit selling price x Base year's quantity = (₹28 - ₹30) x 40,000]		(80,000)
3. Decrease in profit due to change in price and quantity [Changes in unit selling price x Change in quantity		(40,000)

= (₹28 - ₹30) x (60,000 - 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 x Base year's unit cost price = (60,000 - 40,000) x ₹20]	(4,00,000)	
2. Decrease in profit due to increase in unit cost price [Change in unit cost price x Base year's quantity = (₹21 - ₹20) x 40,000]	(40,000)	
3. Decrease in profit due to change in price and quantity [Change in unit cost price x Change in quantity = (₹21 - ₹20) x (60,000 - 40,000)]	(20,000)	(4,60,000)
Net Increase in Gross Profit		**20,000**

Note: Here, the base year is 2013-14.

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

	2012-13	2013-14	2014-15
Current Assets:			
Cash	**561**	**397**	**202**
Receivables	**1,963**	**2,860**	**4,051**
Inventories	**2,031**	**2,613**	**3,287**
Total current assets	**4,555**	**5,870**	**7,540**
Non- current Assets:			
Net fixed assets	**2,581**	**4,430**	**4,364**
Total assets	**7,136**	**10,300**	**11,904**
Current Liabilities:			
Payables	**1,862**	**2,944**	**3,613**
Accruals	**301**	**516**	**587**
Bank loan	**250**	**900**	**1,050**
Total current liabilities	**2,413**	**4,360**	**5,250**
Non- current Liabilities:			
Long-term debt	**500**	**1,000**	**950**
Shareholders' Fund:			
Shareholders' equity	**4,223**	**4,940**	**5,704**
Total liabilities and equity	**7,136**	**10,300**	**11,904**
Sales	**11,863**	**14,952**	**16,349**
Cost of goods sold	**8,537**	**11,124**	**12,016**
Selling, general, and administrative expenses	**2,349**	**2,659**	**2,993**
Profit before taxes	**977**	**1,169**	**1,340**
Taxes	**390**	**452**	**576**

Profit after taxes	**587**	**717**	**764**

Make a common size and index analyses and evaluate trends in the company's financial condition and performance.

Answer of 12:

Common Size and Index Analysis

	2012-13	2013-14	2014-15
	Common Size Analysis		
	(%)	**(%)**	**(%)**
Current Assets:			
Cash	7.9	3.8	1.7
Receivables	27.5	27.8	34.0
Inventories	28.4	25.4	27.6
Total Current assets	63.8	57.0	63.3
Non- current Assets:			
Net fixed assets	36.2	43.0	36.7
Total assets	100.0	100.0	100.0
Current Liabilities:			
Payables	26.1	28.6	30.4
Accruals	4.2	5.0	4.9
Bank loan	3.5	8.7	8.8
Total Current liabilities	33.8	42.3	44.1
Non- current Liabilities:			
Long-term debt	7.0	9.7	8.0
Shareholders' Fund:			
Shareholders' equity	59.2	48.0	47.9
Total liabilities and equity	100.0	100.0	100.0
Sales	100.0	100.0	100.0
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
	Index Analysis		
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 2013-14, but then fell back as a percentage of the total to almost the 2012-13 percentages. The absolute amounts suggest that the company spent less than its depreciation on fixed assets in 2014-15. 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 2013-14, no doubt to finance the bulge in net fixed assets. The bank loan remained about the same in 2014-15 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 2012-13, this decline was a result of the cost of goods sold, as expenses and taxes declined as a percentage of sales. In 2014-15, 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 2014-15 as they were in 2012-13. Net fixed assets increased more sharply than total assets in 2013-14 and then fell back into line in 2014-15. The sharp increase in bank loans in 2013-14 and 2014-15 and the sharp increase in long-term debt in 2013-14 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.

13.(a) What are the possible causes of industrial sickness in relation to production management, labour management, marketing management and financial management and administration management?

13.(b) The following informations are related to the Balance Sheets of Gyan Co. Ltd. for the past two years are as under:

	(₹ in lakh)	
	As at 31.03.2015	As at 31.03.2014
Share Capital	75.00	50.00
Cash Credit Loan from Bank @ 16.5% Interest	80.00	100.00
Working Capital Term Loan from Bank @ 16.5% Interest	20.00	---
Unsecured Inter-corporate Loan @ 18% Interest	60.00	---
Fixed Assets Less Depreciation	35.00	37.00
Inventories including WIP	100.00	70.00
Debtors	60.00	30.00
Cash/Bank	10.00	10.00
Creditors	120.00	140.00
Advances etc.	60.00	60.00
Profit and Loss A/c	210.00	203.00

The following additional information is available:

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

	(₹ in Lakh)	
	Sales	Profit/(Loss)
2013-14	100	(150)
2014-15	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?

Answer of 13(a):

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.

Answer of 13(b):

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 2014-15 as compared to 2013-14. The increase is 250%.

- The amount of loss has also come down considerably. The loss is only ₹ 7 lakh in 2014-15 as compared to a loss of ₹ 150 lakh in 2013-14. 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.

In order to meet the additional working capital requirements for the year 2016-17 and 2017-18, 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.

14.(a) The selected financial data for the companies, namely P, Q and R for the year ended 31st March, 2015 are as follows:

Particulars	P	Q	R
Variable expenses as a percentage of sales	66.67	75	50
Interest expenses (₹)	200	300	1,000
Degree of operating leverage (DOL)	5	6	6
Degree of financial leverage (DFL)	3	4	2
Income-tax rate	0.30	0.30	0.30

1. **Prepare income statements for P, Q and R companies.**
2. **Comment on the financial position and structure of these companies.**

14.(b) From the following informations, calculate the cash from operations after analysing each of the following items in relation to the cash flow analysis:

	Balances as on	
	31st March, 2014 (₹)	31st March, 2015 (₹)
1. Stocks	12,000	14,000
2. Debtors	12,000	15,000
3. Creditors	5,000	9,000
4. Bills Receivable	5,000	8,000
5. Outstanding Expenses	4,000	7,500
6. Bills Payable	4,000	2,000
7. Prepaid Expenses	2,000	1,000

Provided that operating profit before working capital changes are ₹ 3,000.

Answer of 14(a):

1. Income Statement of companies P, Q and R for the year ended 31st March, 2015

Particulars	P (₹)	Q (₹)	R (₹)
Sales	4,500	9,600	24,000
Less: Variable costs (VC)	3,000	7,200	12,000
Less: Fixed costs (Sales – VC- EBIT)	1,200	2,000	10,000
EBIT (Earnings before Interest & Taxes)	300	400	2,000
Less: interest	200	300	1,000
Earnings before taxes	100	100	1,000
Less: Taxes	30	30	300
EAT (Net income)	70	70	700

Working Notes:

The preparation of the income statement requires data for (I) sales revenue, (II) variable costs and (III) fixed costs.

Company P:	Company Q:	Company R:
DFL = 3, DFL = $\frac{EBIT}{EBIT-I}$ $3 = \frac{EBIT}{EBIT-₹200}$ EBIT = ₹300 DOL = $\frac{Sales-Variable\ costs(V)}{EBIT}$ $5 = \frac{S-0.667\,S}{₹300}$ Where S = sales = ₹4,500 VC = 0.667 x ₹4,500 = ₹3,000	$4 = \frac{EBIT}{EBIT-₹300}$ EBIT = ₹400 $6 = \frac{S-0.75\,S}{₹400}$ S = ₹ 9,600 VC = 0.75 x ₹ 9,600 = ₹ 7,200	$2 = \frac{EBIT}{EBIT-₹1,000}$ EBIT = ₹2,000 $6 = \frac{S-0.50\,S}{₹2,000}$ S = ₹ 24,000 VC = 0.50 × ₹ 24,000 = ₹ 12,000

2. The financial position of company R can be regarded better than other companies: (I) It has the least financial risk as it is has minimum degree of financial leverage. It is true that there will be a more magnified impact on EPS of P and Q due to change in EBIT, but, their EBIT level due to low sales is very low. (II) From the point of view of DCL, company R is better placed. The degree of combined leverage is maximum in company Q (24); for company P (15) and for company R it is 12. The total risk (business plus financial) of company R is the lowest. (III) The ability of the company R to meet interest liability is better. The EBIT/interest ratios for the three companies are:

R, 2.0 (₹ 2,000 ÷ ₹ 1,000)

P, 1.5 (₹ 300 ÷ ₹ 200)

Q, 1.33 (₹ 400 ÷ ₹300)

Answer of 14(b):

The operating profit before working capital changes is amounted to ₹3,000 (provided). However, adjustments will have to be made in this amount for current assets and current liabilities in order to compute cash from operations. This has to be done by taking each item of current assets and current liabilities independently, as explained below:

1. The investment in stock has increased by ₹ 2,000 as compared to the previous year. This means cash must have gone out to the extent of ₹ 2,000. It will, therefore, decrease the cash balance.
2. Debtors have gone up from ₹ 12,000 on 31st March, 2014 to ₹ 15,000 on 31st March, 2015. There is an increase of ₹ 3,000. It shows that sales to the extent of ₹ 3,000 have not been realised in cash. Hence, cash from operations will be reduced by ₹ 3,000.
3. Creditors have gone up by ₹ 4,000. Thus, purchases to the extent of this amount have not been paid in cash. It is, therefore, a 'source' of cash.
4. Bills receivable have increased by ₹ 3,000. Thus, sales to the extent of ₹ 3,000 have not been realised in cash. Hence, cash on account of operations will be reduced by ₹ 3,000.
5. Outstanding expenses have increased by ₹ 3,500. Thus, expenses to this extent have not been paid resulting in increase of cash from operations by this amount.
6. Bills payable have come down by ₹ 2,000. It shows more payment of cash. The cash from operations will stand reduced by ₹ 2,000.
7. Prepaid expenses have come down by ₹ 1,000. This shows less of payment and hence cash from operations will increase by ₹ 1,000.

Cash from operations now can be computed as follows:

	Increase (+) (₹)	Decrease (-) (₹)	(₹)
Operating profit before working capital changes			3,000
Increase in stock		2,000	
Increase in debtors		3,000	
Increase in creditors	4,000		
Increase in bills receivable		3,000	
Decrease in bills payable		2,000	
Increase in outstanding expenses	3,500		
Decrease in prepaid expenses	1,000		
			(1,500)
Inflow of cash on account of operations			1,500

15.(a) Consider the following information for AB Enterprise:

	₹ in lakh
EBIT	**1,120**
PBT	**320**
Fixed cost	**700**

Calculate percentage change in earning per share if sales increased by 6 per cent.

15.(b) From the following informations, compute Price Earnings Ratio, Earning Yield Ratio, Dividend Yield Ratio and Market Price to Book Value Ratio with analytical aspects:

- **Market price of an equity share: ₹ 225**
- **Net profit after interest, tax and preference dividend: ₹ 2,25,000**

- **Profit distributed as dividend: ₹ 1,35,000**
- **No. of Equity Shares: 10,000 @ ₹ 10 each**
- **Profit distributed as dividend: ₹ 1,35,000**
- **General Reserve: ₹ 3,00,000**
- **Profit & Loss Account: ₹ 2,00,000**

Answer of 15(a):

(1) Degree of operating leverage

$$DOL = \frac{\text{Contribution}}{\text{EBIT}} = \frac{\text{EBIT} + \text{Fixed Cost}}{\text{EBIT}}$$

$$= \frac{1{,}120 + 700}{1{,}120} = 1.625$$

(2) Degree of financial leverage

$$DFL = \frac{\text{EBIT}}{\text{PBT}} = \frac{1{,}120}{320} = 3.5$$

(3) Degree of combined leverage

DCL = DOL × DFL = 1.625 × 3.5 = 5.6875

Change in EPS can be calculated as:

$$DCL = \frac{\%\text{Change in EPS}}{\%\text{Change in Sales}}$$

$$5.6875 = \frac{\%\text{Change in EPS}}{6}$$

% change in EPS = 6 × 5.6875 = 34.125%.

Answer of 15(b):

- $$\text{Price Earnings Ratio} = \frac{\text{Market Price per Share}}{\text{Earnings per Share (EPS)}}$$

$$\text{Again, Earnings per Share} = \frac{\text{Net profit after interest, tax and preference dividend}}{\text{Number of Equity Shares}}$$

$$= \frac{₹\ 2{,}25{,}000}{10{,}000} = ₹\ 22.50$$

$$\text{Therefore, Price Earnings Ratio} = \frac{₹\ 225}{₹\ 22.50} = 10$$

It indicates the number of times of EPS, the share is being quoted in the market. In other words, it indicates the payback period within which the prospective investor can recover his investment in a single share by way of EPS. A higher P/E ratio indicates that the company is growing and has good earning prospects.

- $$\text{Earning Yield Ratio} = \frac{\text{Earnings per Share}}{\text{Market Price per Share}}$$

$$= \frac{₹\ 22.50}{₹\ 225} \times 100 = 10\%$$

It indicates earnings as percentage of market price. In general, higher the ratio, better it is. An enterprise should have a satisfactory ratio.

- $\text{Dividend Yield Ratio} = \frac{\text{Dividend per Share (DPS)}}{\text{Market Price per Share}}$

  $\text{Dividend per Share} = \frac{\text{Profit distributed as dividend}}{\text{No. of quity Share}} = \frac{1,35,000}{10,000} = ₹\ 13.50$

  $\text{Therefore, Dividend Yield Ratio} = \frac{₹\ 13.50}{₹\ 225} \times 100 = 6\%$

  It indicates the return (in terms of DPS) on market price. To judge whether the ratio is satisfactory or not, it should be compared with its own past ratios or with the ratio of similar enterprises in the same industry or with the industry average.

- $\text{Market Price to Book Value Ratio} = \frac{\text{Market Price per Share}}{\text{Book value per Share}}$

  $\text{Again, Book Value per Share} = \frac{\text{Equity Shareholders' Fund}}{\text{No. of Equity Shares}}$

  $= \frac{(1,00,000 + 3,00,000 + 2,00,000)}{10,000} = ₹\ 60 \text{ per share}$

  $\text{Therefore, Market Price to Book Value Ratio} = \frac{₹\ 225}{₹\ 60} \times 100 = 375\%$

  It indicates the market response to the book value of a share. Higher the ratio better is the shareholders' position in terms of capital gains. It is the price paid for the company's assets. Lower the ratio, more attractive the investment opportunity.

Section – B [Business Valuation]

16. (a) How perceptions (bias) about companies are manifested in business valuation?

16. (b) Identifies the key areas of valuation.

Answer of 16 (a):

There are three ways in which our views on a company (and the biases we have) can manifest themselves in value. The first is in the inputs that we use in the valuation. When we value companies, we constantly make assumptions to move on. These assumptions can be optimistic or pessimistic. For a company with high operating margins now, we can either assume that competition will drive the margins down to industry averages very quickly (pessimistic) or that the company will be able to maintain its margins for an extended period (optimistic). The path we choose will reflect our prior biases. It should come as no surprise that at the end of a day the value that we arrive at is reflective of the optimistic or pessimistic choices we made along the way.

The second is in what we will call post-valuation tinkering, where analysts revisit assumptions after a valuation in an attempt to get a value closer to what they had expected to obtain starting off. Thus, an analyst who values a company at ₹ 150 per share, when the market price is ₹ 250, may revise his growth rates upwards and his risk downwards to come up a higher value, if she believed that the company was undervalued to begin with. The third is to leave the value as is but attribute the difference between the value we estimate and the value we think is the right one to a qualitative factor such as synergy or strategic considerations. This is a common device in acquisition valuation where analysts are often called upon to justify the unjustifiable. In fact, the use of premiums and discounts, where we augment or reduce estimated value, provides a window on the bias in the process. The use of premiums – control and synergy are good examples – is commonplace in acquisition valuations, where the bias is towards pushing value upwards (to justify high acquisition prices). The use of discounts – illiquidity and minority discounts.

Answer of 16 (b):

Globalization enhanced IT capabilities, all pervasive role of the media and growing awareness of investors have rendered the situation more complex. Mergers, acquisitions, disinvestments and corporate takeovers have become the order of the day across the globe and are a regular feature today.

Mentioned below are certain key areas where valuation plays a key role.

- Valuation of equity share in the primary, secondary as well as derivative market
- Private placement of equity shares
- Corporate restructuring and turnaround
- Secured lending including project finance
- Securitization and other debt instruments
- Implementation of Basel-II recommendation
- Portfolio management-Mutual fund, hedge fund and professional investors
- Long term and medium term investment decisions, M& A, takeovers, divestiture, disinvestment, capital budgeting, private equity investment, venture capital investment, stratetigic investors, financial investors and others
- Dividend decision and buy back of shares
- Borrowing decisions
- Financial risk management decisions
- Court case related decisions
- Tax related valuation including transfer pricing
- Development projects valuation
- Intangibles
- Financial reporting valuation
- Equity research
- Forensic accounting and financial fraud investigation
- Dissolution of firm, partner buyout and admission
- Insurance product valuation
- Estate planning and financial planning

- Corporate planning
- Property valuation
- Value based performance measurement
- Credit rating
- Fairness and solvency opinion and
- Charitable donation.

Apart from the reasons stated above, there lie reasons like 'divorce' etc. which could often be treated as reasons for valuation. However, we will consider it beyond the scope of our study

17. (a) State the uncertainties in business valuation.

17. (b) How a Valuer responds to various uncertainties during the process of business valuation.

Answer of 17 (a):

Starting early in life, we are taught that if we do things right, we will get the right answers. In other words, the precision of the answer is used as a measure of the quality of the process that yielded the answer. While this may be appropriate in mathematics or physics, it is a poor measure of quality in valuation. Barring a very small subset of assets, there will always be uncertainty associated with valuations, and even the best valuations come with a substantial margin for error. We examine the sources of uncertainty and the consequences for valuation.

The value of a business is not a static figure. It depends on change in purpose or circumstances. There are number of uncertainties involved in the valuation process which if not handled appropriately, would lead to an absurd value. We may design complex financial models with several inputs to handle uncertainties but that does not mean that the value derived is reasonable or the process is sound. What we need to understand is the impact of each input on the value. Giving attention to following factors is crucial:

- The macro economic factors
- The business
- Its growth potential in the industry in which it operates
- How is the business positioned
- Who are competitors
- What is the quality and stability of the company's management

The principles and methods of valuation are well settled and they are same across the class of transactions. What changes in the course of deriving value is the selection of approaches and methods. Seller would like to get as much as possible and buyer would like to pay as little as possible. Somewhere between these two the deal takes place. Could it be mentioned that value is the price at which the deal takes place? What if there is no buyer or there is no intention to sell. Could it be concluded that the object or business is worth nothing? The answer is 'No'. There is a' bigger fool theory' which says' any price can be justified if a buyer is ready to pay the price. It might be you who is the last buyer ready to pay the available price! The theory makes us understand that every price cannot be value and vice versa. We need to differentiate between value and price.

Answer of 17 (b):

Analysts who value companies confront uncertainty at every turn in a valuation and they respond to it in both healthy and unhealthy ways. Among the healthy responses are the following:

Better Valuation Models: Building better valuation models that use more of the information that is available at the time of the valuation is one way of attacking the uncertainty problem. It should be noted, though, that even the best-constructed models may reduce estimation uncertainty but they cannot reduce or eliminate the very real uncertainties associated with the future.

Valuation Ranges: A few analysts recognize that the value that they obtain for a business is an estimate and try to quantify a range on the estimate. Some use simulations and others derive expected, best-case and worst-case estimates of value. The output that they provide therefore yields both their estimates of value and their uncertainty about that value.

Probabilistic Statements: Some analysts couch their valuations in probabilistic terms to reflect the uncertainty that they feel. Thus, an analyst who estimates a value of ₹ 30 for a stock which is trading at ₹ 25 will state that there is a 60 or 70% probability that the stock is undervalued rather than make the categorical statement that it is undervalued. Here again, the probabilities that accompany the statements provide insight into the uncertainty that the analyst perceives in the valuation.

In general, healthy responses to uncertainty are open about its existence and provide information on its magnitude to those using the valuation. These users can then decide how much caution they should exhibit while acting on the valuation.

Unfortunately, not all analysts deal with uncertainty in ways that lead to better decisions. The unhealthy responses to uncertainty include:

Passing the buck: Because some analysts try to pass on the responsibility for the estimates by using other people's numbers in the valuation, which could have been done by them in a better way and as a matter of fact the result vary. For instance, analysts will often use the growth rate estimated by other analysts valuing a company, as their estimate of growth. If the valuation turns out to be right, they can claim credit for it, and if it turns out wrong, they can blame other analysts for leading them down the garden path.

Based on fundamentals, a significant number of analysts give up, especially on full-fledged valuation models, unable to confront uncertainty and deal with it. All too often, they fall back on more simplistic ways of valuing companies (multiples and comparables, for example) that do not require explicit assumptions about the future. A few decide that valuation itself is pointless and resort to reading charts and gauging market perception.

In closing, it is natural to feel uncomfortable when valuing equity in a company. We are after all trying to make our best judgments about an uncertain future. The discomfort will increase as we move from valuing stable companies to growth companies, from valuing mature companies to young companies and from valuing developed market companies to emerging market companies.

18. (a) True value Ltd. is planning to raise funds through issue of common stock for the first time. However, the management of the company is not sure about the value of the company and therefore it attempts to study similar companies in the same line which are comparable to True value in most of the aspects.

From the following information, you are required to compute the value of True value Ltd. using the comparable firms approach.

(₹ in crore)

Company	True value Ltd.	Jewel-value Ltd.	Real value Ltd.	Unique value Ltd.
	₹	₹	₹	₹
Sales	**250**	**190**	**210**	**270**
Profit after tax	**40**	**30**	**44**	**50**
Book value	**100**	**96**	**110**	**128**
Market value		**230**	**290**	**440**

The value feels that 50% weightage should be given to earnings in the valuation process; sales and book value may be given equal weightages.

18. (b) XM Ltd had earning per share of ₹ 11.04 in 2014-15 and paid a dividend of ₹ 7 per share. The growth rate in earnings and dividends in the long term is expected to be 5%. The return on equity at XM Ltd is expected to be 13.66%. The beta of XM Ltd is 0.80 and the risk free Treasury bond is 6% while risk premium is 4%. Based on the information, calculate Price to Book Value Ratio.

18. (c) Describe the three variations of Relative Valuation.

Answer of 18 (a):

The valuation multiples of the comparable firms are as follows:

Particular	Jewel-value Ltd.	Real value Ltd.	Unique value Ltd.	Average
Prices/Sales ratio*	1.21	1.38	1.63	1.41
Price/Earnings ratio**	7.67	6.59	8.80	7.69
Price/Book value ratio***	2.40	2.64	3.44	2.83

Applying the multiples calculated as above, the value of True value Ltd. can be calculated as follows:

Particular	Multiple Average	Parameter ₹ cr.	Value ₹ cr.
Prices/Sales	1.41	250	352.50
Price/Earnings	7.69	40	307.60
Price/Book value	2.83	100	283.00

By applying the weightage to the P/S ratio, P/E ratio and P/BV ratio we get:
[(352.50 x 1)+(307.60 x 2)+(283.00 x 1)]/(1+2+1)=312.675, i.e. ₹ 312.675 crores is the value.

Alternative:
₹ (352.50 × 0.25 + 307.60 × 0.50 + 283.00 × 0.25) = ₹ 312.675 crore.

Working Notes:

*Price/Sales Ratio = $\frac{\text{Market Value}}{\text{Sales}}$

**Price/Earnings Ratio = $\frac{\text{Market Value}}{\text{Profit after tax}}$

***Price/Book value ratio = $\frac{\text{Market Value}}{\text{Book Value}}$

Answer of 18 (b):

Current dividend payout ratio=7/11.04 × 100 = 63.41%

Expected growth rate in earnings and dividends = 5%

Return on equity = 13.66%

Cost of equity = 6% + 0.80 × 4% = 6% + 3.2% = 9.20%

PBV Ratio= ROE × Payout Ratio/(Cost of equity - Growth rate)

= 0.1366 × 0.6341/(0.092-0.05) = 2.06.

Answer of 18 (c):

In relative valuation, the value of an asset is based upon how similar assets are priced. In practice, there are three variations of relative valuation, with the differences primarily in how we define comparable firms and control for differences across firms:

(i) Direct comparison: In this approach, analysts try to find one or two companies that look almost exactly like the company they are trying to value and estimate the value based upon how these similar companies are priced. The key part in this analysis is identifying these similar companies and getting their market values.

(ii) Peer Group Average: In the second, analysts compare how their company is priced (using a multiple) with how the peer group is priced (using the average for that multiple). Thus, a stock is considered cheap if it trade at 12 times earnings and the average price earnings ratio for the sector is 15. Implicit in this approach is the assumption that while companies may vary widely across a sector, the average for the sector is representative for a typical company.

(iii) Peer group average adjusted for differences: Recognizing that there can be wide differences between the company being valued and other companies in the comparable firm group, analysts sometimes try to control for differences between companies. In many cases, the control is subjective: a company with higher expected growth than the industry will trade at a higher multiple of earnings than the industry average but how much higher is left unspecified. In a few cases, analysts explicitly try to control for differences between companies by either adjusting the multiple being used or by using statistical techniques. As an example of the former, consider PEG ratios. These ratios are computed by dividing PE ratios by expected growth rates, thus controlling (at least in theory) for differences in growth and allowing analysts to compare companies with different growth rates.

19. (a) Explain the concept of market value added (MVA). How is EVA connected with MVA?

19. (b) From the following information concerning Swastik Ltd., prepare a statement showing computation of EVA for the year ended 31st March 2015:

Summarized Profit and Loss Account for the year ended 31st March 2015

		₹
Sales		**20,00,000**
Cost of goods sold		**12,00,000**
Gross Profit		**8,00,000**
Expenses:		
General	**2,00,000**	
Office and administration	**2,50,000**	
Selling and distribution	**64,000**	**5,14,000**
Profit before interest and tax (PBIT)		**2,86,000**
Interest	**36,000**	**36,000**
Profit before tax (PBT)		**2,50,000**
Tax 40%		**1,00,000**
Profit after tax		**1,50,000**

Summarized Balance Sheet as on 31st March 2015

Particular	2015 (₹)
EQUITY AND LIABILITIES:	
SHAREHOLDER'S FUNDS	
Share capital	2,40,000
Reserves and Surplus	1,60,000
	4,00,000
NON-CURRENT LIABILITIES	
Long-term Borrowings	2,40,000
	2,40,000
CURRENT LIABILITIES	
Trade payables	1,60,000
	1,60,000
TOTAL	**8,00,000**
ASSETS	
NON-CURRENT ASSETS	
FIXED ASSETS:	
Tangible assets	6,00,000
	6,00,000
CURRENT ASSETS	
Inventories	1,20,000
Trade receivables	60,000
Cash and bank balances	20,000
	2,00,000
TOTAL	**8,00,000**

Other particulars:

(i) Cost of goods includes depreciation expenses of ₹ 60,000.

(ii) The expectation return of shareholders is 12%.

19. (c) SMT Air Ltd is a telecommunications firm that generates ₹ 300 lakh in pretax operating income and reinvested ₹ 60 lacs in most recent financial year. As a result of tax deferrals the firm has an effective tax rate of 20% while its marginal tax rate is 40%. Both the operating income and the reinvestment are expected to grow 10% a year for 5 years and 5% thereafter. The firm's cost of capital is 9% and is expected to remain unchanged over time.

Estimate the value of SMT Air Ltd. using the different assumptions about tax rates:

(i) The effective tax rate----------20% to be considered.

(ii) The marginal tax rate----------40% to be considered.

Answer of 19 (a):

Market Value Added (MVA) is the value added to the business by management since the business was established, over and above the money invested by the owners. Thus, MVA = Market capitalization – invested equity capital. According to another version, MVA is the difference between a company's market value. (debt plus equity) at any point of time minus the total capital invested in the company, since inception. For all practical purposes, MVA may be considered as the accumulated EVA As generated by the business over time. If a company goes on by creating EVA year after year, then these will add up to give a high MVA.

Answer of 19 (b):

Calculation of ROOC

	₹
EBIT	2,86,000
Less: Tax (40%)	1,14,400
NOPAT	1,71,600

Calculation of Operating Capital	₹
Equity Share Capital	2,40,000
+ Reserve & Surplus	1,60,000
+ Term Loans	2,40,000
Operating Capital	6,40,000

ROOC = x 100 = 26.81%

Calculation of WACC

$K_d = \frac{36,000}{6,40,000}$ x (1 – 0.40) = 3.38%

$K_e = \frac{12\%}{6,40,000}$ x 4,00,000 = 7.50%

WACC (3.38% + 7.50%) = 10.88%
EVA = (26.81% - 10.88%) x 6,40,000 = ₹ 1,01,95,200

Answer of 19 (c):

(i) Computation of the value of SMT Air Ltd assuming the effective tax rate (T) to be 20%

₹ in lacs

	Year Current	1	2	3	4	5	Terminal	Total
EBIT	300	330	363	399	439	483	507	
EBIT(1-T)	240	264	290	319	351	386	406	
Reinvestment	60	66	73	80	88	97	102	
FCFF	180	198	217	239	263	289	304	
Terminal value								
PV factor at 9%	1.00	0.917	0.842	0.773	0.708	0.649	7600*	
PV		182	183	185	186	188	4932	5856

The value of SMT Air Ltd as per effective tax rate of 20% is ₹ 924 lacs +₹ 4932 lacs= ₹ 5856 lacs.

(ii)Value of SMT Air Ltd. assuming marginal tax rate (T) of 40%

₹ In lacs

	Year Current	1	2	3	4	5	Terminal	Total
EBIT	300	330	363	399	439	483	507	
EBIT(1-T)	180	198	218	239	263	290	304	
Reinvestment	60	66	73	80	88	97	102	
FCFF	120	132	145	159	175	193	202	
Terminal value							5050**	
PV factor at 9%	1.00	0.917	0.842	0.773	0.708	0.649	0.649	
PV	-	121	122	123	124	125	3277	3892

Value of SMT Air Ltd as per marginal tax rate of 40%is ₹ 615 lacs +₹ 3277 lacs=₹ 3892 lacs.

*304/(9%-5%)

**202/ (9%-5%)

20. (a) A task has been assigned to a research analyst in a mutual fund to find out at what price the fund should subscribe to an IPO issue (through Book Building) of a transformer company X Ltd. The following details of the company from 31.3.15 Annual Report are available:

Particulars	31.03.15
Revenues	248.79
Operating expenses	214.41
EBIDTA	34.38

Other Income	3.84
Interest expense	1.00
Preliminary Expenses W/O	0.00
Depreciation	1.92
Profit before taxes	35.30
Income taxes	12.35
Tax at the rate of	35%
Net profit	22.95

To calculate future cash flows, the following projections for the financial year ended 31.3.2016 till 31.3.2020 is available:

Amount in lakhs	FY16	FY17	FY18	FY19	FY20
Revenue growth	55%	50%	28%	20%	14%
Operating exp/ Income	87%	87%	87%	88%	88%
Other Income	2.50	2.20	2.50	2.50	2.50
Interest expense	2.00	3.00	3.00	3.00	3.00
Preliminary Expenses W/O	0.00	0.00	0.00	0.00	0.00
Depreciation	2.60	3.50	4.10	3.90	3.70
Capital spending	2.00	5.00	5.00	2.00	2.00
Working capital	2.00	5.00	5.00	2.00	2.00

It is given that revenues would grow at 0% after the explicit forecast period. X Ltd. total assets of ₹ 219.98 lakhs are financed with equity of ₹ 208.66 lakhs and balance debts sourced at 8% p.a. Assume risk free rate of 7.5%, risk premium of 7.5% and beta of stock as 1.07. The firm falls in the 35% tax bracket. The company including the shares floated in this issue would have issued a total of 1.02 lakhs shares. Find out the intrinsic value of share using Discounted Cash Flow Analysis. If the price band announced by X Ltd. stands at ₹ 345 - ₹ 365, should this fund subscribe to this book built issue and at which end of the price band?

20. (b) Distinguish between equity value and enterprise value.

20. (c) How do you value a firm in pieces?

Answer of 20 (a):

Calculation of Cost of Equity = $R_f+\beta(R_m-R_f)$ = 7.5 + 1.07 x 7.5 = 15.53%

Cost of Debt = 8%

WACC = (208.66/219.98) x 0.1553 + (11.32/219.98) x 0.08 x (1-0.35) = 15%

Discount rate = 15%

Calculation of Future Free Cash Flows for the Explicit Period of 5 Years:

Particulars	31.03.16E	31.03.17E	31.03.18E	31.03.19E	31.03.20E
Revenues	385.63	578.45	740.41	888.49	1012.88
Operating expenses	335.50	503.25	644.16	781.87	891.33

EBIDTA	50.13	75.20	96.25	106.62	121.55
Other Income	2.50	2.20	2.50	2.50	2.50
Interest expense	2.00	3.00	3.00	3.00	3.00
Preliminary Expenses W/O	0.00	0.00	0.00	0.00	0.00
Depreciation	2.60	3.50	4.10	3.90	3.70
Profit before taxes	48.03	70.90	91.65	102.22	117.35
Income taxes	16.81	24.81	32.08	35.78	41.07
Net Profit	31.22	46.08	59.57	66.45	76.28
Add Depreciation	2.60	3.50	4.10	3.90	3.70
Less capital spending	2.00	5.00	5.00	2.00	2.00
Less working capital	2.00	5.00	5.00	2.00	2.00
Free cash flow to the firm	**29.82**	**39.58**	**53.67**	**66.35**	**75.98**

Calculation of Value of Firm: **[Amount in lakhs]**

Year	Cash flows	Disc. Factor @ 15%	PV of cash flows
2015-16	29.82	0.870	25.93
2016-17	39.58	0.756	29.93
2017-18	53.67	0.658	35.29
2018-19	66.35	0.572	37.95
2019-20	75.98	0.497	37.76
Terminal Value* (g=0%)	506.50	0.497	251.73
Value of Firm			418.59
Value of Debt			11.32
Equity Value			407.27
Equity shares outstanding			1.02
Share price in ₹			**399.28**

* $\frac{75.98(1+0\%)}{(15\%-0\%)}$

Since the intrinsic value of share is ₹ 399 approximately and the price band is from ₹ 345 to ₹ 365, there is a scope for appreciation. Hence the fund can subscribe to these shares at the upper band of ₹ 365.

Answer of 20 (b):

There is an important distinction between equity value and enterprise value.

The equity value of a company is the value of the shareholders' claims in the company. The value of a share is arrived at by dividing the value of the company's equity as accounted in the balance sheet by the total number of shares outstanding. When a company is publicly traded, the value of the equity equals the market capitalization of the company.

The enterprise value of a company denotes the value of the entire company to all its claimholders.

Enterprise value = Equity value + market value of debt + minority interest + pension and other similar provisions + other claims.

Answer of 20 (c):

Valuation is done in pieces beginning with its operations and adding the effects on value of debt and other non-equity claims. The value of the firm can also be obtained by valuing each claim on the firm separately. In this approach, first equity is valued assuming that it was financed only with equity. Then the value taken away by debt is considered by considering the present value of the tax benefits that flow from debt and the expected bankruptcy costs.

Value of firm = Value of all-equity financed firm + PV of tax benefits + Expected Bankruptcy Costs

Piece or Adjusted PV approach allows different cash flows to the firm to be discounted at different rates, given their riskiness. Following example shows the equivalence of equity and firm valuation.

21. (a) Explain the various methods of payment in case of mergers and amalgamation.

21. (b) Illustrate the Cost of Entry of Merger and Acquisitions.

21. (c) Frontier Company Limited (FCL) is in negotiation for taking over Back Moving Company Limited (BMCL). The management of FCL is seeing strong strategic fit in taking over BMCL provided it is a profitable proposition. Mr. Amit, GM (Finance) has been asked to look into the viability of the probable takeover of BMCL. He has collected the following necessary information.

Summarized Balance Sheet of Back Moving Company Limited (BMCL) as on March 31, 2015

LIABILITIES	Amount (₹ in crores)
Shareholders' Fund:	
Equity Share Capital (₹10 par)	200.00
12% Preference Capital (₹100 par)	75.00
Reserves and Surplus	125.00
	400.00
Non-Current Liabilities:	
10% Debentures	40.00
Long Term Loans	25.00
	65.00
Current Liabilities:	
Current Liabilities	24.75
Total Liabilities	489.75
ASSETS	
Non-Current Assets	
Net Fixed Assets	332.75
Investments	125.00
	457.75
Current Assets:	
Inventories	10.00
Debtors	15.00
Cash in Hand and at Bank	4.25

Loans and Advances	**1.75**
Miscellaneous Expenses to the extent not written off	
	31.00
	1.00
Total Assets	**489.75**

Proposed Purchase Consideration:

- **10.50% Debentures of FCL for redeeming 10% Debentures of BMCL – ₹44 crores.**
- **11% Convertible Preference Shares of FCL for the payment of Preference Shareholders BMCL-₹100 crores.**
- **12.50 crores of Equity Shares of FCL would be issued to the shareholders of BMCL at the prevailing market price of ₹ 20 each.**
- **FCL would meet all dissolution expenses of ₹0.50 crores.**

The management of FCL would dispose any asset and liability which may not be required after takeover:

- **Investments ₹150 crores**
- **Debtors ₹ 15 crores**
- **Inventories ₹ 9.75 crores**
- **Payment of Current Liabilities ₹ 25 crores**
- **All intangible assets will be written off**

The management of FCL would like to run the taken over company, BMCL, for next 7 years and after that, it would discontinue with it. It is expected that for the next 7 years, the taken over company would generate the following yearly operating cash flows after tax:

	1	2	3	4	5	6	7
Operating Cash Flows After Tax (₹ In crores)	**70**	**75**	**85**	**90**	**100**	**125**	**140**

It is estimated that the terminal cash flows of BMCL would be ₹ 50 crores at the end of 7th year.

If the cost of capital of FCL is 16%, then you are required to find out whether the decision to takeover BMCL at the terms and conditions mentioned above will be a profitable decision:

Year	1	2	3	4	5	6	7
Discounting Factor @ 16%	**0.8621**	**0.7432**	**0.6407**	**0.5523**	**0.4761**	**0.4104**	**0.3538**

Answer of 21 (a):

Methods of payment in Mergers and Amalgamations:

(i) Cash: Where one company purchases the shares or assets of another for cash the shareholders of the latter company cease to have any interest in the combined business. The disadvantage is that they may be liable to capital gains tax.

(ii) Loan Stock: In this case the shareholders of the selling company exchange their equity investment for a fixed interest investment in the other company. The advantage is that any liability to capital gains tax will be deferred until the disposal of the loan stock. In addition, interest on the loan stock is deductible in the hands of the company for tax purpose.

(iii) Ordinary shares: Here the shareholder merely exchanges his shares in one company for shares in another company. The advantage is that the shareholders of the selling company continue to have an interest in the combined business and will not be subject to capital gains tax on the exchange. From the point of view of the combined companies a share exchange does not affect their liquidity.

(iv) Convertible loan stock: The shareholders in one company exchange their shares for convertible loan stock in the other company. The selling shareholder exchanges an equity investment for a fixed interest security which is convertible into an equity investment at some time in the future if he so desires.

Answer of 21 (b):

A challenge in executing the strategy is finding the right kind of Target Company. A dilemma facing an acquirer is whether to pay a premium price and acquire a successful company or to buy a poorly performing company at a bargain price and transform it into a good performer. If the buying company is not constrained by funds and wants to enter a business it has little knowledge of, then the best thing to do would be to buy a strongly-positioned company, unless of course the cost of acquisition is high and it fails the cost-of-entry test. On the other hand, when the acquiring company has the resources, knowledge and patience, it would do well to acquire a struggling company as a better long-term investment.

The cost-of-entry test requires that the expected profit stream of an acquired business provide an attractive return on the total acquisition cost and on any new capital investment needed to sustain or expand its operations. A high acquisition price can render the meeting the test improbable or difficult.

Consider an acquirer paying a price of ₹ 30 crores for a business, which is earning a post-tax return of ₹2 crores on an equity investment of ₹ 10 crores, i.e., 20% annual return. A simple calculation will show that the acquired company's profits will have to be triples for the acquirer to earn the same 20% return on their investment of ₹ 30 crores that the previous owners were getting on their ₹10 crores investment. Achieving the target earnings of ₹ 6 crores will take some time and may require additional investment, on which took the acquirer has to earn 20% return.

Normally, since the owners of a successful and growing company usually demand a price that reflects their business' future profit prospects, it is easy for such an acquisition to fail the cost-of entry test. A would-be diversifier cannot count on being able to acquire a desirable company in an appealing industry at a price that still offers attractive returns on investment.

Answer of 21 (c):

Cost of Acquisition:

Proposed Payments:		
Dissolution Expenses	0.50	
Current Liabilities	25.00	
10.50% debentures	44.00	
11% Convertible Preference Shares	100.00	

Equity Shares	250.00	
		419.50
Less:		
Sales proceeds from:		
Investments	150.00	
Debtors	15.00	
Inventories	9.75	
	174.75	
Cash and Bank Balance	4.25	179.00
Net cost of Acquisition		**240.50**

Year	Cash Flows (in ₹ crores)	Discounting factor	Present Value
1	70	0.8621	60.34
2	75	0.7432	55.74
3	85	0.6407	54.46
4	90	0.5523	49.71
5	100	0.4761	47.61
6	125	0.4104	51.31
7	140	0.3538	49.54
7	50	0.3538	17.69
		Total =	386.39

Since the present Value of the future cash flows is more than the cost of acquisition, it will be a profitable proposition to take over the said company, BMCL.

22. (a) Describe the common factors that spurred the mergers and acquisition activity worldwide.

22. (b) Following are the financial statement for Samik Ltd. and Sampa Ltd. for the current financial year. Both the firm operate in the same industry:

Balance Sheet **(₹)**

Particulars	Samik Ltd.	Sampa Ltd.
Total Current assets	14,00,000	10,00,000
Total Fixed assets (net)	10,00,000	5,00,000
	24,00,000	15,00,000
Equity capital (of ₹ 100 each)	10,00,000	8,00,000
Retained earnings	2,00,000	
14% Long-term debt	5,00,000	3,00,000
Total Current liabilities	7,00,000	4,00,000
	24,00,000	15,00,000

Income-Statements **(₹)**

Particulars	Samik Ltd.	Sampa Ltd.
Net sales	34,50,000	17,00,000
Cost of goods sold	27,60,000	13,60,000
Gross profit	6,90,000	3,40,000
Operating expenses	2,00,000	1,00,000
Interest	70,000	42,000
Earnings before taxes	4,20,000	1,98,000
Taxes (50%)	2,10,000	99,000
Earnings after taxes (EAT)	2,10,000	99,000

Additional Information

Number of equity shares	**10,000**	**8,000**
Dividend payment ratio (D/P)	**40%**	**60%**
Market price per share (MPS)	**₹ 400**	**₹ 150**

Assume that the two firms are in the process of negotiating a merger through an exchange of equity shares. You have been asked to assist in establishing equitable exchange terms, and are required to –

(i) Decompose the share prices of both the companies into EPS and P/E components, and also segregate their EPS figures into return on equity (ROE) and book value/intrinsic value per share (BVPS) components.

(ii) Estimate future EPS growth rates for each firm.

(iii) Based on expected operating synergies, Samik Ltd. estimates that the intrinsic value of Sampa's equity share would be ₹ 200 per share on its acquisition. You are required to develop a range of justifiable equity share exchange ratios that can be offered by Samik Ltd. to Sampa Ltd's shareholders. Based on your analysis in parts (i) and (ii) would you expect the negotiated terms to be closer to the upper, or the lower exchange ratio limits? Why?

(iv) Calculate the post-merger EPS based on an exchange ratio of 0.4:1 being offered by Samik Ltd. Indicate the immediate EPS accretion or dilution, if any, that will occur for each group of shareholders.

(v) Based on a 0.4:1 exchange ratio, and assuming that Samik's pre-merger P/E ratio will continue after the merger, estimates the post-merger market price. Show the resulting accretion or dilution in pre-merger market prices.

Market price per share (MPS) = EPS × P/E ratio or P/E Ratio = MPS / EPS.

Answer of 22 (a):

Merger and acquisition the most talked about term today creating lot of excitement and speculative activity in the markets. However, before the idea of M&A crystallizes, the firm needs

to understand its own capabilities and industry position. It also needs to know the same about the other firms it seeks to tie up with, to get a real benefit from a merger. A mergers and Acquisitions activity is that the divesting firm moves from diversifying strategy to concentrate on core activities in order to improve and increase competitiveness. Globalization has increased the competitive pressure in the markets. In a highly challenging environment a strong reason for M&A is a desire to survive. Thus apart from growth, the survival factor has off late, spurred the M&A activity worldwide.

Some such factors are listed below:

- The company's business prospects and nature of its business
- The prospects for industry in which the company operates
- Management reputation
- Goodwill and brand value
- Marketing network
- Technology level
- Efficiency level in terms of employees
- Financial performance
- Future earnings
- The legal implications
- Government policy in general and in particular for that industry
- Current valuations of shares in stock markets

Answer of 22 (b):

(i) Determination of EPS, P/E ratio, ROE and BVPC of Samik Ltd. and Sampa Ltd.

Particulars		**Samik Ltd.**	**Sampa Ltd.**
Profits After Tax	(PAT)	₹ 2,10,000	₹ 99,000
No. of Shares	(N)	10,000	8,000
EPS	(PAT/N)	₹ 21.00	₹ 12.375
Market price share	(MPS)	₹ 400	₹ 150
P/E ratio	(MPS/EPS)	19.05	12.12
Equity funds	(EF)	12,00,000	8,00,000
BVPS	(EF/N)	₹ 120	₹ 100
ROE	(PAT/EF)×100	17.5%	12.375%

(ii) Estimates of Growth rates in EPS for each Firm

Retention ratio	(1-D/P ratio)	0.6	0.4
Growth rate	(ROE × Retention ratio)	10.5%	4.95%

(iii) Justifiable equity share exchange ratio

(a) Market price based $\frac{MPS_{Sampa}}{MPS_{Samik}} = \frac{₹150}{₹400} = 0.375:1$ (lower limit)

(b) Intrinsic value based = $\frac{₹200}{₹400}$ = 0.5 : 1 (upper limit)

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

(iv) Calculation of Post-merger EPS and other effects

Particulars			Samik Ltd.	Sampa Ltd.	Combined
PAT	(i)	(₹)	2,10,000	99,000	3,09,000
Shares outstanding	(ii)	(₹)	10,000	8,000	13,200*
EPS	(i)/(ii)	(₹)	21.00	12.375	23.41
EPS Accretion (Dilution)			2.41	3.015**	—

Note:

* Shares outstanding (combined)	= 10,000 shares + (0.40 × 8,000)	= 13,200 Shares
** EPS claim per old share	= ₹ 23.41 × 0.40	= ₹ 9.36
EPS dilution of Sampa Ltd.	= ₹ 12.375 – ₹ 9.36	= ₹ 3.015

(v) Estimate of Post-merger Market Price and other effects

Particulars			Samik Ltd.	Sampa Ltd.	Combined
EPS	(i)	(₹)	21.00	12.375	23.41
P/E Ratio	(ii)		19.05	12.12	19.05
MPS	(i) × (ii)	(₹)	400	150	446.00
MPS Accretion (Dilution)		(₹)	46	28.40***	

Note:

*** ₹

MPS claim per old share	(₹ 446 × 0.4)	178.40
Less : MPS per old share		150.00
MPS accretion of Sampa Ltd.		28.40

23. (a) Identify the forces that drive M&A Activities.

23. (b) Reliable Industries Ltd. (RIL) is considering a takeover of Sunflower Industries Ltd. (SIL). The particulars of 2 companies are given below:

Particulars	RIL	SIL
Earnings After Tax (₹)	**20,00,000**	**10,00,000**
Equity shares (No.)	**10,00,000**	**10,00,000**
EPS (₹)	**2**	**1**
P/E ratio (times)	**10**	**5**

Required:

(i) Calculate 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, calculate the market value of the post-merger RIL. Determine 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%. Calculate the new post-merger EPS and price per share. Will the shareholders be better off or worse off than before the merger?

Answer of 23 (a):

The major forces which drive M&A activities since the early 1990's have been identified as the following:

(i) Rapid pace of technological change;

(ii) Low costs of communication and transportation;

(iii) Globalization and global markets;

(iv) Nature of competition in terms of forms, sources and intensity;

(v) Emergence of new types of industries;

(vi) Regulation in some industries and sectors;

(vii) Liberalization in some industries and sectors;

(vii) Growing inequalities in incomes and wealth.

Merger activity generally comes in waves, and is most common when shares are overvalued. The late 1990's saw fevered activity. Then the pace slowed in most industries, particularly after September 11, 2001. It picked up again in mid-2003 as companies that weathered the global recession sought bargains among their battered brethren. By the start of 2006, a mergers and acquisitions boom was in full swing, provoking a nationalist backlash in some European countries. The future of the merger wave now depends on how deep the downturn in private equity proves to be.

Answer of 23 (b):

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

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

24. (a) Why mergers and acquisitions fail?

24. (b) 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.

Answer of 24 (a):

Around the world thousands of mergers and acquisition are taking place every day. Unfortunately only a few becomes successful. Following are the reasons why mergers and acquisition fail.

1. **Lack of fit:** There may be a good fit of product or services but e serious lack of fit in terms of management styles or corporate structure.
2. **Lack of industrial or commercial fit:** In case of horizontal or vertical take over where the acquired entity turns out not to have the product range or industrial position in tune with acquirer's anticipation. Where a customer suppler is acquired the acquirer knows a lot about the acquired entity. Even then there might be some unexpected problem for the acquirer which might be avoided through long term careful planning. That should be severed from experience gained from a direct relationship with the acquired entity.
3. **Lack of goal congruence:** The problem arises not only to the acquired entity but also to the acquirer. Dispute may arise particularly from the treatment of acquired entity which might take away the benefits of an otherwise excellent acquisition.
4. **Cheap purchases:** Management of an acquiring company should be aware of so called "cheap purchases". Amount of resources in terms of cash and management time could also damage acquirer's core business.
5. **Paying too much:** Payment of high premium for an acquisition does not necessarily lead to a failure. It fails only it fails to create long term share holder value creation.
6. **Failure to integrate effectively:** An acquirer needs to have a workable and clear plan of the extent to which
   (i) the acquired company is to be integrated and (ii) the amount of autonomy to be granted. The plan must address (i) differences in management styles, (ii) incompatibilities in data information system and
   (iii) continued opposition to the acquisition by some of the acquired to entity staff. Failure to plan lids to drift and demotivation not only within the acquired company but also with in the acquirer itself.
7. Inability to manage change: In order avoid failure it is imperative for the acquirer to plan effectively before an acquisition takes place. But the ultimate need is to aspect change. Many acquisitions fail because acquirer is unable or unwilling reasonably to adjust its own activity to ensure a smooth takeover. This might happened typical situation where acquired company has a better date information acquirer.

Answer of 24 (b):

Particulars	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.

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. 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).

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)

25. (a) The Directors of Gupta Private Ltd are planning to sell the Company. For this purpose they want you to put a value on the equity share of the Company using the methods which a prospective purchaser might apply.

The following information should be considered in valuing the shares under each method, commenting briefly on each method adopted –

(I) Balance Sheet as on 31st March 2015

Equity and Liability	₹	Assets	₹

(1) Shareholders Fund:		**(1) Non-Current Assets:**	
(a) Share Capital		(a) Fixed Assets: (Tangible):	
Equity Share Capital of ₹ 10 each	2,00,000	—Land and Building	5,00,000
(b) Reserve & Surplus		—Plant and Machinery	2,75,000
—Revenue Reserve	5,95,000	—Motor Vehicles	55,000
		(b) Other Non-Current Assets	
(2) Non-Current Liabilities:		—Preliminary Expenses	2,000
Long Term Borrowings			
—Secured Loan against Land & Building	1,50,000	**(2) Current Assets:**	
		(a) Inventories	1,33,000
		(b) Trade Receivables	
(3) Current Liabilities:	1,35,000	—Sundry Debtors	1,45,000
(a) Trade Payables – Sundry Creditors	45,000	(c) Cash and Cash Equivalents	15,000
(b) Short Term Provision			
—Provision for Taxation			
Total	**11,25,000**	**Total**	**11,25,000**

(II) Profit/ Dividend record: The Profit record after tax and interest but before dividends over the last five years have been as follows:

Year	2011	2012	2013	2014	2015
Profit	₹ 80,000	₹ 75,000	₹ 95,000	₹ 80,000	₹ 85,000

The average dividend has been ₹30,000 (gross) for the last ten years.

(III) The operating budget shows that estimated after tax profit for the next year will be ₹85,000 and thereafter it is estimated that this will increase by 5% p.a over the next four years.

(IV) In the light of recent developments in the field of financial reporting, the Company has had its Fixed Assets valued by an independent expert whose report discloses the following values – Land & Building - ₹6,10,000, Plant & Machinery- ₹2,88,000, Motor Vehicles - ₹1,02,000.

(V) A study of three public companies in the same market as Gupta Private Ltd shows that the average dividend yield and price earning ratio of these over last three years have been ----

Year	Susmita Ltd		Priyanka Ltd		Samarpita Ltd	
	Dividend Yield %	P/E Ratio	Dividend Yield %	P/E Ratio	Dividend Yield %	P/E Ratio
2009	17.00	8.00	17.00	8.50	16.50	9.00
2010	17.00	8.00	15.00	9.00	17.00	10.00
2011	17.00	9.00	18.00	10.00	17.50	11.50
Average	17.00	8.33	16.70	9.17	17.00	10.17

(VI) One of the Directors has indicated that after tax cost of capital is now 17½%. The estimated net cash flow of the Company after taking into consideration taxation and

capital expenditure over next five years in order to achieve / and as a result of, the five years profit plan, are as follows:

Year	2016	2017	2018	2019	2020
CF (₹)	1,00,000	1,20,000	1,40,000	10,000	1,50,000

Another Director is of the view that profitability be measured at 12 ½% on Tangible Capital and 17 ½% on Intangible Capital.

25. (b) Should homegrown brands be valued and amortized?

25. (c) Are Real options and Managerial options the same?

Answer of 25 (a):

1. Net Assets Method

Particulars	₹	₹
Land and Building (at revalued amount)		6,10,000
Plant and Machinery (at revalued amount)		2,88,000
Motor Vehicles (at revalued amount)		1,02,000
Stock in trade (at Balance Sheet Value)		1,33,000
Sundry Debtors (at Balance Sheet Value)		1,45,000
Cash at Bank (at Balance Sheet Value)		15,000
Total Assets		**12,93,000**
Less: Outside Liabilities		
Secured Loans	(1,50,000)	
Sundry creditors	(1,35,000)	
Provision for Taxation	(45,000)	3,30,000
Net Tangible Assets		**9,63,000**
Number or Equity Shares		20,000
Value per Equity Share (₹9,63,000 ÷20,000)		**48.15**

2. Dividend Yield Method

a. Actual Dividend Rate of the Company = Average Dividend ÷ Paid Up Capital	
= ₹30,000 ÷ ₹2,00,000 =	15.00%
b. Average Industry Dividend Rate = (17% +16.70% +17%) ÷ 3	16.90%
c. **Value per Equity Share** = (Face Value x Actual Yield)/ Industry Dividend Rate	
= (₹10 x 15.00%) ÷16.90%	**8.88**

3. PE Multiple Method (based on Projected Earnings)

Note: Industry Average PE Ratio = (8.33 + 9.17 +10.17)/3 = **9.22 times**

Year	Profit after Tax	Weights	Product
2016	₹85,000	5	4,25,000
2017	85,000 x 1.05 = ₹89,250	4	3,57,000
2018	89,250 x 1.05 = ₹93,713	3	2,81,139

2019	93,713 x 1.05 = ₹98,399	2	1,96,798
2020	98,399 x 1.05 = ₹1,03,319	1	1,03,319
Total	**₹4,69,681**	**15**	**13,63,256**
a. Average Profits (Simple/ Weighted)	4,69,681 ÷ 5 = ₹93,936		13,63,256 ÷15 = ₹90,884
b. Number of Equity Share	20,000 shares		20,000 Shares
c. Projected Earnings per Share	₹4.70		₹4.54
d. Value per Share (on PE Multiple) = Co' EPS x Industry PE Ratio	₹4.70 × 9.22 times = **₹43.33**		₹4.54 × 9.22 = **₹41.86**

Note:

- Also, PAT for the year ending on the B/s date i.e 2015 can be taken as a Future Earning Capacity i.e at ₹85,000. Hence, EPS = ₹4 .25 and Value per share = ₹4.25 x 9.22 times = **₹39.19.**
- Higher weightage is give to the near future years than far further future years.

4. Projected Earnings Capitalization Method

Particulars	Simple Average	Weighted Average
a. Projected Earnings (PAT) of the Company	₹93,936	₹90,884
b. Normal Rate of Return of the Industry = 1 ÷PE Ratio	(1÷9.22) = 10.85%	(1÷9.22) = 10.85%
c. Capitalized Value of Projected Earnings (a÷ b)	₹8,65,770	₹8,37,641
d. Value per share = (c ÷ 20,000 Shares)	**₹43.29**	**₹41.88**

Note: The valuation under PE Multiple and Earnings Capitalization Method (at 10.85%) is effectively the same. The difference is due to rounding – off aspect in calculations.

5. Discounted Cash Flow Method

Year	PVF at 17.5%	Cash Flows	Present Value
2016	0.85	₹1,00,000	₹85,000
2017	0.72	₹1,20,000	₹86,400
2018	0.62	₹1,40,000	₹86,800
2019	0.52	₹10,000	₹5,200
2020	0.45	₹1,50,000	₹67,500
2021 onwards (See Note below)	0.45	₹1,50,000 ÷10.85% = ₹13,82,488	₹6,22,120
Present Value of Future Cash Flows till perpetuity			**₹9,53,020**
Value per Share [₹9,53,020 ÷20,000 shares]			**₹47.65**

Note:

- Cash Flows of Year 2020 ₹1,50,000 are assumed to continue till perpetuity. Hence, it is divided by the Industry Normal Rate of Return, to estimate the cash flows till perpetuity. These are discounted to the present value, to ascertain the total discounted cash flows.
- Cash Flows of year 2019 is not in tune with the other years. This may be because of Capital Expenditure proposed during the year. In the absence of information of Capital Expenditure, no adjustment has been made.

6. Summary of Value per Share

Method	Value per Share	Remarks
1. Net Assets Method	₹48.15	Reports the Fair Values of assets available to Equity Shareholders. Provides basis for negotiating prices
2.Dividend – Yield Method	₹8.88	Suitable only for purchase of small lots and not for acquisition of controlling interest.
3. Earnings – Yield (PE Multiple):		
(a) On Simple Average	₹43.33	Recognizes market / industry expectations and the
(b) On Weighted Average	₹41.86	Company's future performance. However, weighted average
(c) On B/s Year Profits	₹39.19	Based calculations are more appropriate.
4. Earnings Capitalization Method:		
(a) On Simple Average	₹43.29	Only a variant of the PE Multiple method. Weighted Average
(b) On Weighted Average	₹41.88	Based calculations are more appropriate.
5.Discounted Cash Flows	₹47.65	Most suited for acquisition of controlling interest.

Answer of 25 (b):

In disallowing the capitalisation of homegrown brands, a degree of comparability between competing companies is lost. Whether acquired or home grown, brands require considerable expenditure, generate substantial income and add substantial value to the company. Allowing home grown brands to be capitalised would eliminate this inconsistency.

Companies know more about homegrown brands. Thus it is easier to value them. If a business builds its own factory instead of buying one, we capitalize it; why should brands be treated differently?

If accounting laws force companies not to value home grown brands they could easily find a way out by selling the brands to another company and again buy back from them. Clearly this is the best evidence to show that homegrown brands have a value too.

IN USA: It is a standard practice to capitalise and amortise goodwill. No asset revaluation is permitted. All purchased intangibles must be treated in the same way as goodwill. Maintenance costs of goodwill and all other intangibles must be written off to expenses. Thus there is no incentive for US companies to distinguish brands from goodwill, as the resulting treatment would be identical.

IN AUSTRALIA: Acquired goodwill has to be amortised though the P&L account for a maximum period of 20 years. But unlike in UK and US, Australian has a modified historical cost accounting

system, so that fixed assets may be revalued at market price every 3 to 5 years. Intangible assets like brands may be carried at market value. Acquired brands must initially be recorded at their cost of acquisitions. All brand names may be revalued with either upwardly or downwardly adjustments.

ELSEWHERE: In most countries the acquired brands are capitalised and then amortised through the P&L, the depreciation period varies considerably. Five years is the maximum in Japan, forty years in France, and the brands expected life in Germany.

The argument in favour of capitalising brand names is related to the old adage – out of sight (if it is written off) out of mind. If brands are capitalised, management is more likely to continue a process of maintaining the values.

A court appeal made a distinction between 'CAT' goodwill which is loyal to the business and stays with the buyer if it is sold and a 'DOG' goodwill which is loyal to the owner and thus is lost to the business in case of a sale. Hence 'DOG' goodwill must be written off while 'CAT' goodwill need to be.

IN INDIA: According to AS – 10, Accounting for Fixed Assets, goodwill in general, should be recorded in the books only when some consideration in money or money's worth has been paid for it. As a matter of financial prudence goodwill is written off over a period. However this is not mandatory.

Major MNC's like Unilever group, Proctor and Gamble, Nestle and reputed Indian companies like Tatas, Reliance could benefit a great deal by valuing brands and including them in the balance sheet. Now that AS - 26 is applicable, the brands can be valued if and only if they are purchased and not self generated.

Answer of 25 (c):

Real options occur when managers can influence the size and risk of a project's cash flows by taking different actions during the life of the project. They are referred to as real options as they deal with real and as opposed to the financial asset.

They are also called managerial options because they give opportunities to managers to respond to changing market conditions.

26. (a) A Company is in the process of setting up a production line for manufacturing a new product. Based on trial runs conducted by the company, it was noticed that the production lines output was not of the desired quality. However, company has taken a decision to manufacture and sell the sub-standard product over the next one year due to the huge investment involved.
In the background of the relevant accounting standard, advice the company on the cut-off date for capitalization of the project cost.

26. (b) In view of the provisions of Accounting Standard 25 on Interim Financial Reporting, on what basis will you calculate, for an interim period, the provision in respect of defined benefit schemes like pension, gratuity etc. for the employees?

26. (c) In May, 2014 Q Ltd. took a bank loan to be used specifically for the construction of a new factory building. The construction was completed in January, 2015 and the building was put to its use immediately thereafter. Interest on the actual amount used for construction of the building till its completion was ₹ 24 lacs, whereas the total interest payable to the bank on the loan for the period till 31st March, 2015 amounted to ₹ 31 lacs.

Can ₹ 31 lacs be treated as part of the cost of factory building and thus be capitalized on the plea that the loan was specifically taken for the construction of factory building?

26. (d) TT Limited has set up its business in a designated backward area which entitles the company to receive from the Government of India a subsidy of 20% of the cost of investment. Having fulfilled all the conditions under the scheme, the company on its investment of ₹ 50 crore in capital assets, received ₹ 10 crore from the Government in January, 2015 (accounting period being 2014-2015). The company wants to treat this receipt as an item of revenue and thereby reduce the losses on profit and loss account for the year ended 31st March, 2015.

Keeping in view the relevant Accounting Standard, discuss whether this action is justified or not.

Answer of 26 (a):

As per provisions of AS 10 'Accounting for Fixed Assets', expenditure incurred on start-up and commissioning of the project, including the expenditure incurred on test runs and experimental production, is usually capitalized as an indirect element of the construction cost. However, the expenditure incurred after the plant has begun commercial production *i.e.,* production intended for sale or captive consumption, is not capitalized and is treated as revenue expenditure even though the contract may stipulate that the plant will not be finally taken over until after the satisfactory completion of the guarantee period. In the present case, the company did stop production even if the output was not of the desired quality, and continued the sub-standard production due to huge investment involved in the project. Capitalization should cease at the end of the trial run, since the cut-off date would be the date when the trial run was completed.

Answer of 26 (b):

Accounting Standard 25 suggests that provision in respect of defined benefit schemes like pension and gratuity for an interim period should be calculated based on the year-to-date basis by using the actuarially determined rates at the end of the prior financial year, adjusted for significant market fluctuations since that time and for significant curtailments, settlements or other significant one-time events.

Answer of 26 (c):

AS 16 clearly states that capitalization of borrowing costs should cease when substantially all the activities necessary to prepare the qualifying asset for its intended use are completed. Therefore, interest on the amount that has been used for the construction of the building upto the date of completion (January, 2015) i.e. ₹ 24 lac alone can be capitalized. It cannot be extended to ₹ 31 lacs.

Answer of 26 (d):

As per para 10 of AS 12 'Accounting for Government Grants', where the government grants are of the nature of promoters' contribution, i.e. they are given with reference to the total investment in an undertaking or by way of contribution towards its total capital outlay (for example, central investment subsidy scheme) and no repayment is ordinarily expected in respect thereof, the grants are treated as capital reserve which can be neither distributed as dividend nor considered as deferred income.

In the given case, the subsidy received is neither in relation to specific fixed asset nor in relation to revenue. Thus it is inappropriate to recognise government grants in the profit and loss statement, since they are not earned but represent an incentive provided by government without related costs. The correct treatment is to credit the subsidy to capital reserve. Therefore, the accounting treatment followed by the company is not proper.

27. (a) Explain the concept of Human Resource Accounting (HRA) and outline the basic models for HRA.

27. (b) Following are the information of two companies for the year ended 31st March, 2015:

Particulars	Company A	Company B
Equity Shares of ₹ 10 each	8,00,000	10,00,000
10% Pref. Shares of ₹ 10 each	6,00,000	4,00,000
Profit after tax	3,00,000	3,00,000

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 tot, if the company 'A' retains 30% and company 'B' 10% of the profits?

27. (c) Oil company is a bulk distributor of high octane petrol. A periodic inventory of petrol on hand is taken when the books are closed at the end of each month. The following summary of information is available for the month of June, 2015.

Sales	**₹ 9,45,000**
General Administrative cost	**₹ 25,000**
Opening stock 100000 litres @ ₹ 3per litre	**₹ 3,00,000**
Purchases (including freight):	

June 1: 2,00,000 litres @ ₹ 2.85 per litre

June 30:1,00,000 litre @ ₹ 3.03 per litre

Closing stock on June 30:1,30,000 litres

Compute the following data by FIFO, Weighted average and LIFO methods of inventory costing on June 30.

Answer of 27 (a):

Human Resource Accounting (HRA) is a set of accounting methods that seek to settle and describe the management of a company's staff. It focuses on the employees' education, competence and the remuneration. HRA promotes the description of investments in staff, thus enabling the design of HR management systems to follow and evaluate the consequences of various HR management Principles. There are four basic HRA models:

(A) The anticipated financial value of the individual to the company. This value is dependent on two factors; the person's productivity and his / her satisfaction of being an employee in the company.

(B) The financial value of the group-describing the connection between motivation and organization on one hand and financial results on the other. This model does not measure value but concepts like motivation and welfare. Under this model, measurement of employee satisfaction is given great importance.

(C) Staff replacement costs describing the financial situation in connection with recruitment, reduction and redeployment of employees. This model focuses on replacement costs related the expenses connected with staff acquisition, training and separation. Acquisition covers expenses for recruitment, advertising etc. Training covers education, on-the job training etc. Separation costs covers lost production when a person leaves a job. This model can be used to describe the development of costs in connection with replacements. In many firms, such replacement costs are included in accounts as an expression of staff value to the company.

(D) HR accounting and balancing as complete accounts for HR area. This model concentrates on cost-control, capitalization of the historic expenses for HR. One effect of such a system is the visualization of inexpedient HR management routines.

The basic aims of HRA are very many.

First, HRA improves the management of HR from an organizational perspective through increasing the transparency of HR costs, investments and outcomes in traditional financial statements.

Second, HRA attempts to improve the bases for investors and company valuation.

Unfortunately, for several reasons, the accuracy of HRA is often called into suspicion.

Answer of 27 (b):

(i) (A) Buying a small lot of equity shares: 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:

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

Company A: ₹ $\frac{2.4}{18}$ = ₹ 13.33

Company B: ₹ $\frac{2.08}{18}$ = ₹ 11.56

(B) 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:

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

Company A: ₹ $\frac{3}{18}$ = ₹ 16.67

Company B: ₹ $\frac{2.6}{18}$ = ₹ 14.44

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

Preference dividend coverage ratio is given by:

$$\frac{\text{Profit after tax}}{\text{Preference Dividend}} \times 100$$

Company A: $\frac{₹3,00,000}{₹60,000}$ = 5 times

Company B: $\frac{₹3,00,000}{₹40,000}$ = 7.5 times

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

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

The new rates will be calculated as follows:

Company A: ₹ $\frac{2.1}{18}$ = ₹ 11.67

Company B: ₹ $\frac{2.34}{18}$ = ₹ 13.00

Working Notes:

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

	Company A	Company B
Profit after tax	3,00,000	3,00,000
Less: Preference dividend	60,000	40,000
Earnings available to equity shareholders (A)	2,40,000	2,60,000
Number of Equity Shares (B)	80,000	1,00,000
Earning per share (A/B)	3.0	2.60
Retained earnings 20%	48,000	52,000
Dividend declared 80% (C)	1,92,000	2,08,000
Dividend per share (C/B)	2.40	2.08

2. Computation of dividend per share (Company A retains 30% and Company B 10% of profits)

Earnings available for Equity Shareholders	2,40,000	2,60,000
Number of Equity Shares	80,000	1,00,000
Retained Earnings	72,000	26,000
Dividend Distribution	1,68,000	2,34,000
Dividend per share	2.10	2.34

Answer of 27 (c):

Statement showing value of closing stock or inventory on 30th june, 2015 under FIFO, weighted and LIFO methods of pricing of issues [quantity of closing stock (100000 + 30000) litres.]

Particulars	FIFO	Weighted Average	LIFO
(1) First-in-First out Method:*			
100000litres @ ₹ 3.03 per litres	3,03,000		
30000 litres @ ₹ 2.85 per litres	85,500		
(2) Weighted Average Method:**		3,03,000	
100000 litres @ ₹ 3.03 per litres		87,000	
30000 litres @ ₹ 2.90 per litres			
(3) Last-in First out Method:***			3,00,000
100000 litres @ ₹ 3.00 per litres			85,500
30000 litres @ ₹ 2.85 per litres			
Value of Closing Stock	3,88,500	3,90,000	3,85,500

* Under FIFO method old lots are exhausted and new lots are kept in hand on 30.6.2015.

** Under Weighted Average method, the Weighted Average rate is to be calculated or follows: 100000Litres × ₹3 + 200000 litres × ₹2.85

= ₹ 2.90 (100000+200000)litres

*** Under LIfo method, new lots are exhausted except purchased on 30.06.15 and old lots are kept in hand on 30.06.15.

28. (a) Given below is the Balance Sheet as on 31st March of Khan Limited for the past three years. (Amount in ₹000's)

Equity and Liability	2013	2014	2015	Assets	2013	2014	2015
(1) Shareholders Fund:				**(1) Non-Current**			
(a) Share Capital	500	600	700	**Assets:**			
(b) Reserve & Surplus				Fixed Assets:			
(i) General Reserve	100	150	150	(i) Tangible Assets	1,500	1,700	1,900
(ii) P & L Account	100	150	---	Gross Block	400	500	650
				Less: Depreciation	1,100	1,200	1,250
(2) Non-Current Liabilities:				Net Block			
Long Term Borrowings							
— 12% Debenture	400	600	700	**(2) Current Assets:**	250	450	500
				(a) Inventories			
(3) Current Liabilities:				(b) Trade			
(a) Short Term Borrowings				Receivables	200	350	400
— Bank O/D	200	250	300	— Sundry debtors			
(b) Trade Payables				(c) Cash and Cash	25	120	100
— Sundry Creditors	100	200	400	Equivalents			
(c) Short Term Provision							
— Provision for	100	50	---				
Taxation	75	120	---				
— Proposed							
Dividend							
Total	**1,575**	**2,120**	**2,250**	**Total**	**1,575**	**2,120**	**2,250**

The Company is going to sell its losing division for ₹5,00,000. This division caused cash loss to the extent of ₹1,00,00 in 2014-15.

It has planned to buy a running factory for ₹7,50,000. This new addition is expected to produce 20% return before charging depreciation and interest.

Excess amount required of the acquisition of the new factory will be taken at 16%p.a. from an Industrial Bank.

The Company decided to calculate Goodwill considering the following –

(I) The Company decided to calculate Goodwill on the basis of excess cash earnings for 5 years.

(II) 10% Discount Rate shall be used.

(III) Goodwill will be calculated by taking cash return on capital employed. For this purpose, Weighted Average Cash Return may be computed for the years 2013 – 2014, 2014–2015 and 2015 – 2016 where as Capital Employed on 31.03.2015 may be taken up with suitable changes for replacements.

(IV) The industry, to which the Company belongs, returns cash at 4% of the investment.

Present Value of ₹1 at 10% for 5 years is 3.7908. You are asked to Value its Goodwill.

28. (b) ONGC has the rights to exploit this reserve for the next 20 years, and the marginal value per barrel of oil (price per barrel minus marginal cost per barrel) is currently ₹ 12. Once developed, the net production revenue each year will be 5% of the value of the reserves. The riskless rate is 8%, and the variance in oil prices is 0.03. Considering an offshore oil property with an estimated oil reserve of 50 lakhs barrels of oil; the cost of developing the reserve is expected to be ₹600 lakhs, and the development lag is two years.
Using the Black-Scholes option pricing model determine the value of the company.

28. (c) The 6-months forward price of a security is ₹ 208.18. The borrowing rate is 8% per annum payable with monthly rests. What should be the spot price?

Answer of 28 (a):

1. Computation of Cash Earnings for the past years **(₹ 000's)**

Particulars	2013 -14	2014-15
Retained Earnings (Closing **Less** Opening)	50	(150)
Add: Appropriation to General Reserve (Closing **Less** Opening)	50	-
Proposed Dividend	120	-
Provision for Tax made during the year	50	-
Current Year Profit / (Loss)	270	(150)
Add: Depreciation (Closing Accumulated Depreciation **Less** Opening)	100	150
Operating Profit Before Working Capital Changes	370	-
Adjustment for Working Capital Items:		
Stock	(200)	(50)
Sundry Debtors	(150)	(50)
Creditors	100	200
Previous Year Tax Liability Paid in Current Year	(100)	(50)
Cash Generated from Operating Activities	**20**	**50**

2. Computation of Projected Cash Earnings

Particulars	₹000's
Cash Earnings for Financial Year 2014-15	50
Add: Cash Loss pertaining to Division sold	100
Add: Cash earnings from New Division (₹7,50,000 x 20%)	150
Less : Interest on Loan from Industrial Bank (7,50,000 – 5,00,000) x 16%	(40)
Projected Cash Earnings	**260**

3. Computation of Average Maintainable Profits **(₹000's)**

Year	Cash Earnings	Weights	Product
2013-2014	20	1	20
2014-2015	50	2	100
2015-2016	260	3	780
Total		6	**900**
Weighted Average		900 ÷ 6	**150**

4. Computation of Capital Employed

Particulars	₹ 000's	₹ 000's
Total Assets as at 31.03.2015	2,250	
Less: Debentures	(700)	
Bank Overdraft	(300)	
Sundry Creditors	(400)	850
Sale of Old Division:		
Sale Consideration	500	
Less: Net Assets Transferred (assumed to be taken at Book Value)	(500)	Nil
Purchase of New Division:		
Cost of Purchase	750	
Less: Cash Outflow	(500)	
Bank Borrowings	(250)	Nil
Capital Employed on Replacement		850

5. Computation of Excess Cash Earning and Goodwill

Particulars	₹000's
Future Maintainable Cash Earnings	150
Less: Normal Rate of Cash Return at 4% of Capital Employed (₹850 X 4%)	34
Excess Cash Earnings (Future Maintainable Cash Earnings – NRR)	**116**
Goodwill = Excess Cash Earnings x Annuity Factor for 5 years at 10% = ₹1,16,000 x 3.7908 =	**440**

Answer of 28 (b):

Under the given information, and the inputs, by using the Black-Scholes option pricing model, the value could be determined as under:

Value of oil reserve today = $\frac{(12)(50)}{1.05^2}$ = ₹544.22 lakhs (Discounted back 2 years to reflect development lag)

Exercise price = Cost of developing reserve = ₹600 lakhs
Time to expiration on the option = 20 years
Variance in the value of the underlying asset = 0.03
Riskless rate = 8%

Dividend yield = $\frac{\text{Net production revenue}}{\text{Value of reserve}}$ = 5%

Based on these inputs, the Black-Scholes model provides the following values.

D_1 = 1.0359 $N(d_1)$ = 0.8498
d_2 = 0.2613 $N(d_2)$ = 0.6030

Call value = $544.22\, e^{(-0.05)(20)}(0.8498) - 600\, e^{(-0.08)(20)}(0.6030)$ = ₹97.10 lakhs

This oil reserve, though not viable at current prices, is still valuable because of its potential to create value if oil prices go up.

Answer of 28 (c):

Calculation of spot price
The formula for calculating forward price is:

$F_0=S_0 \times e^{rt}$

Where, F_0 = Forward Price
S_0 = Spot Price
r = rate of interest
t = time
n = no. of compounding

For Compounding : $F_0 = S_0 \times e^{\frac{r}{n}\times t}$

Using the above formula,

$$\text{or, } 208.18 = S_0 \times e^{\frac{0.08}{12}\times 6}$$
$$\text{or, } 208.18 = S_0 \times e^{0.040}$$
$$\text{or, } 208.18 = S_0 \times 1.0408$$
$$\text{or, } S_0 = \frac{208.18}{1.0408} = 200$$

29. (a) 14 years ago a man took a 21 years lease of a premises on payment of salami and rent which was equivalent to a net rent of ₹ 3000/- per month. The net Rack Rent of the property is ₹ 5000/- per month. He now wishes to cancel his existing lease and to take a new lease for 21 years at the existing rental. What should be the value of fair premium or salami for him to pay? Assume interest on capital is required at 9 % and sinking fund of 3%.

29. (b) Discuss the financial aspect of valuation of farm house.

29. (c) KBC Bank had issued a tax saving bond carrying an interest of 8% on face value of ₹10000/- per bond with 6 years to maturity and interest payable each year. BB Finance had also issued a tax saving bond of ₹ 10000 each with 8 years to maturity and carrying a coupon rate of 6%.

As on date, i.e two years after the issue date, when a new bond with 6 years to maturity carries a coupon rate of 7% and bonds with 8 years to maturity carries 5%, and both these bonds are priced correctly , which is cheaper to buy and how many bonds can be bought for ₹ 5 lacs (assume part of a bond can also be bought)?

Answer of 29 (a):

Net Rack rent = ₹ 5000 p.m
Less: Rent reserved on lease = ₹ 3000 p.m
₹ 2000 p.m

Profit on rental = ₹ 2000*12 = ₹ 24000p.a
Multiplying by years' purchase (Y.P) at 9% and 3% for 14 years
= 1/(i+S)
= $1/[i+\{r(1+r)^n-1\}]$

Where, i= interest on capital
r=interest on sinking fund
n= years.

Substituting,
= $1/[.09+P\{0.03/(1+0.03)^{14}-1$
=6.7328126

And present value of Re. 1 @ 9% for 7 years=$1/(1+i)^n$ =$1/(1+.0.09)^7$
=0.5470342

Y.P dual rate 9% and 3% for 14 years deferred by 7 years
= 6.7328126*0.5470342*24000
=3.6830791*₹24000
=₹ 88393.898
Or, =₹ 88394/-
Amount of premium to be paid =₹ 88394/-

Answer of 29 (b):

The Farm building happens to be part of the whole farm. General modes of valuation of farm houses are as follows:

(i) Land and Building method: This method is used for farm houses located within 8 km from municipal limit. Capital gains tax is applicable to transfer of such properties.

(ii) Comparative Sales method: The sales comparison approach in farm house valuation is based primarily on the principle of substitution. This approach assumes a prudent individual will pay no more for a property than it would cost to purchase a comparable substitute property. The approach recognizes that a typical buyer will compare asking prices and seek to purchase the property that meets his or her wants and needs for the lowest cost. In developing the sales comparison approach, the appraiser attempts to interpret and measure the actions of parties involved in the marketplace, including buyers, sellers, and investors. This method may be applied if sale values of comparable farm houses are available from Revenue Authorities.

(iii) The income capitalization approach (often referred to simply as the "income approach") is used to value resorts in and around cities/towns. It should be remembered that the appurtenant land and the land for amenities with building do not give additional agricultural income. Because it is intended to directly reflect or model the expectations and behaviors of

typical market participants, this approach is generally considered the most applicable valuation technique for income-producing properties, where sufficient market data exists.

In a commercial income-producing property this approach capitalizes an income stream into a value indication. This can be done using revenue multipliers or capitalization rates applied to a Net Operating Income (NOI). Usually, an NOI has been stabilized so as not to place too much weight on a very recent event. An example of this is an unleased building which, technically, has no NOI. A stabilized NOI would assume that the building is leased at a normal rate, and to usual occupancy levels. The Net Operating Income (NOI) is gross potential income (GPI), less vacancy and collection loss (= Effective Gross Income) less operating expenses (but excluding debt service, income taxes, and/or depreciation charges applied by accountants).

(iv) Replacement Cost less depreciation method: Farm houses generally have constraints of free access and hence lack ability or marketability of the buildings thereon as separate units. This then rules out capitalization mode of valuation. Hence replacement cost less depreciation is the prominent method used for valuation of farm house buildings.

Answer of 29 (c):

Value of Bonds based on expected yields:

Particulars	**KBC**	**BB**
(i) Desired Yield	7%	5%
(ii) Face Value	₹ 10000	₹ 10000
(iii) Annual Coupon Rate	8%	6%
(iv) Period of maturity	4 years	6 years
(v) Annual cash flows(Interest) [(i)×(ii)]	₹ 800	₹ 600
(vi) PV of Interest Factor for Annuity for period to maturity at the rate of yield	3.387	5.076
(vii) Present Value of Interest Payments [(iv)×(v)]	₹ 2710	₹ 3046
(viii) Maturity Value	₹ 10000	₹ 10000
(ix) PV at Yield Rate at the time of maturity(4^{th} year and 6^{th} year)	0.763	0.746
(x) Present Value of maturity proceeds [(viii)×(ix)]	₹ 7630	₹ 7460
(xi) Value of Bond today [(vii)+(x)]	**₹ 10340**	**₹ 10506**

Evaluation:

Cheaper Bond is that issued by KBC Bank.

Bonds that can be bought: ₹ 500000/Market price of Bond=₹ 500000/10340=48.35 Bonds.

30. (a) Assume that Dey Book Concern has been approached by another publisher that is interested in buying the copying to the book (Business valuation). Estimate the value of the copyright, on the basis of the following assumptions.

- **The book is expected to generate ₹ 150,000 in after-tax cash flows for the next three years and ₹ 100,000 a year for the following two years. These are the cash flows after author royalties, promotional expenses, and production costs.**
- **About 40% of these cash flows are from large organizations that make bulk orders**

and are considered predictable and stable. The cost of capital applied to these cash flows is 7%.

- **The remaining 60% of the cash flows are to the general public, and this segment of the cash flows in considered much more volatile. The cost of capital applied to these cash flows is 10%.**

30. (b) How would you value a real estate? Explain the different levels of market efficiency.

30. (c) Given – (i) Future maintainable Profit before Interest = ₹125 Lakhs; (ii) Normal Rate of Return on Long Term Funds is 19% and on Equity Funds is 24%; (iii) Long Term Funds of the Company is ₹320 Lakhs of which Equity Funds is ₹210 Lakhs; (iv) Interest on Loan Fund is 18%. Find out leverage effect on Goodwill if tax rate = 30%.

Answer of 30 (a):

The value of the copyright can be estimated using these cash flows and the cost of capital that has been supplied:

Year	Stable Cash Flows (₹)	Present Value @ 7 Percent (₹)	Volatile Cash Flows (₹)	Present Value @ 10 Percent (₹)
1	60,000	56,075	90,000	81,818
2	60,000	52,406	90,000	74,380
3	60,000	48,978	90,000	67,618
4	40,000	30,516	60,000	40,981
5	40,000	28,519	60,000	37,255
Total		216,494		302,053

The value of the copyright, with these assumptions, is ₹ 518,547 (which is the sum of ₹ 216,494 and ₹ 302,053).

Answer of 30 (b):

For evaluation of a real estate, one can use the cash flow technique. Of course, in order to use the Discounted cash flow technique the valuer should consider cash inflows like rent, reimbursement of rates and utility expenses, terminal value as well as cash outflows like property taxes, insurance, repairs and maintenance, advertising and utility expenses.

Other simpler methods like Standardized Value Measures (e.g. price per square meter) and Comparable Asset Values (gross income multiplier) are also used.

It should be noted the CAPM (Capital Asset Pricing Model) and the APM (Arbitrage Pricing Model) cannot be used easily in valuing a real estate because of some inherent features in real estate's e.g., lack of regular trading in real estates, dissimilar nature of any two real estates, terminal values often differing between two real estates, and the like.

Investors determine stock prices on the basis of the expected cash flows to be received from a stock and the risk involved. Rational investors should use all the information they have available or can reasonably obtain. The information set includes beliefs about the future (i.e., information

that can reasonably be inferred). A market is efficient relative to any information set if investors are unable to earn abnormal profits (returns beyond those warranted by the amount of risk) by using that information set in their investing decisions.

An efficient market is defined as one in which all information is reflected in stock prices quickly and fully. If some types of information are not fully reflected in prices and there is some lag in the information being reflected in prices, the market is not perfectly efficient, though it is certainly not inefficient. According to the efficient market hypothesis (EMH), the market is classified as weak-form efficient, semi strong efficient and strong-form efficient. E. Fama describes these three levels of efficiency as follows:

Weak Form: This part of the efficient market hypothesis states that prices reflect all price and volume data which are all past. As a result, it gives no idea of future price changes. Technical analysis on the basis of past data is thus of little or no value.

Semi strong Form: It involves not only past known market data, but all publicly known and available data, such as earnings, dividends, and stock split announcements, new product developments, financing difficulties, and accounting changes. If any lags exist in the adjustment of stock prices to certain announcements, smart investors can exploit these lags and earn abnormal returns.

Strong Form: This is the most stringent form of market efficiency. It assets that stock prices fully reflect all information, public and nonpublic. The strong form focuses not only on the speed of reflection of the information into stock prices (as the semi strong form does), but considers the value of the information as well. In a strong form efficient market no group of investors should be able to earn, over a reasonable period of time, abnormal rates of return by using information in a superior manner.

Answer of 30 (c):

1. Long Term Loan Funds = Total Long term Funds Less Equity Funds = 320 – 210 = ₹110 Lakhs.
Interest at 18% thereon = ₹110 Lakhs x 18% = ₹19.80 Lakhs.

2. Computation of Future Maintainable Profit (₹ Lakhs)

Particulars	Owners Funds	Total Funds
Profit Before Interest	125.00	125.00
Less: Interest on Long Loans	19.80	N.A
Future maintainable Profit before Tax	105.20	125.00
Less: Tax Expense at 30%	31.56	37.50
Future Maintainable Profits after Tax	**73.64**	**87.50**

3. Computation of Goodwill under different approaches (₹ Lakhs)

Particulars	Owners Funds	Total Funds
(a) Future Maintainable Profits after Tax	73.64	87.50
(b) Normal Rate of Return	24%	19%
(c) Normal Capital Employed = (a÷b)	306.83	460.52
(d) Actual Capital Employed (given)	210.00	320.00

(e) Goodwill = (c – d)	**96.83**	**140.52**

Hence, Leverage Effect on Goodwill = ₹140.52 - ₹96.83 = ₹ **43.69 Lakhs**