Group IV
Paper 20 - Financial Analysis and Business Valuations
Section A - Financial Analysis

Question 1.
What is Financial Modeling? Write down the uses of Financial Modeling.

Answer:
Financial modeling is the task of building a model of a real world financial situation. It is an abstract representation of a financial decision making situation. The model usually represents an ongoing business, or a project that requires investment. The model is usually characterized by performing calculations, and makes recommendations based on that information. Financial models are not limited to profit making entities. Non-profits, governments, personal finances – all can be represented by financial models. The model may also summarize particular events for the end user and provide direction regarding possible actions or alternatives.

So we can say that a financial model illustrates relationships using real (realistic) numbers so that it can answer "what if?" questions or make projections. Hence, a Model specifies the relationship between inputs and outputs.

Uses of Financial Modeling:

(1) Financial Models help in decision making and business modeling for firms and check the viability of projects.
(2) Financial modeling is used to do historical analysis of a company's performance, and to do projections of its financial performance into the future.
(3) It is a prerequisite for Investment Banking, Equity Research and Commercial Banking jobs as project appraisal and risk evaluation using different scenarios can be calculated.
(4) A comprehensive analysis of complex transaction like Mergers and Acquisition Deals can also be done.
(5) Financial Modeling is not just for the Accountant or Financial Consultant, who are called upon to develop financial projections but also for non-technical people to use a financial model to test options and make decisions based on the projected impact on profits and cash flow.
(6) Commercial Banks use Financial Modeling for disbursing loans for the projects; Project Management uses it for performance tracking of on-going projects.
(7) It helps in identifying optimal solutions and evaluating financial returns.

Question 2.

(a) State the applications of financial modeling in financial as well as non-financial areas.

(b) From the following balance sheet prepare common size statement.

	Amount (₹) 31.03.2012	Amount (₹) 31.03.2013
Equity share capital (of ₹10 each)	**7,00,000**	**7,50,000**

Reserve & Surplus	**3,00,000**	**5,00,000**
Long term debt	**5,00,000**	**4,50,000**
Current Liabilities	**3,00,000**	**2,00,000**
Total	**18,00,000**	**19,00,000**
Fixed Assets	**12,00,000**	**11,50,000**
Inventory	**3,00,000**	**3,50,000**
Debtors	**2,00,000**	**2,50,000**
Bank	**1,00,000**	**1,50,000**
Total	**18,00,000**	**19,00,000**

Answer:

(a) Applications of Financial Modeling in Finance:

(i) Investment Banking: Financial Modeling helps Investment Banker in valuing the company by forecasting the revenues. On the basis of Valuation they recommend the buyer or seller on acquisition of new funds or investments in new funds respectively.

(ii) Project Finance: Financial Modeling helps in assessing the financial viability of a project and creating a funding plan through debt and equity components.

(iii) Mergers & Acquisitions: Financial Modeling helps the companies in access the value of the company which they want to merge or acquire by forecasting the revenues, preparing debt schedule, by doing competitor analysis.

(iv) Credit Rating: Financial Modeling equips Credit Analysts in collecting historical information &, outstanding debts and forecasting future growth on excel sheet to determine the degree of risk factor, which helps him/her in giving rating.

(v) Equity Research: Financial Modeling enables analyst in examining an organization's financial projections, competitor's projections and other dynamics to determine whether it is a smart or a risky investment.

(vi) Corporate Finance: Financial Modeling helps companies in assessing their own finances & build financial models for their on projects. & in creating a funding plan through debt and equity.

Applications of Financial Modeling in Non-finance:

(i) Decision Making: Decision marking is one of the most critical skills in today's corporate world. In today's business world, one has to take various decisions every now and then. Financial Modeling is a tool that will help you to take business decisions by comparing different scenarios on excel.

(ii) Preparation of Business Plan: Whether you are working in FMCG, telecom or any other sector, you have to prepare business plans, project reports and revenue projection reports. Financial Modeling helps you to give a comprehensive idea of the business plan for all the sectors. It also helps you to prepare revenue & cost projection reports.

(iii) Critical Thinking and analytical skills: Critical thinking and analytical skills are two of the most important skills required in the 21st century. When you prepare a financial model, you evaluate different options critically and use the appropriate options. This exercise helps you to develop your critical thinking and analytical ability.

(iv) Theory to practical: Over the period, you will learn various theoretical topics such as financial statements, accountancy, economics, budgeting and financial

management. In financial modeling, you will learn practical applications of these theories and will be able to make business plans or financial models of a company.

(b) Common Size Balance Sheet as on 31.03.2012 & 31.03.2013

	On 31.03.2012 % of total	On 31.03.2013 % of total
Equity share capital $\left[\frac{\text{Share Capital}}{\text{Total Liabilitie s}}\times 100\right]$	39%	39%
Reserve & Surplus $\left[\frac{\text{Reserve \& Surplus}}{\text{Total Liabilitie s}}\times 100\right]$	17%	26%
Long term debt $\left[\frac{\text{Long Term Debt}}{\text{Total Liabilitie s}}\times 100\right]$	28%	24%
Current Liabilities $\left[\frac{\text{Current Liabilitie s}}{\text{Total Liabilitie s}}\times 100\right]$	16%	11%
	100%	**100%**
Fixed Assets $\left[\frac{\text{Fixed Assets}}{\text{Total Assets}}\times 100\right]$	67%	61%
Inventory $\left[\frac{\text{Inventory}}{\text{Total Assets}}\times 100\right]$	17%	18%
Debtors $\left[\frac{\text{Debtors}}{\text{Total Assets}}\times 100\right]$	11%	13%
Bank $\left[\frac{\text{Bank}}{\text{Total Assets}}\times 100\right]$	5%	8%
	100%	**100%**

Observations & Conclusions: The proportion of owner's equity to total liabilities of the company has been stable (39%) for both the years where as the proportion of long term debt to total liabilities has been decreased from 28% to 24% in the year 2012-13. So we can conclude that the dependency on outsiders has been decreased and degree of financial risk associated with the company has been reduced during the study period.

The percentage of current assets to total assets has been increased from 33% to 39% whereas the percentage of current liabilities to total liabilities decreased from 16% to 11% in the year 2012-13. Therefore it indicates that the liquidity position of the company have been significantly improved during the period under study. But reduction of fixed assets may hamper the long term stability and operating efficiency of the company.

Question 3.

Visakhapatnam Steel Plant (VSP) is one of the most modern steel plants in the country. In the year 1979, to meet the growing domestic needs of steel, Government of India signed an

agreement with erstwhile USSR for cooperation in setting up 3.6 million tons integrated steel plant at Visakhapatnam. The project was estimated to cost ₹ 3,897.28 crores based on prices of-fourth quarter of 1981 but on completion of construction and commissioning of whole plant in 1992, the cost was escalated to around ₹ 8,500 crores. The plant has a capacity of producing 3 million tons of liquid steel and 2.656 million tons of saleable steel. The main products of VSP are angles, billets, channels, beams, squares, flats, rounds rebars, wire rods. The major units in VSP are Coke Ovens, Sinter Plant, Blast Furnace, Steel Melt Shop (SMS), Light and Medium Merchant Mill (LMMM), Wire Rod Mill(WRM), Medium & Structural Mill(MMSM).

The vision of VSP is to become a 10 million tons world class integrated steel plant by 2019-20. Its mission is to be a continuously growing company through technological up gradation, operational efficiency and expansion, producing steel at international standards of cost and quality ensuring optimal return on investment to stakeholders and meeting expectations of the customers. The core values of VSP are commitment, customer satisfaction, continuous improvement, concern for environment.

Constraints faced by VSP

Today, VSP is moving forward with an aura of confidence with pride to enable the company to reach new heights in organizational excellence. But in the earlier days, the plant, inspite of securing a reduction in the interest burden to a large extent through capital restructuring in 1993, could not attain envisaged capacity levels and financial viability. While price of steel was stagnant, high capital cost and large borrowings resulted in huge cost overruns and high capital-related charges. The input costs were high and raw materials prices had gone up. The recession in the steel industry was another cause for depression. It has been exposed to global competition by liberal imports. Apart from all this, in the fear 1998-99, Coke Oven Batteries came to a halt for the production of pig iron and finished steel as well as forcing a lengthy repair schedule. Also, sluggish economy both in domestic and international market led to reduction in sales turnover. Economic crisis in South-East Asian markets led to a large scale dumping of steel from their countries which adversely affected the export performance. The production factor of finished steel had declined in 1998-99 as compared to previous years.

Due to all these constraints faced by VSP, it was written off as the 'sick child of the industry'. The plant's accumulated losses crossed 50% of its capital base. VSP had to report the fact to BIFR (Board for Industrial and Financial Reconstruction) as the accumulated losses were necessitating reportability for potential sickness. In the process, the situation engendered the loose talk of privatization of the plant. VSP was directed to formulate turnaround strategy for long-term financial viability of the plant. VSP had submitted a capital restructuring proposal during July 1993 to Government, which had not been approved. Again, a second capital restructuring proposal was undertaken in 1998, converting government loans into redeemable preference share capital.

Turnaround Strategies Implemented at VSP

It was time that VSP realized the changed economic and industrial scenario and also that nothing could be expected of cash-strapped Union Government. It needed to pick up the gauntlet to face the rough weather by identifying areas needing improvement and concentrating on-them to lead to progressive results. During 1998-99, the company facilitated the issue of 1% non-cumulative preference shares to Government of India that resulted in the increase of authorized share capital of the company from ₹ 6,500 crores to ₹ 8,000 crores. The interest rates on long-term were reduced. Introducing the corporate cash management scheme through Canara Bank, the company got daily sales collection of major branches on the same day at Head quarters. The company prepaid entire outstanding loan to UTI and part

prepayments of term loans from banks through the wealth made out of internal generation through various measures.

The major step taken by VSP is utilizing the element of aggressive treasury management. The company had taken the step of rescheduling of high cost loans with low cost loans by pre-paying loans with higher interest and obtaining softer interest loans from banks. VSP has substituted high cost working capital demand loans with softer interest product like commercial paper. Also VSP secured cheaper lines of credit for import of raw materials.

During 2001-02, savings were achieved by change in mode of shipment of limestone, reduction in price of major purchases achieved by way of negotiation and cash flow was reduced on account of special additional duty. VSP has strived to achieve the best from its internal resources and attain funds through internal generation. The plant has taken innovative steps to operate consistently beyond rated capacities in all the production units. Efficient operation management coupled with optimum waste utilization and improved techno-economic parameters along with cost reduction measures have been the major contributing factors that led to VSP's turnaround.

With regard to techno-economic front, during the period from 1998-99 to 2002-03, the plant has made a significant improvement in the specific energy consumption, specific refractory consumption, average converter life, rolling rate, total coke rate and fuel consumption. Thrust was given for recycling of metallurgical waste and smaller fractions of coke in solid waste and the materials generated in the plant were collected, segregated, used or sold. Initiatives taken to recycle the solid waste and utilizing them led to a saving of raw material consumption.

Another major strategy of VSP that resulted in the turnaround of the company is the cost reduction measures taken in the plant production. Technological improvement schemes, usage of recycled solid wastes, usage of certain inputs in partial replacement with costlier ones, power generation through waste heat, internal recovery of copper for making value-added steel were major cost reduction measures taken. Initiatives were taken to consume freshly generated and accumulated metallurgical wastes. The company had laid emphasis on total involvement by workers participation in management through suggestion schemes, which played a major role in rapid growth of techno-economic parameter and labour productivity.

After reading the above passage, answer the following questions—

(a) What is referred to as Industrial Sickness? Why VSP was called 'sick child of the industry'?
(b) How Government of India was involved in the turnaround policy adopted by VSP?
(c) There are various ways for identification of sick/distress units. State those ways of identification.
(d) Technology had been applied for improvement of production in different of ways. What are those areas and how did it become cost effective in VSP?

Answer:

(a) The words 'bankruptcy', 'failure', 'sickness' etc. are often used interchangeably. The etymological meaning of sickness is decease or the act of being ill. Like a human being, a firm is also susceptible to sickness due to various reasons such as negligence, ignorance and inefficiency of its management and/or due to its poor resistance to withstand an uncertain, competitive and changing environment (external).

Distress means acute financial hardship/ crisis. Corporate Distress/Sickness means such a situation of a firm when it is unable to meet its debt. In other words, when value of the Total Assets of a company is insufficient to discharge its Total External Liabilities, the said company can be said a 'Distress Company'.

In short, Corporate Distress is a situation when the financial status of a company moves towards bankruptcy/ insolvency.

Visakhapatnam Steel Plant (VSP) is a vital steel project in our country. With the help of USSR, the Government of India had set up an integrated steel plant at Visakhapatnam. The main and major product of VSP are angles, billets, channels, beams, squares, flats, rounds rebars, wire rods. The main production units in VSP are Coke Ovens, Sinter Plant, Blast Furnace, Steel Melt Shop, Light and Medium Merchant Mill, Wire Rod Mill, Medium & Strauctural Mill.

In the earlier days of its operation, VSP could not attend the proper capacity level for its production may be due to wrong capacity management. Though its interest burden was reduced to a large extent by the scheme of capital restructuring in 1993, it could not meet the financial viability of the project. A large amount of borrowings were in its huge capital outlay resulting a high capital cost and capital related charges. But that was the time of recession in the steel industry and the price of steel was stagnant. There was also an exposure of global competition by way of liberal imports. The production of Coke Oven Batteries was hampered due to the production halt for the pig iron. Moreover the trade disturbance in domestic and international market led to the reduction in sales turnover. The export performance was poorly affected by the economic crisis in South-East Asian market. The accumulated loss of the plant exceeded 50% of the capital base of VSP.

Due to all these reasons and constraints faced by VSP, it was called as the 'sick child of the industry'.

(b) To overcome the financial sickness of VSP, a turnaround strategy was being directed by BIFR (Board for Industrial and Financial Reconstruction) for the long-term financial viability of the plant. As a part of the turnaround strategy, VSP had submitted a capital restructuring proposal during July, 1993 to the Government of India which had not approved it. After five years, a second capital restructuring proposal was undertaken in 1998 to convert the government loans into the redeemable preference share capital. During 1998-99, VSP had issued 7% non-cumulative preference shares to the Government of India. As a result, the authorised capital of VSP had increased from ₹6,500 crores to ₹8,000 crores. The interest rate burden was also reduced on long term borrowings.

(c) As per the **Sick Industrial Companies (Special Provisions) Act, 1985**, a business unit may be treated as sick if the following conditions are satisfied:

i. The unit must be registered for not less than 7 years period.

ii. Its accumulated losses at the end of the financial year are equal to or exceed its net worth.

iii. Its accumulated losses at the end of the financial year have resulted in an erosion of 50% or more of its peak net worth immediately preceding 4 financial years.

As per Section 2 (46AA) of the **Indian Companies Act, 1956**, a company is considered as sick if:

i. Its accumulated losses in any financial year is equal to or more than its average net worth during 4 years immediately preceding such financial year.

ii. It failed to repay its debt within any three consecutive quarters on demand made in writing for its repayment by a creditor or creditors of such company.

According to the **Reserve Bank of India**, an industrial unit should be considered as sick if it has incurred cash loss in the previous accounting year and is likely to continue to incur cash loss in the current accounting year as well as the following year and has an erosion of its net worth on account of cumulative cash losses to the extent of 50%.

According to the **ICICI**, a sick is one whose financial viability is threatened by adverse factors present and continuing. The adverse factors might relate to management, market fiscal burden, labour relations or any other. When the impact of factors reaches a point where a company begins to incur cash losses leading to erosion of its funds, there is treat to its financial stability.

According to **NCAER**, an industrial undertaking may be financially viable, if its three elements are proved to be positive. The NCAER Study on Corporate Distress Prediction prescribed the following three elements/ parameters for predicting the stages of corporate sickness:

i. Cash profit position (a profitability measure).

ii. Net working capital position (a liquidity measure).

iii. Net worth position (a solvency measure).

According to the **Study Team of the State Bank of India on Small Scale Industries** (1975), "a sick unit is one which fails to generate internal surplus on a continuous basis and depends for its survival on frequent infusion of external funds."

(d) During the period from 1998-99 to 2002-03, the advancement of technology had made a significant improvement in the specific energy consumption, specific refractory consumption, average converter life, rolling rate, total coke rate and fuel consumption. Moreover, the technological upgradation had played a vital role in usage of recycled solid wastes, usage of certain inputs in partial replacement with costlier ones, power generation through waste heat, internal recovery of copper for making for value added steel. These were the areas where VSP had made a successful cost reduction scheme as a part of its turnaround policy. The involvement of workers for participation in management to give suggestions in techno-economic matters had resulted in a positive labour productivity.

Question 4.

(a) Following are the Balance Sheet of Mayuri Ltd. as on 31.03.2012 and 31.03.2013. Prepare Comparative Balance Sheet of Mayuri Ltd. and interpret it.

Balance Sheet as at	31.03.2012	31.03.2013
Share Capital and Liabilities:		
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**
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**
Deferred tax liability	**6,982.02**	**7,872.54**
	1,17,353.28	**1,49,838.91**
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**

(b) How to price a Zero-Coupon Bond?

Answer:

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

Balance Sheet as at	31.03.2012	31.03.2013	Absolute change	% Change
Share Capital and Liabilities:				
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
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
Deferred tax liability	6,982.02	7,872.54	890.52	12.754
	1,17,353.28	1,49,838.91	32,485.63	27.682
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.

(b) There are some bonds which do not make any periodic coupon payments. Instead, the investor realises interest as the difference between the maturity value and the purchase price. These bonds are called zero-coupon bonds. The price of a zero-coupon bond is calculated as follows:

$$P = \frac{M}{(1+r)^n}$$

Where

P = Price (in rupees)

M = Maturity Value

n = Number of periods

r = periodic interest rate

The above equation states that the price of a zero-coupon bond is simply the present value of the maturity value. In the present value computation, the number of periods

used for discounting is not the number of years to maturity of the bond, but rather double the number of years. The discount rate is one-half of the required annual yields.

Question 5.

(a) How the Statement of Owners' Equity is reformulated?

(b) What are the areas in corporate sector can be the indicators of its distress analysis?

Answer:

(a) The statement of owners' equity provides the reconciliation of beginning and ending owners' equity according to the stocks and flows equation: The change in owners' equity is explained by comprehensive income for the period plus capital contribution from share issues, less dividends paid in cash and shares repurchases. In the statement of equity, preference shares are not considered as it is an obligation to pay and it is reclassified as a financial obligation is a reformulated balance sheet. The reformulation of statement of shareholders' equity is presented as follows:

Reformulated Statement of Shareholders' Equity
Beginning book value of equity shares
+ Net effect of transactions with equity shareholders
+ Capital contributions (share issues)
- Share repurchases
- Dividends
= Net cash contribution (negative net dividends)
+ Effect of operations and non equity financing
+ Net income (from income statement)
+ Other comprehensive income
- Preference dividends
= Comprehensive income available to equity shareholders
Closing book value of equity shares

(b) A firm goes in sickness gradually. Every firm exhibits some situations of financial distress before it goes bankrupt. These situations towards bankruptcy are the indicators/symptoms of financial distress of a firm. Following are the indicators/ symptoms of financial distress of a firm:

(i) **In the areas of operation:**

a. Low production capacity utilization.

b. High operating cost.

c. High rate of rejection of goods manufactured.

d. Regular default in making payment to suppliers.
e. Delay in payment of wages.
f. High rate labour turnover.
g. Declining or stagnant sales volume.
h. Accumulation of finished stock in godown.
i. Failure of distribution network.
j. Cut down in advertisement expenditure.

(ii) In the areas of finance:

a. Rapidly increasing debts.
b. Regular default in repayment of debt.
c. Failure in payment of statutory liabilities.
d. Continuous irregularity in cash credit/overdraft account.
e. Repayment of one debt taking another debt.
f. Deteriorating liquidity position of the business.

(iii) In the areas of Books of Accounts:

a. Finalization of accounts long after the end of the accounting year.
b. Non-submission of financial information to the bankers.
c. Window dressing in Balance Sheet.
d. Frequent changes in accounting policies.
e. Delay in conducting audit.

(iv) Others:

a. Fall in market value of shares.
b. High rate of turnover of key personnel.
c. Frequent changes in management.

Question 6.

(a) What is Income?

(b) The comparative information for two years relating to P Ltd. are as follows:

Year	2011-12	2012-13
Sales (₹)	15,00,000	18,37,500
Units sold	3,000	3,500
Sales price per unit (₹)	500	525

Account for the change in sales (amount) due to:

i. Change in quantity
ii. Change in price
iii. Change in quantity and price taken together

Answer:

(a) Income is the consumption and savings opportunity gained by an entity within a specified timeframe, which is generally expressed in monetary terms. However, for households and individuals, "income is the sum of all the wages, salaries, profits, interest payments, rents and other forms of earnings received in a given period of time."

In general sense, income refers to the excess of revenue over expense. Therefore, income of a concern changes due to changes in revenue or due to changes in expense or due to changes in both. Generally, income is denoted by different terms such as Profit, Net Profit or Net Income. During an accounting period, Net Assets of a firm increases due to profit earned during that period, which is referred as 'income' for that period.

There are two concepts of income.

(1) Accounting Concept of Income: Here income is the excess of the total revenue earned over expired cost. The total revenue includes the revenue earned from operating activities and gains from other incidental activities of the concern. Again expired cost consists of expenses incurred for generating revenue for the business and losses from other incidental activities of the concern.

Therefore, Accounting Concept of Income can be mathematically expressed as follows:

Accounting Income (I) = [Revenue earned from operating activities (R) + other incidental gains (G)] - [Expenses (E) + other incidental losses (L)]

i.e., I = (R + G)-(E + L)

(2) Economic Concept of Income: In this concept, income is defined as the maximum amount which a firm can distribute to its owners during a period. As per this concept, income refers to the net increase in capital of the firm during a period. Increase in capital is the difference between closing capital and opening capital of the firm for a period after adjustment of capital consumed and fresh capital introduced during that period. We can express the relationship as follows:

Economic Income (E) = Consumption of capital during the period (C_c) + [Capital at the end of the period (C_1) - Capital at the beginning of the period (C_0)] - Fresh capital introduced during the period (C_i)

i.e., $E = C_c + (C_1 – C_0) - C_i$

(b) Computation of Changes

	2011-12	2012-13	Changes
Sales Value (₹)	15,00,000	18,37,500	(+)3,37,500
Sales Units	3,000	3,500	(+)500
Selling Price per Unit (₹) [Sales Value ÷ Sales Units]	500	525	(+)25

Statement showing account for Changes in Sales

	₹
1. Change in sales due to change in quantity [Change in quantity x Base year's unit selling price] = [(3,500 – 3,000) × ₹500]	2,50,000
2. Change in sales due to change in price	75,000

[Change in unit selling price x Base year's quantity] = [(₹525 - ₹500) × 3,000]	
3. Change in sales due to change in quantity and price taken together [Changes in unit selling price x Change in quantity] = [(₹525 - ₹500) × (3,500 – 3,000)]	12,500
Total Increase in Sales	**3,37,500**

Question 7.

Ebela Solutions Ltd.

(₹ in thousands)

Particulars	2012-13	2011-12
Cash flow from operating activities		
Profit after tax	**13,85,093**	**13,60,710**
Adjustments for		
Depreciation and amortization	**8,90,764**	**8,72,632**
Deferred tax charge	**1,19,729**	**1,08,504**
Provision for current tax and MAT credit entitlement	**2,29,617**	**1,29,107**
Provision for doubtful debts / bad debts written off, net	**5,515**	**24,252**
Foreign exchange loss / (gain), net	**1,30,379**	**(18,011)**
Interest and finance charges	**3,94,449**	**3,69,518**
Interest and dividend income	**(59,421)**	**(32,877)**
Profit on sale of investments (including subsidiary)	**(1,76,347)**	**(17,962)**
Gain on FCCB buyback, net	**---**	**(73,909)**
Minority interest	**18,577**	**4,500**
Rent expenses on account of adoption of AS 30	**23,989**	**16,661**
Loss / (Gain) on sale of fixed asset	**10,702**	**(4,738)**
Operating cash flow before changes in working capital	**29,73,046**	**27,38,387**
Changes in working capital		
Decrease / (Increase) in debtors	**2,32,024**	**(4,28,531)**
Increase in loans and advances and unbilled receivables	**(4,17,435)**	**(1,92,184)**
Increase / (Decrease) in current liabilities and provisions	**1,83,073**	**(31,097)**
Net changes in working capital	**(2,338)**	**(6,51,812)**
Income taxes paid	**(5,13,674)**	**(3,70,870)**
Net cash generated from operating activities (A)	**24,57,034**	**17,15,705**
Cash flow from investing activities		
Purchase of investment in mutual funds / Government securities	**(1,82,90,564)**	**(1,27,62,736)**
Sale of investment in mutual funds / Government securities	**1,80,63,467**	**1,17,93,687**
Interest and dividend income received	**31,732**	**16,458**
Capital expenditure	**(4,30,605)**	**(5,64,652)**
Proceeds from sale of fixed assets	**27,527**	**45,047**
Net cash used in investing activities (B)	**(5,98,443)**	**(14,72,196)**
Cash flow from financing activities		
Proceeds from secured loans	**4,33,443**	**13,47,000**
Repayment of secured loans	**---**	**(5,07,200)**
Proceeds from unsecured loans – others	**---**	**23,624**
Repayment of unsecured loans – other	**(17,023)**	**(1,76,302)**
Repayment of unsecured loan – FCCB, including expenses	**---**	**(4,55,425)**
Proceeds from issuance of equity shares and share application money	**18,525**	**23,789**
	(2,66,308)	**(2,48,422)**

Interest paid	**1,68,637**	**7,064**
Net cash generated from financing activities (c)	**20,27,228**	**2,50,573**
Net increase in cash and cash equivalents (A+B+C)	**12,17,512**	**9,66,939**
Cash and cash equivalents at the beginning of the year	**1,434**	**---**
Cash and cash equivalents acquired from business acquisition	**32,46,174**	**12,17,512**
Cash and cash equivalents at the end of the year		

Notes to the cash flow statement

Cash and Cash equivalents consist of cash on hand and balance with bank. Cash and cash equivalents included in the cash flow statement comprise the following balance sheets amounts

(₹ in thousands)

Particulars	2012-13	2011-12
Cash on hand	**352**	**444**
Balances with scheduled banks		
- **In current accounts**	**3,31,179**	**1,16,340**
- **In deposit accounts***	**8,42,107**	**2,100**
- **In foreign currency accounts**	**1,34,708**	**331**
Balances with non scheduled banks		
- **In current accounts**	**17,90,889**	**11,46,266**
- **In deposit accounts****	**46,442**	**46,760**
- **Remittances in transit**	**3,69,836**	**---**
	35,15,513	**13,12,241**
Less: Current account balance held in trust for customers in non-scheduled banks	**2,69,339**	**94,729**
	32,46,174	**12,17,512**

*** Includes ₹ 20,00,000 (31st March 2011-12 : ₹ 2,000) under lien for bank guarantees to the customs authorities.**

**** Includes ₹ 3,34,46,000 (31st March 2011-12 : ₹ 33,675) towards line of credit for FAL.**

Read the above matters and answer the following questions:

(a) Analyse the transactions involved in financial assets.

(b) Why the depreciation expenses are added back in cash flow statement?

(c) How the non-cash transactions are treated in cash flow statement?

Answer:

(a) Investments in financial assets included purchase of investments in mutual funds or Government securities for amounted to ₹(18,290,564 thousands) for 2012-13 and ₹(12,762,736 thousands) for 2011-12. It also included the sale of investments in mutual funds or Government securities for ₹18,063,467 crores in the year 2012-13 and ₹11,793,687 crores in 2011-12. These items are included in the investment section rather than in financing section in the cash flow statement. It resulted into a net investing outflow of ₹227,097 crores for the year 2012-13 and ₹969,049 crores for 2011-12. These investments were a disposition of free cash flow, not a reduction of free cash flow. If a firm wants to invest its surplus amount or free cash flow from operation in financial assets, it gives the appearance that the firm is reducing its free cash flow further.

There was also an item called profit on sale of investments which was included in profit after tax for ₹176,347 crores for 2012-13 and ₹17,962 crores for 2011-12. To arrive at the net cash generated from operating activities these items were deducted from profit after tax.

(b) The depreciation expenses are added back to operating cash flow because it is an accounting expense, not a cash expense. In other words, depreciation reduces net income on the income statement, but it does not reduce the cash account on the balance sheet. When a statement of cash flow is analysed, there are three parts in it such as cash flow from operating activities, cash flow from investing activities and cash flow from financing activities. The depreciation provision made against revenue during the period is a non-cash item and accordingly the fund set aside for this provision accounts for an additional source of funds over and above the net profit. Depletion Expense and amortization expense are accounts similar to depreciation expense, as all three involve allocating the cost of a long-term asset to an expense over the useful life of the asset. There is no cash involved.

(c) There were not much non-cash transactions involved in the Cash Flow Statement of Ebela Solutions Limited except the following two items:
   (i) The balance in deposit accounts with Scheduled Bank included an amount of ₹2,000,000 for 2012-13 and also ₹2,000,000 for 2011-12 under the lien for bank guarantees to the customs authorities.
   (ii) The balance in deposit accounts with Non-scheduled Bank included an amount of ₹33,446,000 for 2012-13 and ₹33,675,000 for 2011-12 towards the line of credit for FAL.

   A noncash transaction can involve an asset exchange (one asset for another) or a liability exchange, or a conversion of debt to equity or vice versa. Implicitly we interpret these as if there were a sale of something for cash and an immediate purchase of something else with that cash. The cash flow statement recongnizes these transactions as not involving cash flows.

Question 8.

Setul Industries Limited (Taxes on Income)

Tax expense comprises current tax and deferred tax. Current tax is measured at the amount expected to be paid to / recovered from the tax authorities, using the applicable tax rates. Deferred income tax reflect the current year timing differences between taxable income and accounting income for the year and reversal of timing differences of earlier years. Deferred tax assets are recognized only to the extent that there is reasonable certainty that sufficient future income will be available except that deferred tax assets, in case there are unabsorbed depreciation and losses, are recognized if there is virtual certainty that sufficient future taxable income will be available to realize the same.

Tax on distributed profits payable in accordance with the provisions of Section 115-O of the Income-tax Act, 1961, is disclosed in accordance with the Guidance Note on Accounting for Corporate Dividend Tax issued by the Institute of Chartered Accountants of India (ICAI).

Components of Deferred Tax Asset/(Liability) are as under: (₹ in lakhs)

Particulars	March 2012	March 2013
Difference in tax and book written down value of fixed assets	(41.89)	(26.38)
Unabsorbed carry forward business Loss	1071.29	668.26
Disallowance U/s. 43B of Income-tax Act, 1961	0.04	0.05
Provision for Doubtful Debts	122.27	134.49
Provision for Doubtful Advances	115.24	126.77
VRS Expenses not written off	207.84	251.07
Leave Encashment provision	9.92	10.70
Provision for Gratuity	14.65	17.38
Deferred Tax Asset (Net)*	1499.36	1182.34

The Net Deferred Tax Asset as at March 31st, 2013 has not been accounted in view of the requirements of certainty/ virtual certainty as stated in Accounting Standard 22 on "Accounting for Taxes on Income".

Read the above carefully and answer the following questions:

(a) How deferred tax assets are arised? How it is recognised?

(b) Draw a proforma as how to the operating income from sales (after tax) is calculated?

(c) When a deferred tax liability is created? Discuss the matter in the context of depreciation.

(d) What is the difference between marginal tax rate and effective tax rate?

Answer:

(a) When certain expenses considered in the Profit & Loss A/c are not allowed or are partially allowed in the computation of Taxable Income of the current period, and the remaining expense is deferred for allowance in subsequent period(s), the Taxable Income exceeds the Accounting Income. Therefore, the tax liability as per Income Tax provisions is higher than the tax calculated on the Accounting Profits. A Deferred Tax Asset is created in such a situation by crediting the Profit & Loss A/c with Deferred Tax Income. Thus deferred income tax reflect the current year timing differences between taxable income and accounting income for the year and reversal of timing differences of earlier years.

Deferred tax assets are recognised only to the extent that there is reasonable certainty for future income that will be available sufficiently except in the cases of deferred tax assets that there are unabsorbed depreciation and losses. These items are recognised if there is virtual certainty that future taxable income will be available to realise the same.

(b) The proforma for calculation of the operating income from sales (after tax) as follows:

Net Sales
- Expenses to generate sales
Operating income from sales (before tax)
- Tax on operating income from sales

+ Tax as reported
+ Tax benefit from net financial expenses
- Tax allocated to other operating income
Operating income from sales (after tax)

(c) When an expense is allowed for the computation of taxable income exceeds the expense considered in the Profit & Loss Account, the accounting income exceeds the taxable income. As a result, the tax as per the books of accounts will be higher than that actually payable by the company. In such a situation a Deferred Tax Liability is created by debiting the Profit & Loss Account with Deferred Tax Expense to account for the difference in taxes.

To describe the deferred tax liability, depreciation is one of the most vital and important area where we can focus. Where the depreciation as per Income Tax Act exceeds that as per Company's Act or the firm's policies, the Taxable Income is less than the Accounting Income. Again where an asset has been purchased for scientific research, it is depreciated fully under the Income Tax provisions, but will be depreciated over a period in the Books of Accounts. In these situations, the tax liability for the current period will be less than the tax computed on the Accounting Income, but will be higher in subsequent periods when the depreciation as per Books of Accounts starts to exceed that allowable under Income Tax. Thus, a deferred tax liability will be created in the current period in respect of the short tax paid and will be reversed subsequently over a period of time.

(d) The marginal tax rate is the highest rate at which the income is taxed for interest expense reduces taxes at this rate. Firms are taxed on a schedule of tax rates, depending on the size of their income. The tax rate used in the calculation is the marginal tax rate.

The effective tax rate is that which is the tax expense divided by income before tax in the income statement and it also incorporates any tax benefits which the firm generates. The effective tax rate is reported in footnotes, but it is not to be used for the tax allocation.

Question 9.

(a) The following figures apply to a small manufacturing company:

Particulars	Amount (₹)
Annual sales for the previous year	**2,30,000**
Profit after tax for the previous year	**13,548**
Budgeted annual sales for the next year	**2,42,000**
Budgeted profit after tax for the next year	**14,278**

In the first of the two years, the average total assets amounted to ₹2,00,000, and are estimated to be ₹2,20,000 for the next year.

Assuming full budget realization and taking turnover into account, what alteration will take place in the ratio representing return on capital employed and what are the reasons?

(b) Prepare the income statement of a firm which gives the following details relating to its operations:

Operating leverage	**4**
Financial leverage	**2**
Annual interest paid	**₹ 10 lakhs**
Contribution/sales	**0.4**
Tax rate	**30%**

Answer:

(a)

$$\frac{\text{Profit}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Capital Employed}} = \frac{\text{Profit}}{\text{Capital Employed}}$$

Previous year $\frac{13,548}{2,30,000} \times 100 \times \frac{2,30,000}{2,00,000} \times 100 = \frac{13,548}{2,00,000} \times 100$

5.9% x 115% x = 6.77%

Next year $\frac{14,680}{2,42,000} \times 100 \times \frac{2,42,000}{2,20,000} \times 100 = \frac{14,680}{2,20,000} \times 100$

6.1% x 110% x = 6.67%

The reasons for the change in the ratio of return on capital employed, i.e., from 6.77 per cent to 6.67 per cent are:

(i) The profit to turnover ratio has only increased from 5.9 per cent to 6.1 per cent representing a very slight improvement.
(ii) The capital turnover ratio has declined significantly from 115 per cent to 110 per cent. Although sales have improved, the additional capital employed has not resulted in a proportionate increase in sales this will be clear from the following.

Increase in capital employed ₹20,000 i.e., 10 per cent on original capital.

Increase in sales ₹12,000 i.e., 5.2 per cent over previous year's sales.

Again, if the additional return on additional capital employed is compared with the previous year's return on capital employed, the following result will be obtained:

$$\frac{\text{Addl. Profit}}{\text{Addl. Capital Employed}} \times 100 = \frac{₹1132}{20,000} \times 100 = 5.7 \text{ per cent}$$

When the amount of capital employed is computed on the basis of the assets side of the balance sheet, the following adjustments should be made:

1. Intangible assets like goodwill, patents, trademarks, etc. should be excluded unless they have definite market values.
2. Fictitious assets, e.g., preliminary expenses, cost of issue of share/debentures, deferred advertisement expenses, should be excluded.
3. Idle or unused assets, e.g., plant and machinery, excess cash and bank balance, if any, should not be taken into account.
4. Obsolete stock items and debts, which are likely to become had should be deducted from inventories and debtors respectively.

While computing profit, extraneous and fortuitous expenditure and income and abnormal losses and gains should be excluded.

The ROCE ratio is the indicator of the profitability or otherwise of a firm. In other words, the higher the return, the more profitable is the position of the firm, and vice versa.

(b) Financial Leverage = 2 (given)

$$\text{Financial leverage} = \frac{\text{EBIT}}{\text{EBIT - Interest}}$$

$$2 = \frac{\text{EBIT}}{\text{EBIT - ₹ 10,00,000}}$$

$$\therefore \text{ EBIT} = ₹ 20,00,000$$

Operating Leverage = 4 (given)

$$\text{Operating Leverage} = \frac{\text{Contribution}}{\text{EBIT}}$$

$$4 = \frac{\text{Contribution}}{₹ 20,00,000}$$

$$\therefore \text{ Contribution} = ₹ 80,00,000$$

$$\text{Operating Leverage} = \frac{\text{Contribution}}{\text{Contribution - Fixed Cost}}$$

$$4 = \frac{₹ 80,00,000}{₹ 80,00,000 - \text{Fixed Cost}}$$

$$\therefore \text{ Fixed Cost} = ₹ 60,00,000$$

$$\frac{\text{Contribution}}{\text{Sales}} = 0.40$$

$$\frac{₹ 80,00,000}{\text{Sales}} = 0.40$$

∴ Sales = ₹ 2,00,00,000

Income Statement	(₹)
Sales	2,00,00,000
Less: Variable cost (@ 60%)	1,20,00,000
Contribution	80,00,000
Less: Fixed cost	60,00,000
EBIT	20,00,000
Less: Interest	10,00,000
EBT	10,00,000
Less: Tax @ 30%	3,00,000
EAT	7,00,000

Question 10.

(a) What is Structured Medium-term Notes?

(b) Write a short note on impacts of Off-Balance-Sheet Items.

Answer:

(a) A Medium-Term Note (MTN) is a corporate debt instrument which has a unique characteristic. These notes are offered continuously to investors by an agent to the issuer. Investors can select from several maturity ranges from nine months to upto 30 years. MTN give a corporation the maximum flexibility for issuing securities on a continuous basis. At one time, the typical MTNs were fixed rate debentures that were noncallable. Now it is common for the issuers of MTNs to couple their offerings with transactions in the derivative markets (options, futures, forwards, swaps, floors etc) to create debt obligations with more interesting risk-return feature than are available in the corporate bond market. Inverse floaters are created in the structured MTN market. MTNs can have various embedded options included.

MTNs are created when the issuer simultaneously transacts in the derivative markets are called Structured Notes. Swap is the most common derivative instrument used in creating the structured notes. The development of the MTN market has been fostered by commercial banks involved in the swap market. By using the derivative markets in combination with an offering, borrowers are able to create investment vehicles that are more customized for institutional investors to satisfy their investment objectives, even though they are forbidden from using swaps for hedging.

(b) The impacts of Off-Balance-Sheet-Items are described as follows:

(i) Derivative instruments: Derivatives are generally either privately negotiated OTC contracts or standard contracts transacted through regulated exchanges. The most frequently used freestanding derivative products include interest rate, cross-currency and credit default swaps, interest rate and foreign exchange options, foreign exchange forward contracts and foreign exchange and interest rate futures. The replacement values of derivative instruments correspond to their fair values at the dates of the consolidated balance sheets. Positive replacement values constitute a receivable, while negative replacement values constitute a payable. The fair values

of derivatives are determined using various methodologies, primarily observable market prices where available and, in their absence, observable market parameters for instruments with similar characteristics and maturities, net present value analysis or other pricing models as appropriate. The companies enter into derivative contracts in the normal course of business for market making, positioning and arbitrage purposes, as well as for own risk management needs, including mitigation of interest rate, foreign exchange and credit risk.

(ii) Guarantees and similar arrangements: In the ordinary course of business, guarantees and indemnifications are provided that contingently obligate the companies to make payments to a guaranteed or indemnified party based on changes in an asset, liability or equity security of the guaranteed or indemnified party. Guarantees provided include, but are not limited to —

- customary indemnifications to purchasers in connection with the sale of assets or businesses;
- investors in private equity funds sponsored by us regarding potential obligations of its employees to return amounts previously paid as carried interest;
- investors in our securities and other arrangements to provide gross-up payments if there is a withholding or deduction because of a tax assessment or other governmental charge;
- counterparties in connection with securities lending arrangements.

In connection with the sale of assets or businesses, we sometimes provide the acquirer with certain indemnification provisions which vary by counterparty in scope and duration and depend upon the type of assets or businesses sold.

(iii) Unidentified Contingent Liabilities: It is one of the most common off-balance sheet items which were not identified on the balance sheet date or on during audit period. For example Re-assessment proceeding under section 147 of the Income Tax Act, 1961 on which assessment has been completed under Section 143(1). For example retrospective order of the Government for payment of settled cases etc.

Question 11.

(a) Fit a straight line trend to the given time series data and estimate the value for the year 2014.

Year:	**2007**	**20084**	**2009**	**2010**	**2011**	**2012**	**2013**
Average production per month ('000 tons):	**20**	**22**	**21**	**24**	**25**	**23**	**28**

(b) How Cash Flow Statement can be analysed on the basis of ratios?

Answer:

(a) Let the straight line trend be represented by the equation $y = a + bt$. The values of a and b will be determined by solving normal equations $\Sigma y = na + b \Sigma t$….(i) and $\Sigma yt = a\Sigma t + b\Sigma t^2$. Here since the number of years is odd i.e. seven, the midyear i.e. 2010 is taken as origin and year as unit.

Fitting straight line trend

Year	Average prods. Per month ('000 tons) (y)	T = year – 2010	T^2	y.t.
2007	20	-3	9	-60
2008	22	-2	4	-44
2009	21	-1	1	-21
2010	24	0	0	0
2011	25	1	1	25
2012	23	2	4	46
2013	28	3	9	84
Total	**163**	**0**	**28**	**30**

From normal equ. (i) 163 = 7. a + b. 0 or, a = 23.29, as n = 7, $\Sigma y = 163$
From equ. (ii), 30 = a.0. + b. 28 or, b = 1.07, as $\Sigma yt = 30$, $\Sigma t^2 = 28$

$\therefore$ The trend equation is y = 23.29 + 1.07t, with origin = 2010 and t unit = 1 year
The value of t for 2014 is 4, so estimated value for 2014 is 23.29 + 1.07 x 4 = 23.29 + 4.28 = 27.57 ('000 tons)

(b) The following ratios may be used to analyse the cash flow statement—

(i) Debt coverage ratio = Operating cash flows after interest ÷ total debt. This ratio indicates the extent to which existing debt can be redeemed at once by the net cash generated from operations. So a high debt coverage ratio indicates the sound solvency position.

(ii) Interest coverage ratio = cash flow from operating activities ÷ interest payment. This ratio shows the firm's ability to meet its interest by the cash from operation. So a high coverage ratio is desirable.

(iii) Earning cash flow ratio = (operating cash flow ÷ operating profit) X 100. This ratio indicates the extent to which operating profit has been realised in cash. So it indicates the quality of earning of the firm. A high earning cash flow ratio is always desirable for sound liquidity position.

(iv) Ratio of dividend to operating cash flow = (dividend ÷ operating cash flow) X 100. This ratio indicates the share of cash from operation, which is pay out outside the business in form of dividend. Higher the ratio, higher will be the rate of drainage of cash for non-earning purpose.

(v) Ratio of depreciation to cash flow for new assets = (depreciation ÷ cash flow for new assets) X 100. This ratio is the indicator of the rate of setting aside funds for asset replacement.

(vi) Rate of depends on external fund for capital investment = (fresh external fund – redemption of debt) ÷ investing cash flow. If it is lower, then the firm is lesser dependent on external fund.

(vii) Rate of dependence of capital investment on internal fund = (operating cash flow after interest and dividend ÷ investing cash flow) X 100. It indicates the stability of the firm.

(viii) Cash return on total assets = operating cash flow ÷ total assets X 100. It indicates the efficiency of asset utilisation in generating cash.

(ix) Cash flow per share = operating cash flow – interest ÷ number of shares. It shows cash generating capacity per share.

(x) Price cash flow ratio = Market price per share ÷ cash flow per share. It shows overall performance of business.

Question 12.

(a) Rowdy Company's equity shares are being traded in the market at ₹54 per share with a price- earnings ratio of 9. The Company's dividend payout is 75%. It has 1,00,000 equity shares of ₹10 each and no preference shares. Book value per share is ₹47.
Calculate: (i) Earnings per share, (ii) net income, (iii) Dividend yield, and (iv) return on equity.

(b) Describe Sustainable Growth Rate (SGR).

Answer:

(a) The calculation of ratios of Rowdy Company as follows:

(i) Earnings per Share

Price/ Earnings Ratio (given) = 9

$$\text{P/E ratio} = \frac{\text{Market Price}}{\text{EPS}}$$

$$9 = \frac{₹54}{\text{EPS}}$$

9 x EPS = ₹54

EPS = ₹54/9 = ₹6

(ii) Net Income = EPS x No. of shares
= EPS x No. shares
= ₹ 6 x 1,00,000 Equity shares = ₹6,00,000

(iii) $$\text{Dividend Yield} = \frac{\text{Dividend per share}}{\text{Market price per share}}$$

$$\text{Dividend per share} = \frac{\text{Net income x Dividend payout}}{\text{No. of equity shares}}$$

$$= \frac{₹6,00,000 \times 0.75}{1,00,000 \text{ Equity shares}} = ₹4.50$$

$$\text{Dividend yield} = \frac{₹4.50}{₹54} \times 100 = 8.33\%$$

(iv) $$\text{Return on Equity} = \frac{\text{net Income}}{\text{Equity}}$$

$$= \frac{₹6,00,000}{₹54 \times 1,00,000 \text{ Equity shares}} \times 100 = 11.11\% \text{ (based on market price)}$$

$$= \frac{₹6,00,000}{₹47 \times 1,00,000 \text{ Equity shares}} \times 100 = 12.766\% \text{ (based on book value)}$$

(b) 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.

Question 13.

(a) Emmie Ltd. has a machine having an additional life of 5 years, which costs ₹1,00,000 and which has a book value of ₹25,000. A new machine costing ₹2,20,000 is available. Though its capacity is same as that of the old machine, it will mean a saving in variable costs to the extent of ₹ 70,000 p.a. The life of the machine will be 5 years at the end of which it will have a scrap value of ₹40,000. The rate of income tax is 60% and Emmie Ltd. does not make an investment, if it yields less than 12%. The old machine, if sold, will fetch ₹10,000.
Advise Emmie Ltd. whether the old machine should be replaced or not.

Note:

P.V. of Re.1 receivable annually for 5 years at 12% =	**3.605**
P.V. of Re.1 receivable at the end of 5 years at 12% =	**0.567**
P.V. of Re.1 receivable at the end of 1 year at 12% =	**0.893**

(b) Define Operating Leverage.

Answer:

(a) Statement Showing the Net Present Value of New Machine

	₹	₹
Cash Inflow		70,000
Saving in Variable Cost		
Less: Dep. on new machine ₹ $\left(\frac{2,20,000 - 40,000}{5}\right)$	36,000	

Less: dep. On old machine ₹ $\left(\frac{25,000}{5}\right)$	5,000	
		31,000
Net Profit		39,000
Less: Tax @ 60%		23,400
Net Inflow/ saving after Tax		15,600
Add: depreciation		31,000
∴Annual Cash inflow		46,600

Now,

Particulars	₹
P.V. of Cash inflow for 5 years = ₹46,600 x 3.605	1,67,993
P.V. of scrap value at the end of 5 years = ₹40,000 x 0.567	22,680
P.V. of total cash inflow	1,90,673
Less: P.V. of cash outflow (2,20,000 – 10,000)	2,10,000
Net Present Value	(-) 19,327

Since, the NPV is negative; it is not profitable to install the new machine. The old machine should not be replaced i.e. it should be continued.

(b) Operating leverage results when fluctuations in sales are accompanied by disproportionate fluctuations in operating profit. Changes in core sales profit margin are determined by how costs change as sales change. Some costs are fixed costs: They don't change as sales change. Other costs are variable costs: they change as sales change. The absence of fixed costs in the total cost structure of a firm will not lead to a disproportionate change in profit due to a given change in sales. So, if there is no fixed cost, there is no operating leverage. Depreciation, amortization, and many administrative expenses are fixed costs, while most labour and material costs of sales are variable costs. The difference between sales and variable costs is called the contribution margin because it is this amount that contributes to covering fixed costs and providing profits. Thus

$$\text{Sales Profit Margin} = \frac{\text{Sales} - \text{Variable Costs} - \text{Fixed Costs}}{\text{Sales}}$$

$$= \frac{\text{Contribution Margin}}{\text{Sales}} - \frac{\text{Fixed Costs}}{\text{Sales}}$$

The first component of the above equation is called the contribution margin ratio. This is sometimes calculated as —

$$\text{Contribution Margin Ratio} = 1 - \frac{\text{Variable Costs}}{\text{Sales}}$$

This ratio measures the change in income from a change in one rupee of sales. From a firm with variable costs that are 80 percent of sales, the contribution margin ratio is 20 percent:

The firm adds 20 cents to income for each rupee increase in sales (and the fixed costs don't explain changes in profit margins).

Question 14.

(a) How does Du Pont Analysis help to understand the company's profitability as well as efficiency?

(b) The following informations are revealed from the Balance Sheet of Queen Ltd. as on 31st March, 2013 as follows:
Equity Shares — ₹22.90 lakhs
Reserve & Surplus — ₹10.30
Long-term Liabilities — ₹95.60
Current Liabilities — ₹77.60
Fixed Assets — ₹108.90
Current Assets — ₹49.80
Profit & Loss A/c (Dr.) — ₹47.7
Depreciation written off — ₹8.6 crores.
Preliminary Expenses written off — ₹2.80 crores.
Net Loss — ₹23.70 crores.
Ascertain the stage of sickness.

Answer:

(a) The earning power of a firm is represented by return on investment (ROI), which again depends on two other ratios — net profit ratio and capital turnover ratio. This is needless to mention here that if these two ratios change, there will be a consequent change in ROI since these ratios depend on many factors which may change frequently. It is important to understand how the company's profitability, efficiency, and leverage are linked in its financial performance. The company's return on assets, ROA (=net income/assets), can be expressed as:

ROA = (Net Income/Revenue) × (Revenue/Assets) = Profit Margin × Asset Turnover
And the company's return on equity, ROE (=net income/equity), can be expressed as
ROE = (Net Income/Revenue) × (Revenue/Assets) × (Assets/Equity) = ROA × Equity Multiplier

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

(b) The NCAER Study on Corporate Distress Prediction prescribed the following three parameters for predicting the stage of Corporate Sickness:

a. Cash profit position (a profitability measure)
b. Net working capital position (a liquidity measure)
c. Net worth position (a solvency measure)

In the given case, we need to judge the above-mentioned parameters to ascertain the stage of sickness of the company.

i. Cash Profit =Net Profit + Depreciation Written Off + Preliminary Expenses Written Off
= ₹ [(23.70) + 8.6 + 2.80] crores = (₹12.30 crores)
ii. Net Working Capital = Current Assets – Current Liabilities
= ₹ (49.80 – 77.60) crores = (₹27.80 crores)
iii. Net Worth = Share Capital + Reserves & Surplus - Profit & Loss A/c (Dr.)
= ₹ (22.90 + 10.30 – 47.70) crores = (₹14.50 crores)

Prediction about Corporate Sickness: As per NCAER Research Study, out of mentioned three parameters, if any one parameter becomes negative in case of a firm, it can be predicted that the firm has a tendency towards sickness. In the given company, all the three parameters [as calculated under (a), (b) and (c)] show negative value. Therefore, it can strongly be predicted that the company is a sick company and its stage of sickness is 'fully sick'. Immediate necessary drastic revival measures are essentially required for the survival of the company.

Question 15.

(a) How to analyse an existing and a new debt?

(b) From the information contained in Income Statement and Balance Sheet of ANK Ltd., prepare Cash Flow Statement:

Income Statement for the year ended March 31st, 2013.

Particulars		Amount (₹)
Net Sales	(A)	2,52,00,000
Less: Cash Cost of Sales		1,92,00,000
Depreciation		6,00,000
Salaries and Wages		24,00,000
Operating Expenses		14,00,000
Provision of Taxation		8,80,000
	(B)	2,44,80,000
Net Operating Profit (A) – (B)		7,20,000
Non-recurring Income – Profits on sale of equipment		1,20,000
		8,40,000
Retained earnings and profits brought forward		15,18,000
		23,58,000
Dividends Declared and paid during the year		7,20,000
Profit and Loss Account balance as on March 31st, 2013		16,38,000

Balance Sheet as on

Assets	March 31st, 2012 ₹	March 31st, 2013 ₹
Fixed Assets:		
Land	4,80,000	9,60,000
Building and Equipment	36,00,000	57,60,000
Current Assets:		
Cash	6,00,000	7,20,000
Stock	16,80,000	18,60,000
Debtors	26,40,000	9,60,000
Advances	78,000	90,000
	90,78,000	1,03,50,000

Liabilities and Equity	March 31st, 2012 ₹	March 31st, 2013 ₹
Share Capital	**36,00,000**	**44,40,000**
Surplus in Profit and Loss Account	**15,18,000**	**16,38,000**
Sundry Creditors	**24,00,000**	**23,40,000**
Outstanding Expenses	**2,40,000**	**4,80,000**
Income-tax Payable	**1,20,000**	**1,32,000**
Accumulated Depreciation on Buildings and Equipment	**12,00,000**	**13,20,000**
	90,78,000	**1,03,50,000**

The original cost of equipment sold during the year 2012-13 was ₹ 7,20,000.

Answer:

(a) Existing debt can be analysed by the following elements:

1. Identify current level of short term and long term debt
2. Prepare following Schedules
   (i) Summary of loans -Balance Sheet
   (ii) Summary of current maturity –Balance Sheet
   (iii) Summary of short term loan -Balance Sheet
   (iv) Summary of interest –Profit & Loss Account
3. Each debt should show
   (i) Opening balance
   (ii) Debt drawdown
   (iii) Debt repayments
   (iv) Closing balance
4. Cash flow impact
5. Creating option for sensitivity analysis on base rate (KIBOR)

A new debt can be analysed by the following elements:

1. Analyze short term debt requirement with reference to working capital requirements of the company.
2. Possibility of long term loan requirement for expansion / project. (Separate working for new loan).
3. Creating option for different debt structure for the expansion / project. i.e. by changing grace period, total tenor of loan.
4. Analyzing the impact of new loans on debt ratios, which are generally set by loan agreements.

(b)

ANK Ltd.
Cash Flow Statement
For the year ending March 31st, 2013
(Indirect Method)

	Particulars	₹	₹
I.	Cash flows from Operating Activities:	16,00,000	
	Net Profits before Tax and Extra-ordinary item	6,00,000	
	Add: depreciation	22,00,000	
	Operating Profits before Working Capital Changes	(1,80,000)	
	Increase in Stock	16,80,000	

	Decrease in Debtors	(12,000)	
	Decrease in Sundry Creditors	(60,000)	
	Increase in Outstanding Expenses	2,40,000	
	Cash Generated from Operations	38,68,000	
	Income tax Paid	8,68,000	
	Net Cash from Operations		30,00,000
II.	Cash flows from Investment Activities		
	Purchase of Land	(4,80,000)	
	Purchase of Buildings and Equipment	(28,80,000)	
	Sale of Equipment	3,60,000	
	Net Cash used in Investment Activities		(30,00,000)
III.	Cash flows from Financing Activities		
	Issue of Share Capital	8,40,000	
	Dividends paid	(7,20,000)	
	Net Cash from Financing Activities		1,20,000
	Net increase in Cash and Cash Equivalents		1,20,000
	Cash and Cash Equivalents at the beginning		6,00,000
	Cash and Cash equipments at the end		7,20,000

Working Notes:

(1)

Dr. Building and Equipment Account Cr.

Particulars	₹	Particulars	₹
To Balance b/d	36,00,000	By Sale of Asset	7,20,000
To Cash/Bank (purchase) (Balancing figure)	28,80,000	By Balance c/d	57,60,000
	64,80,000		64,80,000

(2)

Dr. Building and Equipment Accumulated Depreciation Account Cr.

Particulars	₹	Particulars	₹
To Sale of Asset (Accumulated depreciation)	4,80,000	By Balance b/d	12,00,000
		By Profit and Loss A/c	6,00,000
To Balance c/d	13,20,000	(Provisional)	
	18,00,000		18,00,000

(3) Statement of Sale of Asset Account

Particulars	₹
Original Cost	7,20,000
Less: Accumulate Depreciation	4,80,000
Net Cost	2,40,000
Profit on Sale of Asset	1,20,000
Sale Proceeds from sale of Asset	3,60,000

Section B- Business Valuation

Question 16.

a. In recent years, firms have started looking at equity alternatives to common stock. Why a firm use might warrants rather than common stock to raise equity? Explain.

b. Ultra Ltd. requires an initial investment of ₹ 12 lakhs for its new store for which ₹ 4 lakhs would come from borrowing at an interest rate of 8%. The interest is paid for 5 years and the entire principal with interest is repaid at the end of the sixth year. The interest expenses are tax deductible at a rate of 36%, but the principal payments are not. The cash flows to the firm are expected to be ₹ 80,000 initially. These cash flows are expected to grow at a rate of 30% for the first 4 years and at 75% from the fifth year. Estimate the free cash flow to equity.

c. Calculate economic value added (EVA) with the help of the following information Sun Limited.
Financial leverage: 1.4 times;
Equity capital ₹170 lakhs;
Reserve and surplus ₹ 130 lakhs;
10% debentures ₹400 lakh;
Cost of Equity: 17.5%
Income tax rate: 30%
Also explain the reason for the difference between the EVA and the MVA (Market Value Added).

Answer:

(a) The reason why a firm might use warrants rather than common stock to raise equity is as follows:

(i) Warrants are priced according to the variance of the underlying stock's price; the grater the variance, the greater the value. To the degree that the market overestimates a firm's risk, the firm may gain by using warrants and other equity options because they will be overpriced relative to their true value

(ii) Warrants themselves create no financial obligations at the time of issue. Consequently issuing warrants is a good way for a high growth firm to raise funds, especially when current cash flows are low or non- existent.

(iii) For companies who are sensitive to the dilution created issuing common stock, warrants seem to provide the best alternative.

(c) Free cash flow to equity
= (net operating income-Interest) +Depreciation and amortization – Capital expenditure - Change in working capital – Principal repayments + Proceeds from new debt issues.

Or

FCFE = FCFF + Borrowing – Interest (1-t) – Principal repaid

Year	FCFF	Borrowing	Interest (1-t)	Principal repaid	FCFE
0	(12,00,000)	4,00,000			(8,00,000)
1	80,000		20,480		59,520
2	1,04,000		20,480		83,520

3	1,35,200		20,480		1,14,720
4	1,75,760		20,480		1,55,280
5	3,07,580		20,480		2,87,100
6	5,38,265		20,480	4,00,000	1,17,785

(c)

$$\text{Financial Leverage} = \frac{\text{EBIT}}{\text{EBIT} - \text{Interest}} = \frac{\text{EBIT}}{\text{EBIT} - 10\%\,\text{OF}\,400} = 1.40$$

EBIT = {(10% of 400) X 1.40] /0.40 = 140
EBIT (I – t) = 140 (1 – 0.30) = 98
Equity capital = 170 + 130 = 300
Debt Capital = 400
Post-tax cost of debt = 10% (1- 0.30) = 7%
Overall cost capital [Post – tax]= 17.5% of 300 + 7% of 400 = 80.5
Economic Value Added (EVA)
= EBIT (I – t) – Overall cost of capital (Post – tax) = 98 – 80.5 = 17.5 (₹ Lakhs)

Reasons for the difference between EVA and Market Value Added

1. The Market Value of a firm reflects not only the Expected EVA of Assets in place but also the Expected EVA from Future Projects.
2. MVA of a company is the Net Present Value (NPV) of all its future EVAs.
3. EVA reflects only the current earning efficiency of the company.

Question 17.

a. Century Ltd. Exchanged one of its old machinery to acquire a new one from its supplier. The book value of the old machinery exchanged was ₹ 20,65,000. The supplier agreed to consider 80% of the book value as the worth of the old asset and asked for an additional payment of ₹ 15,40,000 for the new machinery.
What will be the cost of new machinery? Will the cost change if the market value of the asset acquired is ₹ 35,00,000. Show the accounting treatment in both the cases.

b. The following abridged Balance Sheet as at 31st March, 2013 pertains to Glorious Ltd.

Liabilities	**₹ In lakhs**	**Assets**	**₹ In lakhs**
Share capital		Goodwill, at cost	420
180 lakh Equity shares of ₹10 each, fully paid up	1,800	Other Fixed Assets	11,166
90 lakh Equity shares of ₹ 10 each, ₹8 paid up	720	Current Assets	2,910
150 lakh Equity shares of ₹5 each, fully paid-up	750	Loans and Advances	933
Reserves and surplus	5,628	Miscellaneous, Expenditure	171
Secured Loans	4,500		
Current Liabilities	1,242		
Provisions	960		
	15,600		15,600

You are required to calculate the following for each one of the three categories of equity shares appearing in the above mentioned balance Sheet:

(i) Intrinsic value on the basis of book values of Assets and Liabilities including goodwill;
(ii) Value per share on the basis of dividend yield.
Normal rate of dividend in the concerned industry is 15%, whereas Glorious Ltd. has been paying 20% dividend for the last four years and is expected to maintain it in the next few years: and
(iii) Value per share on the basis of EPS.
For the year ended 31st March, 2013 the company has earned ₹1,371 lakh as profit after tax, which can be considered to be normal for the company. Average EPS for a fully paid share of ₹ 10 of a company in the same industry is ₹2

c. The equity share of X Company are trading at market value to book value multiple of 15. Total investment of X company is ₹ 85,63,000. The return on investment is 20%. Debt contain in capital structure is 13%. Debenture of ₹ 65,00,000. Tax rate is 40%. Book value per equity share is ₹ 20.63.
What is the P/E Ratio of the company?

Answer:
(a)

Situation 1:
Cost of New Machinery

Agreed value of old asset (80% of the ₹ 20,65,000)	16,52,000
Add: Additional payment in cash	15,40,000
	31,92,000

Accounting treatment:

Machinery (new) A/c	Dr.	1,92,000	
Profit & Loss A/c	Dr.	4,13,000*	
To Machinery (old) A/c			20,64,000
To Cash A/c			15,40,000

*Loss on exchange of asset i.e. 20,65,000 × 20%

Situation 2:
Cost of new machinery (Fair value of the asset acquired)
Accounting Treatment

Machinery (new) A/c	Dr.	35,00,000	
Profit & Loss A/c	Dr.	1,05,000*	
To Machinery (old) A/c			20,65,000
To Cash A/c			15,40,000

*Loss on exchange of asset

(b)
i.

Intrinsic value on the basis of book values	₹ In lakhs	₹ In lakhs
Goodwill		420
Other Fixed assets		11,166
Current Assets		2,910
Loans and advances		933
		15,429
Less: Secured loans	4,500	

Current liabilities	1,242	
Provisions	960	6,702
		8,727
Add: Notional call on 90 lakhs equity shares @ ₹2 per each		180
		8,907

Equivalent number of equity shares of ₹10 each

Particulars	₹ In lakhs
Fully paid shares of ₹10 each	180
Partly-paid shares after notional call	90
Fully paid shares of ₹5 each, $\left[\frac{₹150\ lakhs}{₹10} x ₹5\right]$	75
	345

Value per equivalent share of ₹ 10 each = ₹ $\frac{8,907 lakhs}{345 lakhs}$ =₹25.82

Hence, intrinsic values of each equity share are as follows:
Value of fully paid share of ₹10 = ₹ 25.82 per equity share.
Value of share of ₹10, ₹8 paid-up = ₹25.82 – ₹2 = ₹23.82 per equity share.
Value of fully share of ₹5 = $\frac{₹25.82}{2}$ = ₹12.91 per equity share.

ii. Valuation on dividend yield basis:

Value of fully paid share of ₹ 10 = $\frac{20}{15}$ x ₹10 = ₹13.33

Value of share of ₹10, ₹8 paid-up = $\frac{20}{15}$ x ₹8 = ₹10.67

Value of fully paid share of ₹ 5 = $\frac{20}{15}$ x5 = ₹6.67

iii. Valuation on the basis of EPS:
Profit after tax = ₹1,371 lakhs
Total share capital = ₹ (1,800 + 720+750) lakhs = ₹3,270 lakhs

Earning per rupee of share capital = ₹ $\frac{1,371 lakhs}{3,270\ lakhs}$ = Re.0.419

Earning per fully paid share of ₹10 = Re.0.419 x 10 = ₹4.19
Earning per share of ₹10 each, ₹8 paid-up = Re. 0.419 x 8 = ₹3.35
Earning per share of ₹5, fully paid-up = re. 0.419 x 5 = ₹2.10

Value of fully paid share of ₹10 = ₹ $\frac{4.19}{2}$ x10 = ₹20.95

Value of share of ₹8 paid-up = ₹ $\frac{3.35}{2}$ x10 = ₹16.75

Value of fully paid share of ₹5 = ₹ $\frac{2.10}{2}$ x10 = ₹10.50

(c) Computation of No. of Outstanding Shares:

Particulars	₹
Total investment in Equity and Debt	85,63,000
Less: Investment in Debt	65,00,000
Investment in Equity	20,63,000

Book value per equity share = ₹20.63
No. of Outstanding Share = (₹ 20,63,000 ÷ 20.63) = 1,00,000 shares

Computation of Market Price per share i.e. MPS

Market value to book value multiple of 15 i.e., $\frac{\text{MarketValue}}{\text{BookValue}} = 15$

∴ Market Value = Book value ×15
MPS = (₹20.63 × 15) = ₹309.45

Computation of EPS and PE Ratio:

Particulars	₹
EBIT (Total investment × Return on Investment) i.e. (85,63,000 × 20%)	17,12,600
Less: Interest (65,00,000 × 13%)	8,45,000
EBT	8,67,600
Less Tax @ 40%	3,47,040
EAT	5,20,560
EPS (5,20,560 ÷ 1,00,000)	5.2056
P/E Ratio $\left(\frac{\text{MPS}}{\text{EPS}}\right)$	59.45

Question 18.

a. P limited is considering the acquisition of R Ltd. The financial data at the time of acquisition being:

Particulars	P Ltd.	R Ltd.
Net profit after tax (₹ in lakhs)	**60**	**12**
Number of shares (lakhs)	**12**	**5**
Earning per share(₹)	**5.00**	**2.40**
Market price per share (₹)	**150**	**48**
Price earning ratio	**30**	**20**

It is expected that the net profit after tax of the two companies would continue to be ₹ 72 lakhs even after the amalgamation.

Explain the effect on EPS of the merged company under each of the following situations:

1. **P Ltd. offers to pay ₹ 60 per share to the shareholders of R Ltd.**
2. **P Ltd. offers to pay ₹ 78 per share to the share holders of R Ltd.**

The amount in both cases is to be paid in the form of shares of P Ltd.

b. Bloomberg Ltd. provides you the following data:

No. of Equity Shares of ₹ 10 each	**1920 crore**
No. of 10% Debentures of ₹ 100 each	**?**
Free Reserves	**₹ 1440 crores**
Capital Reserve	**₹960 crores**
Securities Premium	**₹ 480 crores**
Tax Rate	**35%**
Beta Factor	**1.05**
Market Rate of Return	**14%**
Risk Free Rate	**10%**
Debt-Equity Ratio	**1:2**

Compute the Economic Value Added where net operating profit after tax is ₹1848 crores.

c. Explain how would you value a business and the component of value that is attributable to the key person?

Answer:

(a)

Particulars	Case I	Case II
a. Price per share offered to R Ltd.	60	78
b. Market price per share of P Ltd.	150	150
c. Exchange ratio per one share of R Ltd. (a/b)	0.4	0.52
d. No. of shares of P Ltd. to be issued (c × 5,00,000 shares)	2,00,000	2,60,000
e. Total No. of shares of P Ltd. post merger (d+ 12,00,000 shares)	14,00,000	14,60,000
f. EPS post merger (72,00,000/e)	5.143	4.932
g. Equivalent EPS post merger per share of R Ltd. (f ×c)	2.057	2.565
h. Pre-merger EPS of P Ltd.	5	5
i. Pre-merger EPS of R Ltd.	2.4	2.4
j. Difference – P Ltd. – increase (decrease). (f-h)	+0.143	- 0.068
k. Difference – R Ltd. – increase (decrease). (g-i)	- 0.343	+0.165
l. P/E ratio of R Ltd. calculated on basis of Price paid (a/i)	25	32.5
m. P/E ratio of P Ltd. before merger	30	30

Impact on EPS is given by (j) and (k). Since (i) < (j) in Case I, EPS increases for P Ltd & decreases for R Ltd. Since (i) > (j) in Case II, EPS decreases for P Ltd. & increases for R Ltd.

(b)

Computation of Economic Value Added

Particulars	₹ in Crores
Net Operating Profit After Tax (NOPAT)	1,848.00
Less: Cost of Operating Capital employed (COCE) (11.63% of ₹ 7,200 crores)	(837.36)
Economic Value Added	1,010.64

Working Notes:

1. Cost of Equity = Risk Free Rate + Beta factor × (Market Rate – Risk Free Rate)
   = 10 + 1.05 (14-10) = 14.2%
2. Debt-Equity Ratio = Long-term Debt/Equity
   0.5 = Long-term Debt / (1,920 + 1,440 + 960 + 480)
   Long-term Debt = 4,800 × 0.5 = 2,400
3. Cost of Debt = Interest Rate (1- Tax Rate) = 10%(1-0.35) = 6.5%
4. Capital Employed = (Share Capital + Reserved and Surplus) + Long-term Debt
   = (1,920 + 1,440 + 960 + 480) + 2,400 = 7,200
5. WACC = $\left[\left(\frac{4,800}{7,200}\times 14.2\right)+\left(\frac{2,400}{7,200}\times 6.5\right)\right]=11.63\%$

(c)

A business is generally valued on yield basis. That is, the present value of future economic income is determined and is taken as representative of the value of the business.

Normally, when future revenues and economic income depend on a key person the presence or absence of such a person will have an impact of the business valuation. In this situation if the objective is to value the business for the existing owner, we may separate out the portion of value due to the owner's personal connections and skill, but there are no immediate consequences. If the objective is to value the business for a potential buyer, the simplest way to avoid overpaying is to do two valuations:

One with the business as is, with the existing owner, and one without the owner, making reasonable assumptions about the degree to which business will drop off. The latter will be much lower than the former and will represent the price one would be willing to pay for acquiring the business minus the key person/owner. There are intermediate steps that one can take to minimize the slippage in value in the course of the acquisition :

1. The intending buyer could contract with the owner to remain with the firm after the change in ownership, for a certain period of time which should reduce the drop-off in customers.
2. The would-be buyer should ensure that the owner cannot start a competing business and extract business from the buyer for the foreseeable future.

Question 19.

a. Two companies are discussing a potential merger. Company A is assessing the impact of a potential offer to Company B at a price of ₹ 65, as compared to Company B's current price of ₹54.

Company A has a price-earning ratio of 12X, with current EPS of ₹ 8, a dividend of ₹ 2 and a market price of ₹ 90 to ₹ 100, with a recent price of ₹ 98. One crore shares are outstanding.

Company B has a price-earning ratio of 20X and is growing at twice the 6% rate of Company A. Company B's current EPS is ₹ 3. It pays no dividend and its market price is ranging between ₹45 and ₹70. Ten lakh shares are outstanding.

Calculate the appropriate measures to assess the impact of these terms and discuss potential implications.

b. Calculate the year-end NAV of the Mutual Fund scheme on the basis of the information given below:

(i) UTI launched a new Fund scheme for ₹ 60,000 crore.
(ii) Underwriting Commission is 1% of the fund shared equally by Axis Bank, ICICI Bank, HDFC Bank and UTI Bank.
(iii) The Fund was launched on 1.4.2013 with a face value of ₹ 10,000 per unit.
(iv) Underwriting Commission was paid in full.
(v) Management Expense was allowed by SEBI @ 1 % of the Fund raised. However, during the year management expense was of ₹ 450 crore only. The management decided to defer the payment of ₹ 50 crore to the next financial year.
(vi) On 1.5.2013, the total received was invested after deduction of underwriting commission and ₹ 1,000 crore to meet the day to day management expenses. The investment fund received yield 10% interest per annum. The interest was received for 3 quarters and the interest of last quarter is yet to receive. The interest realized in cash has been distributed to the unit holders @ 80%. The financial year runs from April to March. The quarter starts from the date of investment i.e. 1.5.2013.

c. Explain why synergy might exist when one company merges with or rakes over another company.

Answer:
(a)

Given Data

Potential Merger	Company A	Company B
P/E Ratio	12X	20X
EPS	₹ 8.00	₹3.00
Dividend per share	₹2.00	None
After-tax earning (=Earning x no. of shares)	₹8 crores	₹ 30 Lakhs
Price Range	₹ 90 - ₹100	₹ 45 - ₹70
Current Price	₹ 98	₹ 54 (₹ 65 Offered)
Growth Rate	6% per yr.	12% per year
No. of shares	1Crore	10 Lakhs

Exchange Ratio:
Share of A for 1 share of B = 65/98 = 0.663265

i) Impact on Earning:
Earning = ₹ 8 Crores + ₹ 30 Lakhs = ₹ 8.30 Crores
No. of shares = 1 crore + 6,63,265 = 1,06,63,265 shares.
Therefore Impact = ₹ 8.3 crores/1.0663265 = ₹ 7.78 per share.
Hence Dilution = ₹ (8.00-7.78) = ₹ 0.22 per share

ii) Impact on Dividend:
Each share of company B now receives the equivalent of ₹ 1.33 per share in [2 × 0.663265] dividend Vs none before.

iii) Impact on Earning Growth: (3 years hence)
Company A @ 6% growth will earn = 1st yr. end = ₹ 8.48 crores
2nd yr. end = ₹ 8.99 crores
3rd yr. end = ₹ 9.528 crores.

Company B @ 12% growth will earn = 1st yr. end = ₹ 33.600 lakhs
2nd yr. end = ₹ 37.632 lakhs
3rd yr. end = ₹ 42.148 lakhs

Thus Total Earning's for the company = ₹ 9.528 cr. + ₹ 42.15 lakhs = ₹ 9.9495 cr and the EPS = (₹ 9.9495 cr / 1,06,63,265) = ₹ 9.33

Comments:

- Dilution in earning of ₹ 0.22 is not likely to be recovered in the near future.
- Even after 3 years, combined EPS is ₹ 9.33 as against Company A's EPS of ₹ 9.53.
- Dividend of ₹ 1.33 for 'B' is a sizeable amount
- Company B's shareholders might consider a lower offer.

(b)

Calculation of Net Asset Value of a Fund

	₹ in Crores	
Total Assets:		
Investment (60,000 – 600 – 1,000)	58,400	
Add: Closing Cash Balance (Refer W.N.)	1,476	
Add: Interest for two months due to be received $\left(5{,}840 \times 10\% \times \frac{2}{12}\right)$	973	60,849
Less: Outstanding Management Expenses		(50)
Total value of the fund		60,799

No. of Units = $\frac{₹\ 60{,}000\ \text{crore}}{10{,}000} = 6\ \text{crore units}$

NAV per unit = $\frac{₹\ 60{,}799\ \text{crore}}{6\text{crore}} = ₹\ 1{,}013.32\ \text{per unit}$

Working Note:

Calculation of year-end cash/bank balance of the fund

Particulars	₹ in Crores	
Cash received during the year for the fund		
Sale of units		60,000
Add: Interest for 3 quarters on investment $\left(58{,}400 \times 10\% \times \frac{9}{12}\right)$		4,380
		64,380
Less: Underwriting commission	600	
Management expenses paid in cash	400	
Investment	58,400	
Dividend paid (4,380 × 80%)	3,504	62,904
		1,476

(c)

Synergy can be described as the '2 + 2 = 5' effect, whereby a group of two firms after a takeover of one of them by the other firm achieves combined results that reflect a rate of return that is better than what was being achieved by the same resources used in two separate operations before the takeover.

The main reasons why synergy might exist are as follows:

A. Operating economies

- Economies of scale
- Economies of scope
- Management
- Control over resources

B. Financial synergies

- Earnings stability
- Liquidity
- Tax factors

C. Market position

- Influence
- Profile.

Question 20.

a. ABC Stores is a departmental store, which sell goods on retail basis. It makes a gross profit of 20% on net sales. The following figures for the year-end are available:

Opening Stock	**₹ 50,000**
Purchases	**₹ 3,60,000**
Purchase Returns	**₹ 10,000**
Freight Inwards	**₹10,000**
Gross Sales	**₹4,50,000**
Sales Returns	**₹ 11,250**
Carriage Outwards	**₹ 5,000**

Calculate the estimated cost of the inventory on the closing date.

b. State the main reasons for embarking on diversification as a strategy for a firm.

c. The following table summarizes the financial characteristics of two firms that are considering combining in a merger (₹ in lakhs)

	Firm X	Firm Y
Beta	**0.9**	**0.9**
Pretax cost of debt	**5%**	**5%**
Tax rate	**30%**	**30%**
Debt-to-capital ratio	**10%**	**10%**
Revenues (₹)	**1,000**	**500**
Operating income (EBIT) (₹)	**50**	**25**
Pretax return on capital	**15%**	**15%**
Reinvestment rate	**70%**	**70%**
Length of growth period	**5 years**	**5 years**

Both firms have the same cost of capital, expected the same growth in the future, and earn the same operating margin. The risk-free rate is 4.25%, and the risk premium is 4%. For purpose of simplicity, we will assume that both firms will be in stable growth after year 5, growing 4.25%, a year in perpetuity and earning no excess return (i.e., return on capital equal cost of capital). Determine the value of the firm combined with synergy and the respective growth in the firm value.

Answer:

(a)

Calculation of Cost for closing stock

Particulars	₹
Opening Stock	50,000
Purchases less returns (3,60,000 – 10,000)	3,50,000
Freight Inward	10,000
	4,10,000
Less: Net Sales (4,50,000 – 11,250)	4,38,750
	(28,750)
Add: Gross Profits (4,38,750 × 20%)	87,750
Closing Stock	59,000

(b)

Diversification is an important strategic alternative to growth. Besides the need to accelerate business growth and, in particular, profit growth, there may be several other reasons for strategic diversification, including but not limited to:

1. The need to secure supplies of raw materials
2. The need to secure a firm customer base
3. The need to better meet competition
4. The opportunity of managing a business more profitably
5. The utilization of its assets more advantageously
6. The availability of a strong management team, able to undertake additional challenges
7. The availability of a strong cash position
8. The opportunity of synergistic advantages.

(c)

The first step in the process is to value the two firms independently. The following table summarizes the valuations and confirms that the value of the combined firm is the sum of the two independent firm values.

Particulars	Firm X	Firm Y	Combined Farm value
Cost of Equity	7.85%	7.85%	7.85%
After-tax cost of debt	3.50%	3.50%	3.50%
Cost of capital	7.42%	7.42%	7.42%
After-tax return on capital	10.50%	10.50%	10.50%
Reinvestment rate	70.00%	70.00%	7.00%
Expected growth rate	7.35%	7.35%	7.35%
Value of the Firm (₹ in lakhs)			
PV of FCFF in high growth	52.40	26.20	78.61
Terminal value	701.53	350.76	1052.29
Value of firm today	542.99	271.50	814.49

The expected growth rate for the next years is the product of the reinvestment rate and the after-tax return on capital. The value of the combined firm is the sum of the firm's values independently.

To value synergy, assume that the combined firm will save ₹ 15 lakhs in pretax operating expenses each year, pushing up the combined firm's pretax operating income by that same amount. The following table reports on the combined firm's value with the cost saving and estimates the value of synergy (₹ in lakhs):

Particulars	Combined Firm Value	Value of Firm with Synergy	Value of Synergy
Cost of equity	7.85%	7.85%	
After-tax cost of debt	3.50%	3.50%	
Cast of capital	7.42%	7.42%	
After-tax return on capital	10.50%	10.50%	
Reinvestment rate	70.00%	70.00%	
Base-year pretax operating income (₹ in lakhs)	75.00	90.00	
Expected growth rate =	7.35%	7.35%	
Value of Firm (₹ in lakhs)			
PV of FCFF in high growth	78.61	94.33	
Terminal value	1,052.29	1,262.75	
Value of the Firm today	814.49	977.39	162.90

As a result of the cost savings, the value of the firm increases by ₹ 162.90 lakhs.

Question 21.

a. Sanju Ltd. gives the following information:

Current Profit	**₹210 lakhs**
Compound growth rate of profit	**7.5%**
Current cash flows from operations	**₹270 lakhs**
Compound growth rate of cash flows	**6.5% p.a.**
Current price earning ratio	**12**
Discount factor	**15%**

Find out the value of Sanju Ltd. taking 10 years projected profit or cash flows based on

(i) Discounted earning method,

(ii) Discounted cash flows method.

b. From the following details, compute value of human resources according to Lev and Schwartz Model.

(i) Annual average earning of an employee till the retirement age ₹50,000

(ii) Age of retirement 65 years

(iii) Discount rate 15%

(iv) No. of employees 20

(v) Average age 62 years

c. What are the methods of payment in mergers and amalgamations?

Answer:

(a)

(i) Discounted earning method (₹in lakhs)

Year	Earnings	Discount Factor @ 20%	Present Value
1	225.75	0.8696	196.312

2	242.68	0.7561	183.490
3	260.88	0.6575	171.529
4	280.45	0.5717	160.333
5	301.48	0.4972	149.896
6	324.09	0.4323	140.104
7	348.40	0.3759	130.963
8	374.53	0.3269	122.434
9	402.62	0.2842	114.425
10	432.82	0.2472	106.993
			1476.479

Value of the business ₹1476.479 lakhs

(ii) Discounted Cash flows method **(₹in lakhs)**

Year	Earnings	Discount Factor @ 20%	Present Value
1	287.55	0.8696	250.053
2	306.24	0.7561	231.548
3	326.15	0.6575	214.444
4	347.35	0.5717	198.580
5	369.92	0.4972	183.924
6	393.97	0.4323	170.313
7	419.58	0.3759	157.720
8	446.85	0.3269	146.075
9	475.89	0.2842	135.248
10	506.83	0.2472	125.288
			1813.193

Value of the business ₹1813.193 lakhs.

(b)

Value of employees as per Lev and Schwartz method:

$$= \frac{50,000}{(1+0.15)^{(65-62)}} + \frac{50,000}{(1+0.15)^{(65-63)}} + \frac{50,000}{(1+0.15)^{(65-64)}}$$

= 32,875.81 + 37,807.18 + 43,478.26 = 1,14,161.25

Total value of employees is ₹1,14,161.25 x 20 = ₹22,83,225.

(c)

Methods of payment in mergers and amalgamations may take one or more of the following:

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.

Loan Stock:

The shareholders of the selling company exchanges their equity investment in the company for a fixed interest investment in the other company.

Equity shares: The shareholders merely exchange their shares in one company for shares in another company. The extent to which it is beneficial for the shareholders of either company will depend upon the relative values of the shares.

Convertible loan stock:

The shareholders in one company exchange their shares for convertible loan stock in another company. A selling shareholder exchange an equity investment for a fixed interest security which is convertible into an equity investment at some time in the future if she/he so desires.

22. Write short notes.

a. Net Realisable value of Inventories.
b. Tracking Stocks.
c. Option – linked Bonds.
d. Walter's valuation Model.
e. Fair Market Value of Intangible assets.
f. Characteristic of Brands.
g. Repurchase Agreement (REPO).
h. Mckinsey Model of maximizing the value of a firm.
i. Financial synergy and operating synergy.
j. Expansion and Diversification.

Answer:

(a)

Inventories are valued at a lower of the cost and net realizable value. This principle is based on the view that assets should not be carried in excess of amounts expected to be realized from their sale. Cost of inventories may not recoverable for various reasons like:

i. Inventory being damaged
ii. Inventories becoming obsolete
iii. Market price having declined
iv. Production cost has increased

Thus, net realized value of inventories is defined as the estimated selling price in the ordinary course of business less the estimated cost of completion and the estimated cost necessary to make the sale. It is estimated on the basis of the most reliable evidence at the time of valuation. It would be preferable to collect market price of various items of inventories as on the balance sheet date from different markets in which the goods are sold are sold. A weighted average price should then be determined. However, here it is necessary to keep in view the volatility in price in general and the future price of inventories. An estimate of the marketing expenses should also be made while valuing the inventories.

(b)

In the last few years a number of companies have creted shares in divisions or subsidiaries that track the performance of just these units. These shares are called tracking stocks. The firm may receive cash from issuing tracking stock but the transaction can be cash free. The parent company usually retains complete control over the units. Over time, the stock holders in the parent company and in the carved unit may face a conflict of interest between them.

(c)

In recent years firms have recognized the value of combining option with straight bonds to create option – liked bonds that more closely match a firm's specific needs. The benefit for the issuer is that it tailors the cash flows of the firm and reduces the likelihood

of default. Finally, option- liked bonds are bonds with coupon and principle payments likened to the price of a commodity or the occurrence of specific events. Hence, it allows firms to customize bonds to meet their specific needs

(d)

Prof. Walter's theory is that in the long-run the share price reflects only the present value of expected dividends. Retentions influence stock price only through their effect on future dividends. In this view the investment policy of a firm cannot be separated from its dividend policy. The firm would have an optimum dividend policy which will be determined by the relationship or its internal rate of return and its cost of capital.

(e)

Any intangible asset acquired is valued on the basis of the fair value of the asset. Intangible assets include:

i. Computer software
ii. Patents
iii. Copyrights
iv. Quotas
v. Marketing rights, etc.

Three important criteria used to identify an intangible asset. They are: identifiability, control and existence of future economic benefits.

Using the quoted market price in an active market could derive the fair market values of intangibles.

The appropriate market price is the current bid price. In the absence of such a price, the price quoted in a transaction for similar intangible asset can provide a basis for deriving fair value.

Otherwise, the amount, which the business unit would have paid arm's length transaction between knowledgeable and willing parties, is taken as the fair market value.

However, finally it must be admitted that if the fair value of the intangible asset cannot be measured reliably, that asset is not recognized as separate intangible but included in the goodwill.

(f)

A Brand is an intangible asset. Some see it as a name or a symbol or a logo. It's associated tangible and emotional attributes is intended to identify the goods/services of one seller in order to differentiate them from those of competitors.

A Brand designates a product, as being different form competitor's product by signaling certain key values specific to a particular brand. It is the associations, which consumers make with the brand that establish emotional pact between the supplier and the customer.

A Brand is the medium through which consumers identify their experiences with the product offerings of the company. The name of the company is often forgotten but the brand remains in the mind of the consumers.

(g)

A REPO is the sale of a security with an agreement that the security will be bought back at a specified price at the end of the agreement period. The seller of the security in the agreement raises funds, whereas the bunds, whereas the buyer earns interest from the arrangement. From the buyer's prospective this is called a reverse repurchase agreement. Investors in repurchase agreement are usually money market funds and corporations with excess cash to invest for short period. Usually, investors earn higher interest rate than they would treasury securities.

(h)

According to Mckinsey Model, the key steps in maximizing the value ofa firm are as follows: -

i. Identification of value maximization as the supreme goal
ii. Identification of the value drivers,
iii. Development of strategy,
iv. Setting of targets,
v. Deciding upon the action plan (budgets),
vi. Setting up the performance measurements system/incentive system,
vii. Implementation.

(i)

Synergy may be financial, operating and both by combination of two firms. It is the increase in value over and above the individual values of the two merged firms. Financial synergy can be created form purely financial factors, the legitimate sources being:

1. Better use for excess cash
2. A greater tax benefit from accumulated los or tax deduction
3. An increase in debt capital and therefore firm value

Operating synergy may accrue from economies of scale or increased sales, marketing power results in higher profit and growth.

(j)

Before a company diversifies the possibility of expanding in the existing product line should be considered as it may help in gaining a bigger market share for the present business of the company, in terms of implementation, expanding the existing activities of the company is generally much easier than starting a new activity as the managers are familiar with the existing business. Both the alternatives should be carefully weighed against their likely return – tangible as well as intangible. The return on investment should be compared for the two alternatives keeping in view the privileging fiscal policies, taxation, depreciation, incentives for new investments etc.

If the existing product is likely to have a steady and significant growth in its market size and there is larger unfulfilled gap between supply and demand the company should considered further capacity expansion for existing products, unless there are other strategic reasons against sole dependence on the product. Expansion may be more desirable because of advantages of familiarity with the technology and equipment required higher marginal productivity of labour and capital and the availability of existing infrastructure.

Question 23.

a. Roop Ltd. and Rekha Ltd. both the companies operate in the same industry. The financial statements of both the companies for the current financial year are as follows:

Particulars	Roop Ltd. (₹)	Rekha Ltd. (₹)
Current Assets	**14,00,000**	**10,00,000**
Fixed Assets (Net)	**10,00,000**	**5,00,000**
Total	**24,00,000**	**15,00,000**
Equity Capital (₹ 10 each)	**10,00,000**	**8,00,000**
Retained earnings	**2,00,000**	**-**
14% long term debt	**5,00,000**	**3,00,000**

Current liabilities	7,00,000	4,00,000
Total	24,00,000	15,00,000

Income Statement

Particulars	Roop Ltd. (₹)	Rekha 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 tax	4,20,000	1,98,000
Tax @ 50%	2,10,000	99,000
Earning after taxes (EAT)	2,10,000	99,000

Additional information:

No. of equity shares	1,00,000	80,000
Dividend payment ratio (D/P ratio)	40%	60%
Market price per share	₹ 40	₹15

Assume that both companies are in the process of negotiation 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 price of both the companies into EPS and P/E components; and also segregate their EPS figures into Return on Equity (ROE) and book value per share components.

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

(iii) Based on expected operating synergies Roop Ltd. estimates that the intrinsic value of Rekha's equity share would be ₹ 20 per share on its acquisition. You are required to develop a range of justifiable equity share exchange ratios that can be offered by Roop Ltd. to the shareholders of Rekha Ltd. based on your analysis in part (i) and (ii), would you expect the negotiated terms to be closer to the upper, or the lower exchange ratio limits and why?

(iv) Calculate the post merger EPS based on an exchange ratio of 0.4:1 being offered by Roop 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 Roop Ltd's pre merger P/E ratio will continue after the merger, estimate the post merger market price. Also show the resulting accretion or dilution in pre merger market price.

b. From the following details, compute according to Lev and Schwartz (1971) model, the total value of human resources of the employee groups skilled and unskilled.

Particulars	Skilled	Unskilled
1. Annual average earning of an employee till the retirement age	₹50,000	₹30,000
2. Age of retirement	65 years	62 years
3. Discount rate	15%	15%
4. No. of employees in the group	30	35
5. Average age	62 years	60 years

c. Briefly discuss the different dividend models for valuation of shares.

Answer:

(a)

(i) Determination of EPS, P/E ratio, ROE and book value per share of Roop Ltd. and Rekha Ltd. :

Particulars	Roop Ltd.	Rekha Ltd.
Earning after tax (EAT) (₹)	2,10,000	99,000
No. of shares (N)	1,00,000	80,000
Earning per share (EPS) = $\frac{EAT}{N}$ (₹)	2.1	1.2375
Market price per share (MPS) (₹)	40	15
P/E ratio = $\frac{MPS}{EPS}$	19.05	12.12
Equity Fund (EF) (₹)	12,00,000	8,00,000
Book value per share = $\frac{EF}{N}$ (₹)	12	10
Return on equity (ROE) = $\frac{EAT}{EF} \times 100$	17.50%	12.37%

(ii) Estimation of growth rates in EPS for Roop Ltd. and Rekha Ltd. :

Particulars	Roop Ltd.	Rekha Ltd.
Retention ratio (1-D/P ratio)	0.60	0.40
Growth rate (ROE × Retention ratio)	10.50%	4.95%

(iii) Justifiable equity shares exchange ratio:

(a) Intrinsic value based = $\frac{₹20}{₹40}$ = 0.5:1 (upper limit)

(b) Market price based = $\frac{15}{40}$ = 0.375 : 1 (lower limit)

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

(iv) Calculation of post merger EPS and its effect:

Particulars	Roop Ltd.	Rekha Ltd.	Combined
EAT (₹)	2,10,000	99,000	3,09,000
Share outstanding	1,00,000	80,000	1,32,000
EPS (₹)	2.1	1.2375	2.341
EPS decretion (Dilution)	0.241	(0.3015)	

Combined outstanding shares = (1,00,000 +0.4 × 80,000)
= 1,32,000 (shares)

EPS Accretion for Roop Ltd. = 2.341 – 2.1 = 0.241

EPS Dilution for Rekha Ltd. = 1.2375 – (2.341 × 0.40) = 0.3011

(v) Estimation of Post merger Market price and other effects:

Particulars	Roop Ltd.	Rekha Ltd.	Combined
EPS (₹)	2.1	1.2375	2.341
P/E ratio	19.05	12.12	19.05
MPS (EPS × P/E ratio) (₹)	40	15	44.6
MPS Accretion (Dilution)	4.6	2.84	

MPS Accretion of Rekha Ltd. = (44.60 ×0.40) – 15 = 2.84

(b)

According to Lev and Schwartz, the value of human capital embodied in a person of age is the present value of his remaining future earnings from employment. Their valuation model for a discrete income stream is given by the following formula:

$$V_\tau = \sum_{t=\tau}^{t} \frac{I(t)}{(+r)^{t-\tau}}$$

Where,

V_τ = the human capital value of a person 'τ' years old.

I(t) = the person's annual earnings up to retirement

r = a discount rate specific to the person.

t = retirement age.

Value of Skilled employees:

$$= \frac{50,000}{(+0.15)^{65-62}} + \frac{50,000}{(+0.15)^{65-63}} + \frac{50,000}{(+0.15)^{65-64}}$$

= ₹32,895.81+ ₹ 37,807.18 + ₹ 43,478.26 = ₹ 1,14,161.25

Total value of skilled employees is ₹ 1,14,161.25 × 30 = ₹ 34,248,375.50

Value of unskilled employees:

$$= \frac{30,000}{(+0.15)^{62-60}} + \frac{30,000}{(+0.15)^{62-61}} = \frac{30,000}{(+0.15)^{2}} + \frac{30,000}{(+0.15)}$$

= ₹ 22,684.31 + ₹ 26,086.96 = ₹ 48,771.27

Total value of the unskilled employees = ₹48,771.27 × 35 = ₹ 1,706,994.45

Total value of human resources (skilled and unskilled) = ₹ 34,248,375.50 + ₹ 1,706,994.45

= ₹ 5,131,831.95

(c)

(i) Walters Formula:

$$\mathbf{P} = \frac{D + Ra(E-D)/Rc}{Rc}$$

Where,

P = Market price per share of common stock

D= Dividend per share

E= Earnings per share

Ra = Return on investments

Rc = Market capitalization rate or cost of capital

(ii) Dividend Yield Model

Value of share = dividend per share/average dividend per share

Value of business = value per share x total number of shares

(iii) Gordon's Growth Model

V = D0(1 + g) / (r- g)

= D1/ (r – g)

Where,

D_0 = Dividend paid for the last year

D_1 = Expected dividend one year from now

R = required rate of return

G = growth rate

Question 24.

a. The company received an actuarial valuation for the first time for its pension scheme which revealed a surplus of ₹6 lakhs. It wants to spread the same over the next 2 years by reducing the annual contribution to ₹2 lakhs instead of ₹5 lakhs. The average remaining life of the employees is estimated to be 6 years.

b. **Leave encashment benefit is accounted for as per "Pay-as-you-go" method.**

c. Example of CDS Valuation.

Let's assume that CDS agreement has been entered into between A & B. A protection buyer and B is protection seller. Annual CDS spread (premium) is ₹ 60bps Premium is to paid quarterly.

It is assumed that survival probability of the reference entity is given as

Month	**0**	**3**	**6**	**9**	**12**	**15**	**18**	**21**	**24**
Survival Probability	**100**	**99.9**	**99.6**	**99.1**	**98.4**	**97.5**	**96.4**	**95.2**	**94**

Recovery rate is given to 45%.

Answer:

(a)

As per AS 15 'Accounting for Retirement Benefits in the Financial Statements of Employers', the surplus amount of ₹ 6 lakhs can be either credited to the profit and loss account of the current year or, alternatively, spread over a period not more than the expected remaining life of the participating employees i.e. 6 years.

This change relating to actuarial valuation for its pension scheme should be treated as a change in an accounting policy and disclosed in accordance with AS 5 (Revised).

The financial statements should disclose: (a) the method for determination of these retirement benefit costs; (b) whether the actuarial valuation was made at the end of the period or at an earlier date (also specify date); and (iii) the method by which the accrual for the period has been determined (if the same is not based on the report of the actuary).

Note: According to para 92 of AS 15 (Revised 2005) 'Employee Benefits', actuarial gains and losses should be recognized immediately in the statement of profit and loss as income or expense. Therefore, surplus amount of ₹6 lakhs is required to be credited to the profit and loss statement of the current year.

(b)

As per para 12 of AS 15 on 'Accounting for Retirement Benefits in the Financial Statements of Employers', the cost of retirement benefits to an employer results from

receiving services from the employees who are entitled to receive such benefits. Consequently, the cost of retirement benefits is accounted for in the period during which these services are rendered. Accounting for retirement benefit cost only when employees retire or receive benefits payments (i.e. as per pay as you go method) does not achieve the objective of allocation of those costs to the periods in which the services were rendered. Hence, the treatment of leave encashment benefit by the management is not in consonance with AS 15.

Note: AS 15 (revised 2005) covers the leave encashment benefits under the category of short-term employee benefits. Accumulating short-term compensated absences (i.e. earned leaves) are those that are carried forward and can be used for future periods if the current period's entitlement is not used in full [para 13 of AS 15(Revised)]. Earned leaves which are encashable on retirement or resignation are vesting (which entitle employees to receive cash payment for unused entitlements on leaving the enterprise) accumulating compensated absences. 'An enterprise should measure the expected cost of accumulating compensated absences as the additional amount that the enterprise expects to pay as a result of the unused entitlement that has accumulated at the balance sheet date'. [Para 14 of AS 15 (Revised)].

(c)

Present value of fixed leg (Periodic Payment made by A to B)

Month	Quarterly Premium	Survival Probability	Discounting Factor	Notional amount (,000)	PV of Fixed leg	Default Probability	PV of Expected accrued payment
0	0	100	1	1,00,000	0	0	
3	40	99.9	.99	1,00,000	395	0.1	0.198
6	40	99.6	.98	1,00,000	390	0.3	0.588
9	40	99.1	.97	1,00,000	385	0.5	0.097
12	40	98.4	.96	1,00,000	378	0.7	1.344
15	40	97.5	.95	1,00,000	371	0.9	1.71
18	40	96.4	.94	1,00,000	362	1.1	2.068
21	40	95.2	.93	1,00,000	354	1.2	2.232
24	40	94	.92	1,00,000	346	1.2	2.208
				2982		11.318	

Present Value of Contingent Leg (Payment by B to A subject to non-survival of reference entity)

Month	Survival Probability	Default probability	Discounting Factor	Notional amount	Recovery	PV of Contingent leg
0	100	0	1	1,00,000	55,000	0
3	99.9	0.1	.99	1,00,000	55,000	54.45
6	99.6	0.3	.98	1,00,000	55,000	161.70

9	99.1	0.5	.97	1,00,000	55,000	266.75
12	98.4	0.7	.96	1,00,000	55,000	369.60
15	97.5	0.9	.95	1,00,000	55,000	470.25
18	96.4	1.1	.94	1,00,000	55,000	568.70
21	95.2	1.2	.93	1,00,000	55,000	613.80
24	94	1.2	.92	1,00,000	55,000	607.20
						3112.45

Value of CDS = PV of expected contingent leg-present value of fixed leg.

= ₹ 3112.45 – (₹ 2982 + ₹ 11.32)

= ₹ 119.13

₹ 119.13 is the positive CDS value to the protection buyer.

Question 25.

a. Pratibha Ltd. gives the following particulars about their investment in shares of XYZ Ltd.

01.01.2012	**10,000 shares of ₹10 each, cost ₹ 1,15,000**
31.03.2012	**XYZ Ltd. proposed dividend @ 20% for 2011-2012**
01.05.2012	**Purchased 5,000 shares, @ ₹13 cum dividend**
30.06.2012	**XYZ Ltd. declared dividend @ 20% for 2011-2012**
01.07.2012	**Received right shares at 1:1 @ ₹ 11. These shares are not to rank for dividend during 2012-2013.**
31.07.2012	**Received dividend for 2011-2012**
01.08.2012	**Sold 8,000 shares @ ₹ 16 cum dividend**
01.11.2012	**Received bonus @ 1 for every 4 shares held. These shares are also not to rank for dividend in 2012-2013**
	Brokerage for purchase and for sales is 2%

Prepare investment account. Find out cost of shares held by Pratibha Ltd.

b. It is common to compare firms on their piece to EBITDA ratios. What are the merits and demerits of using this measure?

c. In May, 2011 SDC Ltd. took a bank loan to be used specifically for the construction of a new factory building. The construction was completed in January, 2012 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 ₹ 18 lacs, whereas the total interest payable to the bank on the loan for the period till 31st March, 2012 amounted to ₹ 25 lacs.

Can ₹ 25 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?

Answer:

(a)

Dr. Investment in XYZ Ltd. A/c

Date	Particulars	Qty	Face	Dividend	Amount

			Value		
01.01.12	To Balance b/d	10,000	1,00,000	-	1,15,000
01.05.12	To Bank A/c (WN # 1)	5,000	50,000	10,000	56,300
01.07.12	To Bank A/c (Rights)	15,000	1,50,000	-	1,65,000
01.11.12	To Bonus shares received (WN # 4)	5,500	55,000	-	-
01.08.12	To profit and loss A/c [Transfer of dividend Income and Profit on sale of Investment (WN # 5)]	-	-	20,000	35,760
		35,500	3,55,000	30,000	3,72,060

Investment in XYZ Ltd. A/c Cr.

Date	Particulars	Qty	Face Value	Dividend	Amount
31.07.12	By Bank A/c (WN # 2)	-	-	30,000	
01.08.12	By Bank A/c (WN # 3)	8,000	80,000	-	1,25,440
31.12.12	By balance c/d	27,500	2,75,000	-	2,46,620
		35,500	3,55,000	30,000	3,72,060

Cost of Shares held:

(i) Total Cost of Shares held ₹ 2,46,620
(ii) Number of shares held 27.500 shares
(iii) Cost per share held [i/ii] ₹ 8.968

Working Notes:

WN # 1: Ascertainment of cost value

Particulars	₹
a. Cost of purchase (5,000 shares × ₹ 13)	65,000
b. Add: Brokerage @ 2%	1,300
c. Total cost	66,300
d. Less: Dividend [5,000 × 10 × 20%]	(10,000)
e. Cost of shares purchased	56,300

WN # 2: Dividend received

Particulars	₹
a. Face Value of Shares (15000 shares × ₹ 10)	1,50,000
b. Dividend @ 20%	30,000

WN # 3: Ascertainment of sale value

Particulars	₹
a. Total sale value (8,000 × 16)	1,28,000
b. Less: Brokerage @ 2%	(2,560)
c. Net Sale value	1,25,440

WN # 4: Number of bonus shares = $\frac{10,000 + 5,000 + 15,000 - 8,000}{4}$ = 5,500 Shares.

WN # 5: Profit on sales of investment

Particulars	₹
a. Sale proceeds (WN # 3)	1,25,440
b. Less: Cost of sales $\left[(15,000 + 56,300 + 1,65,000) \times \frac{8,000}{30,000} \right]$	(89,680)
c. Profit on sale	35,760

(b)

1. The advantages of the holding company arrangement are :
(i) The leverage effect resulting from being able to control large amounts of assets with relatively small investments:
(ii) The risk protection resulting from the diversification of risk;
(iii) Legal benefits resulting in reduced taxes and the autonomy of subsidiaries; and
(iv) The lack of negotiation required gain control a subsidiary.

2. The disadvantages of the holding company arrangement are:
(i) Increased risk from the leverage obtained by a holding company (losses as well as gains are magnified):
(ii) Double taxation, which results because a portion of the holding company's income is from a subsidiary whose earnings have already been taxed before paying dividends that are taxed at the parent level.
(iii) The difficult in analyzing holding companies due to their complexity, which may depress price – earnings multiples; and
(iv) High administrative costs from managing the divers' entities in a holding company.

Pyramiding of holding companies occurs when one holding company controls other holding companies. This arrangement causes even greater magnification of earnings or losses.

3. **Merits :** The prices – to- EBIDTA ratio has the same merits as the price – to – EBIT ratio. But, by adding back depreciation and amortization to EBIT, it rids the calculation of an accounting measurement that can vary over firms and, for a given firm, is sometimes seen as suspect. It thus can make firms more comparable.
Problems: This multiple suffers from the same problems as the prices –to- EBIT ratio. In addition, it ignores the fact that depreciation and amortization are real costs. Factories depreciate (lose value) and this is a cost of operations, just as labour costs are. Copyrights and expire. Goodwill on a purchase of another firm is accost of the purchase that has to be amortized against the benefits (income) from the purchase, just as depreciation amortizes the cost of physical assets acquired. The accounting measures of these economic costs may be doubtful, but costs they are.
Price–to- EBITDA for a firm that is 'capital intensive' 9with a lot of plant and depreciation on plant) is different from that of a 'labour intensive' firm where labour costs are substituted for plant depreciation costs.
So, adding back depreciation and amortization may reduce comparability.

(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, 2012) i.e. ₹18 lacs alone can be capitalized. It cannot be extended to ₹ 25 lacs.

Question 26.

a. Gamon India Ltd. is a leading Infrastructure Co. It has posted extraordinary growth both in revenues and profits and has got lot of returns to its shareholders. Analysts assume that the earnings per share will grow at a rate of 35% a year for the next 5 years. The rate of return on the market is 12.5%. The market premium is expected to be at 5.5%. The following additional information for the firm is also available:

Current earnings/dividend

Earnings per share	**= ₹ 10.5**
Dividend per share	**= ₹ 1.6**

Inputs for the high growth period

Length of the high growth period	**= 5 years**
Expected growth rate	**= 35% (based on the projection of analysis)**
Beta during high growth period	**= 1.5**
Return free rate of return	**= 7%**
Dividend pay-out ratio	**=12%**

Inputs for the transition period

Length of the high growth period	**= 5 years**
Expected growth rate	**= decline from 35% in year 5 to 5% in year 1 in linear increments**

Beta during transition period will drop from 1.5 to 1.0 in the 10th year in linear increments.

Dividend pay-out ratio	**= increase from 12% to 50% in year 10 in linear increments.**

Inputs for the stable growth period

Length of the high growth period	**= Forever after 10 years**
Expected growth rate	**= 5%**
Beta during stable growth period	**= 1.0**
Dividend pay-out ratio	**= 50%**

b. From the following information available to a market participant, determine the value of a European call option as per the BS formula.

Spot Price of the share = ₹ 1120

Exercise price of the call option = ₹ 1100

Short-term risk free interest rate (continuously compounded) = 10% per annum.

Time remaining for expiration = 1 month

Volatility of the share/ standard deviation = 0.2

Compute the value of Call option by using B-S formulae.

c. Explain what is meant by 'Free cash flow' Discuss the possible conflicts that might exist between managers and shareholders over the use of free cash flows.

Answer:

(a)

Estimation of Cost of Equity:

Cost of equity during high growth
7 + 1.5 (5.5) = 15.25

Cost of equity in the transition phase

Year 6	7 + 1.4 (5.5) = 14.7
Year 7	7 + 1.3 (5.5) = 14.15
Year 8	7 + 1.2 (5.5) = 13.6
Year 9	7 + 1.1 (5.5) = 13.05
Year 10	7 + 1.0 (5.5) = 12.5

Estimation of expected earnings per share, dividends per share and cost of equity for both high growth period and transition phase.

Period	EPS	Pay-out ratio	DPS	Cost of Equity	Present Value
1	14.17	12%	1.7	15.25%	1.47
2	19.14	12%	2.3	15.25%	1.732
3	25.83	12%	3.10	15.25%	2.025
4	34.87	12%	4.18	15.25%	2.37
5	47.08	12%	5.65	15.25%	2.80
6	60.73	19.6%	11.90	14.70%	5.10
7	74.70	27.2%	20.32	14.15%	7.63
8	87.40	34.8%	30.41	13.60%	10.06
9	97.01	42.4%	41.13	13.05%	12.03
10	101.86	50%	50.93	12.50%	13.24

Terminal Price = (101.86 × 1.05) / (0.125-0.05)
= 53.47 / 0.075 = ₹ 712.93

Present Value of Terminal Price
= 712.93 / (1.147) (1.1415) (1.136) (1.1305) (1.125)
= 712.93 / 3.8457
= ₹ 185.35

Present value of dividends in high growth phase	= ₹ 10.397
Present value of dividends in transition phase	= ₹ 48.060
Present value of terminal price at the end of transition	= ₹ 185.380
Value of the share	= ₹ 243.837

(b)

$C = SN(d_1) - Ke^{-rt} N(d_2)$

$$d_1 = \frac{\ln\left[\frac{S}{K}\right] + \left(r_f + \frac{\sigma^2}{2}\right)T}{\sigma\sqrt{T}} = \frac{\ln\left(\frac{1120}{1100}\right) + \left(0.1 + \frac{0.2^2}{2}\right)0.8}{0.2\sqrt{0.08}}$$

$$\therefore d_2 = 0.5197 - 0.2\sqrt{0.8} = 0.4631$$

$$Ke^{-rt} = 1100e^{-0.008}$$

$= (-)\ 1100e^{-0.01}$

$= 1089.1$

$C = 1120\ N(0.5197) - 1089.1N(0.4631)$

$= 1120\ [N(0.51) + 0.97\ \{N(0.52) - N(0.51)\}] - 1089\ [N(0.46) + 0.31\{N(0.47) - N(0.46)\}]$

$= 1120\ [0.6950 + 0.97\ (0.6985 - 0.6950)] - 1089\ [0.6772 + 0.31\ (0.6808 - 0.6772)]$

$= 43.45$

Thus the value of call option is ₹ 43.4

(c)

Free cash flow available to a company from operations after interest expense, tax debt repayments and lease obligations, any changes in working capital spending on assets needed to continue existing operations. A company that generates sufficient free cash flow to decide how to use this cash flow. Primarily the cash should be invested in such investments as will increase the shareholders wealth. Any surplus cash after all positive NPV investments have been undertaken, should be returned to shareholders, in the form of

(i) Dividends

(ii) By share purchase

However, managers are reluctant to loss control of free cash. Managerial, power and status are to some extent related to company size, rather than just share price performance. Managers might therefore be motivated to grow the company to a greater size, by investing in projects which would increase the turnover and other dimensions but yielding in negative NPV.

Shareholders might seek to remove free cash flows from managerial control by insisting on large cash dividends, share repurchase schemes or a higher level of gearing. High gearing increases interest payments and reduces the discretionary cash flow available to managers.

Question 27.

a. The following financial share date pertaining to TECHNO LTD an IT company are made available to you:

Year ended March 31st	**2013**	**2012**	**2011**
EBIT (₹)	**696.03**	**325.65**	**155.86**
Non-brand income (₹)	**53.43**	**35.23**	**3.46**
Inflation Compound Factor @ 8%	**1.000**	**1.087**	**1.181**
Remuneration of Capital	**5% of average capital employed**		
Average capital Employed (₹)	**1112.00**		
Corporate Tax Rate	**35%**		
Capitalization Factor	**16%**		

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

b. Soft Ltd. gives the following information – (All figures in ₹ 000s)

Particulars	**2008**	**2009**	**2010**	**2011**	**2012**
Net profit after appropriation for					

proposed Dividend at 20% on Equity Share Capital	19,100	18,500	22,400	20,150	25,250
Equity Share Capital	150,000	150,000	180,000	180,000	180,000
Advance Tax paid during the year	50,000	35,000	60,000	55,000	60,000
Provision for taxation (A/c balance at end of the year)	3,200	2,000	3,000	2,000	1,000

The company made the following changes in its accounting policies:

- Switched over to FIFO basis of Stock Valuation after 2010
- Switched over to WDV method of Depreciation after 2011
- Earlier the company was recognizing the gain/loss on the basis of difference between collection rate & exchange rate. However, the company now decided to generate exchange gain on sundry debtors at the year-end.

Effects of stock valuation for different years were quantified as below:

Particulars for the year	2008	2009	2010
Stock Adjustments – LIFO	(Cr.) 1,210	(Cr.) 1,310	(Cr.) 1,420
Stock Adjustments - FIFO	(Dr.) 150	(Cr.) 210	(Cr.) 540

Amount of depreciation under two alternative methods were as below:

Particulars	2008	2009	2010	2011
Straight Line	7,120	8,100	8,250	8,400
WDV	8,100	8,950	9,250	9,300

Details of debtors in foreign exchange along with relevant exchange rates were as below:

Year Ended	Debtors in Canadian $ in '000	Entry Rate	Year end Rate	Collection Rate
31.12.2008	50,000	49.10	49.25	49.35
31.12.2009	62,000	49.40	49.55	50.40
31.12.2010	63,000	50.35	52.40	51.95
31.12.2011	72,000	54.10	53.90	55.10
31.12.2012	82,000	57.10	56.95	57.15

Year end Debtors were collected in the next year. Before change in accounting policy, the entire Profit or Loss arising out of change in exchange rate was taken to Profit or Loss Account in the year of collection.

The following expenses and income were not charged in the year when they occurred. Instead they were charged in the next year as prior period adjustments:

Year	2008	2009	2010	2011
Expenses (₹ 000s)	870	140	250	540
Income (₹ 000s)	120	350	80	680

Ascertain future maintainable profit for the purpose of valuation of Goodwill, assuming future tax rate as 34%. Effect of changes in accounting policies on the tax liability of the previous years may be ignored.

c. Consider the following data:

Stock price = 50

Months to expiration = 3 months
Risk-free rate of interest = 10% p.a.
Standard deviation of stock = 40%
Exercise price = 55
Option type = European call
Calculate value of call option as per Black-Scholes model

Answer:
(a)

TECHNO LTD.
Computation of Brand Value (Amount in ₹ Crores)

Year ended March 31st	2013	2012	2011
EBIT	696.03	325.65	155.86
Less: Non- brand income	53.43	35.23	3.46
Adjusted Profits	642.60	290.42	152.40
Inflation Compound Factor @ 8%	1.000	1.087	1.181
Present Value of Profits for the brand	642.60	315.69	179.98
Weight age factor	3	2	1
Weight age Profits	1927.80	631.38	179.98
Profits	456.53		
Remuneration of Capital (5% of Average capital employed)	55.60		
Brand Related	400.93		
Corporate tax @ 35%	140.33		
Brand Earning	260.60		
Capitalization Factor	16%		

Brand Value: (Return/Capitalization Rate)
260.60/0.16 = ₹ 1628.75 Crore

(b)

1. Effect of foreign Exchange Rate Differences in Debtors (₹ '000s)

Year	2008	2009	2010	2011	2012
(a) Gain to be correctly considered					
(i) On restatement [Debtors × (Year end Rate – Entry Rate)]	7,500	9,300	129,150	(14,400)	(12,300)
(ii) On collection of proceeds [Debtors × (Year end Rate – Collection Rate)]	-	5,000	52,700	(28,350)	86,400
Total Profit to be considered [(i) + (ii)]	7,500	14,300	181,850	(42,750)	74,100
(b) Less: Gain wrongly considered [Debtors × (collection rate – Entry rate)]	Nil	(12,500)	(62,000)	(100,800)	(72,000)
(c) Effect on profit i.e. Increase/(Decrease)	7,500	1,800	119,850	(143,550)	2,100

2. Effect of differences in treatment of expenses and income (₹ 000s)

Year	2008	2009	2010	2011	2012
(a) Expenses: To be considered	870	140	250	540	-
Actually considered	-	870	140	250	540
Net Effect on Profit (i.e. Increase/Decrease)	(870)	730	(110)	(290)	540
(b) Income: To be considered	120	350	80	680	-
Actually considered	-	120	350	80	680
Net Effect on Profit i.e. Increase/(Decrease)	120	230	(270)	600	(680)
(c) Net Effect of the above on Profit (a) – (b)	(750)	960	(380)	310	(140)

3. Computation of Adjusted profits of past years (₹ 000s)

Year	2008	2009	2010	2011	2012
Net Profit after appropriation of dividend	19,100	18,500	22,400	20,150	25,250
Add: Proposed dividend at 20% of capital	30,000	30,000	36,000	36,000	36,000
Tax expense for the year (see note below)	53,200	37,000	63,000	57,000	61,000
Net profit before taxes	1,02,300	85,500	1,21,400	1,13,150	1,22,250
Adjust:					
• Effect of change in Stock Valuation i.e. Reversal of LIFO basis	(1,210)	(1,310)	(1,420)	-	-
• Implementation of FIFO basis	(150)	210	540		
• Effect of change in method of depreciation i.e. WDV less SLM	(980)	(850)	(1,000)	(900)	-
• Effect of Exchange Gain/Loss adjusted in Debtors (W.N.1)	7,500	1,800	119,850	(143,550)	2,100
• Effect of adjustment of expenses and incomes (W.N. 2)	(750)	960	(380)	310	(140)
Adjusted Profits Before Tax	1,06,710	86,310	2,38,990	(30,990)	1,24,210

4. Computation of Future Maintainable Profits (₹ 000s)

a. Simple Average of past 5 years adjusted profits before tax = FMP before tax = [(1,06,71 + 86,31 + 2,38,99 - 30,99 + 1,24,21) ÷ 5]	1,05,046
b. Less: tax Expense @ 34%	(35,715)
c. Future Maintainable Profit after tax for the purpose of valuation of goodwill	69,331

(c)

$C = SN(d_1) - Ke^{-rt} N(d_2)$

$$d_1 = \frac{\ln\left(\frac{S}{K}\right) + rT}{\sigma\sqrt{T}} + 0.5\sigma\sqrt{T}$$

$$d_2 = \frac{\ln\left(\frac{S}{K}\right) + rT}{\sigma\sqrt{T}} - 0.5\sigma\sqrt{T}$$

$$\text{Here}, d_1 = \frac{\ln\left(\frac{50}{55}\right) + 0.25(0.10)}{0.4\sqrt{0.25}} + 0.5(0.40)\sqrt{0.25}$$

$$d_2 = \frac{\ln\left(\frac{50}{55}\right) + 0.25(0.10)}{0.4\sqrt{0.25}} - 0.5(0.40)\sqrt{0.25}$$

N (d1) = 0.5 - 0.0987 = 0.4013

N (d2) = 0.5 - 0.1736 = 0.3264

$C = 50\ (0.4013) - 55^{-0.1\times0.25}\ (0.3264) = 2.56$

Question 28.

a. What are the reasons for reporting on Intellectual Capital (IC)? Explain briefly.

b. X Ltd. and its subsidiary Y Ltd. get their supply of some essential raw materials from Z Ltd. To co-ordinate their production on a more profitable basis, X Ltd. and Z Ltd. agreed between themselves each to acquire a quarter of shares in the other's Authorized Capital by means of exchange of shares. The terms are as follows:

(i) X Ltd.'s shares are quoted at ₹14, but for the purpose of exchange the value is to be taken at the higher of the two values, e.g. (a) quoted and (b) on the basis of the Balance Sheet Valuation:
(ii) Z Ltd.s shares which are unquoted are to be taken at the higher of the value as on (a) yield basis and (b) the Balance sheet basis. The future profits are estimated as ₹ 1,05,000 subject to one-third to be retained for development purposes. Shares of similar companies yield 8%:
(iii) Tangible Fixed Assets of Z Ltd. are to be taken at ₹ 8,70,000;
(iv) Balance due on settlement is to be treated as loan between two companies.

The summarized Balance Sheets of the companies at the relevant data stood as follows:

	X Ltd ₹	Y Ltd ₹	Z Ltd ₹
Authorised Share Capital	12,00,000	5,00,000	10,00,000
Equity Shares of ₹10 each issued and fully paid up	8,00,000	5,00,000	7,50,000
Securities Premium	80,000		
7% Debentures	3,00,000		
Profit and Loss A/c	2,40,000	2,20,000	2,10,000
Trade Payables	2,80,000	1,80,000	2,10,000
Bank Overdraft	1,00,000	50,000	
Tangible Fixed Assets	11,10,000	7,00,000	7,70,000
Investment (40,000 Shares in Y Ltd.)	4,70,000		
Current Assets	2,10,000	2,40,000	3,90,000
Underwriting Commission	10,000	10,000	10,000
	18,00,000	9,50,000	11,70,000

Compute the value of the shares according to the terms of the agreements and to present the final settlement, showing all the necessary workings.

c. S Ltd. expects that a plant has become useless which is appearing in the books at ₹ 20 lacs gross value. The company charges SLM depreciation on a period of 10 years estimated life and estimated scrap value of 3%. At the end of 7th year the plant has been assessed as useless. Its estimated net realizable value is ₹ 6,20,000. Determine the loss/gain on retirement of the fixed assets.

Answer:

(a)

Reasons for reporting on intellectual capital can be broadly classified as follows:

1. **Reasons for internal reporting:**
   - **(i)** Demands are growing for effective governance of intangibles, of which social and environmental reporting are already evident.
   - **(ii)** 'What gets measured gets managed' – it therefore focuses on protecting and growing those assets that reflect value.
   - **(iii)** Managing the firm's intellectual assets.
   - **(iv)** Assessing the effectiveness of the tirm's IC utilization/ management.
   - **(v)** Reports of current and future income from IC.
   - **(vi)** Relating employee contributions to IC to profits.
   - **(vii)** Alignment of IC resources with strategic vision.
2. **Reasons for external reporting:**
   - **(i)** It more truly reflects the actual worth of the company.
   - **(ii)** Improve stock prices, by providing a more accurate picture of a firm's assets.
   - **(iii)** It supports a corporate goal of enhancing shareholder value.
   - **(iv)** It provides more useful information to existing and potential investors.
   - **(v)** Strategic positioning.
   - **(vi)** Effect on the cost of capital.

(b)

Statement showing the Valuation of Shares on Balance Sheet basis

Particulars	X Ltd.	Y Ltd.	Z Ltd.
A. Total Assets i.e. at Current Values:			
Tangible Fixed Assets	11,10,000	7,00,000	8,70,000
Investment in Y Ltd. (4/5 of Net Assets i.e. ₹ 7,10,000)	5,68,000	-	-
Current Assets	2,10,000	2,40,000	3,90,000
	18,88,000	9,40,000	12,60,000
B. Outside Liabilities:			
7% Debentures	3,00,000	-	-
Trade Payables	2,80,000	1,80,000	2,10,000
Bank overdraft	1,00,000	50,000	-
	6,80,000	2,30,000	2,10,000
C. Net Assets [A-B]	12,08,000	7,10,000	10,50,000
D. No. of Shares	80,000	50,000	75,000
E. Book Value per share	15.10	14.20	14.00

Valuation of Z Ltd.'s shares on yield basis

Estimated annual future profits	1,05,000
Less: 1/3 retained for Development	(35,000)

Distributable Profits	70,000
Earning Rate [(₹ 7,50,000) × 100]	9.33%
Normal Rate of Yield	8%

$$\text{Value per share} = \left[\frac{\text{Earning Rate}}{\text{Normal Rate}} \times \text{Paid up Value}\right] = \frac{9.33\%}{8\%} \times ₹11.67$$

Value taken as per agreement for exchange of shares between X Ltd. and Z Ltd.

X Ltd.:
₹ 15.10 per share, being the amount of Balance Sheet value, higher than the quoted value of ₹ 14.00 per share.

Z Ltd.
₹ 14.00 per share being the amount of Balance Sheet value, higher than the yield value of ₹ 11.67 per share.

Statement of Settlement	₹
Shares issued by X Ltd. to Z Ltd. – 30,000 shares @ ₹ 15.10 per share	4,53,000
Shares issued by Z Ltd. to X Ltd. – 25,000 shares @ ₹ 14.00 per share	3,50,000
Loan by X Ltd. to Z Ltd.	1,03,000

(c)

Cost of the plant	₹ 20,00,000
Estimated realizable value	₹ 60,000
Depreciable amount	₹ 19,40,000
Depreciation per year	₹ 1,94,000

Written down value at the end of 7th Year = 20,00,000-(1,94,000×7) = ₹ 6,42,000

As per Para 14.2 of AS-10 , items of fixed assets that have been retired from active use and are held for disposal are stated at the lower of their net book value and net realizable value and are shown separately in the financial statements. Any expected loss is recognized immediately in the profit and loss statement. Accordingly, the loss of ₹ 22,000 (6,42,000-6,20,000) to be shown in the profit and loss account and asset of ₹ 6,20,000 to be shown in the balance sheet separately.

Question 29.

a. Ganga Ltd. is a subsidiary of Shiva Ltd. it holds 9% ₹100 5years debentures of Ganesh Ltd. and designated them as held to maturity as per AS30. "Financial Instruments: Recognisation and Measurement".
Can Ganga Ltd designate this financial asset as hedging instrument for managing currency risk?

b. From the following particulars of two companies, ascertain the value of goodwill. Terms and conditions are as follows:
   i. Assets are to be revalued.
   ii. Goodwill is to be valued at four years' purchase of average super profits for three years. Such average is to be calculated after adjustment of depreciation at ten per

cent on the amount of increase/decrease on revaluation of fixed assets. Income tax is to be ignored.

iii. Normal profit on capital employed is to be taken at 10 per cent, capital employed being considered on the basis of net revalued amount of tangible assets.

The summarized Balance Sheets and relevant information are given below:

Liabilities	Ram Ltd.	Shyam Ltd.	Assets	Ram Ltd.	Shyam Ltd.
Equity shares of			Goodwill	-	1.00
₹ 10 each	12.00	14.00	Net tangible		
Reserves	2.00	1.00	Block	16.00	12.00
10 percent debentures	4.00	-	Current Assets	6.00	5.00
Trade and expenses Creditors	4.00	3.00			
	22.00	18.00		22.00	18.00

Particulars	Ram Ltd. ₹	Shyam Ltd. ₹
Revaluation of tangible block	20,00,000	10,00,000
Revaluation of current assets	7,00,000	2,80,000
Average annual profit for three years before charging debenture interest	3,60,000	2,88,000

iv. Convertible bonds are often issued by small, high growth companies to raise debt. Why?

Answer:

(a)

AS 30 states that for hedge accounting purposes only instrument that involve a party external to the reporting entity can be designated as hedging instrument. Therefore debenture issued by the parent company cannot be designated as hedging instrument for the purpose of consolidated financial statements of the group. However, it can be designated as hedging instrument for separate financial statement of Ganga Ltd.

(b)

Valuation of Goodwill

Particulars	Ram Ltd. ₹	Shyam Ltd. ₹
Average annual profit after charging debenture interest	3,20,000	2,88,000
Less/Add: Depreciation on amount increased/decreased on revaluation	(-) 40,000	+20,000
	2,80,000	3,08,000
Less: Normal profit at 10% on capital employed as calculated in working note	1,90,000	98,000
Super Profit	90,000	2,10,000

Goodwill valued at four years purchase of super profits	3,60,000	8,40,000

Working Note:
Calculation of Capital Employed

Particulars	Ram Ltd. ₹	Shyam Ltd. ₹
Tangible fixed assets	20,00,000	10,00,000
Current assets	7,00,000	2,80,000
	27,00,000	12,80,000
Less: debentures and Creditors	8,00,000	3,00,000
	19,00,000	9,80,000

(c)

There are two factors that lead to small, high growth companies to raise debt by convertible bonds. One is small high growth companies do not have substantial cash flows. Convertible bonds, by keeping the interest expense low, allow these companies to borrow. The second factors is that small high growth companies tend to be volatile. This volatility makes the conversion option more value to investors and reduces the interest expense on the debt further.

Question 30.

a. A company belongs to a risk class for which the approximate capitalization rate is 10%. It currently has outstanding 25,000 shares selling at ₹100 each. The firm is contemplating the declaration of a dividend of ₹ 5 per share at the end of the current financial year. It expects to have a net income of ₹ 2,50,000 and has a proposal for making new investments of ₹ 5,00,000. Show that under the MM assumptions, the payment of dividend does not affect the value of the firm.

b. Why do investors prefer enterprise value to EBITDA multiple to other earnings multiple?

c.

Current market price of:	X	Y
Option	₹ 16.12	₹ 10.62
Stock	₹ 80	₹ 80
Exercise price	₹ 70	₹ 80
Time to expiration	3 months	3 months
Risk free return	12% p.a.	12% p.a.
Expected dividend	0	0
Standard deviation of stock returns	60%	60%

Answer:
(a)

(i) Price per share at the end of year 1, $P_0 = \frac{1}{(1+k_e)}(D_1 + P_1)$

₹ 100 = $\frac{1}{1.10}$ (₹ 5 +P_1)

110 = ₹ 5 + P_1

105=P_1

(ii) Amount required to be raised from the issue of new shares,

$\Delta nP_1 = (I - nD_1)$

= ₹ 5,00,000 – (₹ 2,50,000 - ₹ 1,25,000) = ₹ 3,75,000

(iii) Number of additional shares to be issued, $\Delta n = \frac{₹3,75,000}{₹105} = \frac{75,000}{21}$ shares

(iv) Value of the Firm

$$nP_0 = \frac{(I - \Delta n P_1) - I + E}{(1 + k_e)} = \left[\frac{25,000}{1} + \frac{75,000}{21}\right]$$

= (₹ 105) - ₹ 5,00,000 +₹ 2,50,000

= $\frac{₹27,50,000}{1.10}$ =₹25,00,000

(b)

(a) The value of an option is determined by six variables relating to the underlying asset and financial market:

1. Current value of the underlying asset.
2. Difference in value of the underlying asset
3. Dividends paid on the underlying asset
4. Strike / exercise price of the option
5. Time to expiration on the option
6. Risk less interest rate corresponding to life of the option.

(b) Because share price fluctuate, shares will show temporary positive or negative alpha value most of the time. However, if the CAPM is a valid model, positive alpha value should be eroded by investors by buying the shares, causing a price increase and hence reducing the expected future returns for the investors who follow them. Similarly, negative alphas will be eroded by investors selling the shares. The same alpha values would not therefore be expected to exist in a year's time.

(c)

For call option X

$C = SN(d_1) - Ke^{-rt} N(d_2)$

$$d_1 = \frac{\ln\left(\frac{S}{K}\right) + rT}{\sigma\sqrt{T}} + 0.5\sigma\sqrt{T} = \frac{0.13353 + 0.075}{0.3} = 0.70$$

$$\therefore N(d_1) = 0.7580$$

$$d_2 = \frac{0.13353 - 0.075}{0.3} = 0.40$$

$$\therefore N(d_2) = 0.6554$$

Value of call option = 80(0.7580) – 70 $e^{0.12\times0.25}$ (0.6554) = 16.62

For Call option Y

$C = SN(d_1) - Ke^{-rt} N(d_2)$

$$d_1 = \frac{\ln\left(\frac{S}{K}\right) + rT}{\sigma\sqrt{T}} + 0.5\sigma\sqrt{T} = \frac{0.0 + 0.075}{0.03} = 0.25$$

$$\therefore N(d_1) = 0.5987$$

$$d_2 = \frac{0.0 - 0.015}{0.3} = -0.05$$

$$\therefore N(d_2) = 0.48$$

Value of call option = 80 (0.5987) – 80 $e^{0.12\times0.25}$ (0.48) = 10.62