Final
Group IV
Paper 20: STRATEGIC PERFORMANCE MANAGEMENT & BUSINESS VALUATION
(SYLLABUS – 2016)

Section A: Strategic Performance Management

1. Multiple choice questions with justification wherever necessary:

(i) The rate of change in the demand due to the change in the income is called:
- **(A) income elasticity of demand**
- **(B) cross elasticity of demand**
- **(C) price elasticity of demand**
- **(D) None of the above.**

(ii) As per Altman's model, if the value of z-score of a firm falls between 1.81 and 2.99, then the firm will be:
- **(A) Non-failed firm**
- **(B) Failed firm**
- **(C) Mixture of failed and non-failed elements**
- **(D) None of the above.**

(iii) The type of benchmarking, which is concerned with the development of core competencies that will help sustained competitive advantage, is called:
- **(A) Global Benchmarking**
- **(B) Strategic Benchmarking**
- **(C) Internal Benchmarking**
- **(D) Competitive Benchmarking**

(iv) The revenue function of a firm given by $R = (2200 - 3x)\frac{x}{2}$, the firm's marginal revenue function will be:
- **(A) 2200 – 3x**
- **(B) 1100 – 3x**
- **(C) 1100 – 2x**
- **(D) 2200 – 2x**

(v) Which of the following is a cause for corporate distress?
- **(A) Fraud by Management**
- **(B) Working Capital Problems**
- **(C) Mismanagement**
- **(D) All of the above.**

(vi) Which of the following is not the perspective of Balanced Score Card?
- **(A) Customer perspective**
- **(B) Financial perspective**

(C) Political perspective
(D) Learning and growth perspective

(vii)Performance will be a product of:
(A) Efficiency and Utilization
(B) Utilization and Productivity
(C) Efficiency and Productivity
(D) Efficiency, Utilization and Productivity.

(viii) Risk Management Strategies are
(A) Avoid Risk, Reduce Risk, Retain Risk, Combine Risk
(B) Transfer Risk, Share Risk and Hedge Risk
(C) Both (A) and (B)
(D) None of the above.

(ix) The program which encompasses the planning and management of all activities involved in sourcing, procurement, conversion and logistics management activities, is called:
(A) Supply Chain Management
(B) Customer Relationship Management
(C) Total Quality Management
(D) None of the above.

(x) The components of the Stewart Cycle or PDCA are:
(A) Plan-Do-Check-Act
(B) Plan-Define-Check-Act
(C) Plan-Do-Control-Act
(D) Program-Do-Check-Act

Answer:
(i) (A) The income elasticity of demand explains the proportionate change in income and proportionate change in demand.

(ii) (C) As per Altman's model, if the value of z-score of a firm falls between 1.81 and 2.99, then the firm will be mixture of failed and non-failed elements.

(iii) (B) Strategic Benchmarking helps to develop a vision of the changed organizations. It will develop core competencies that will help sustained competitive advantage.

(iv) (B) $R = (2200 - 3x)\frac{x}{2} = \frac{2200x}{2} - \frac{3}{2}x^2$

$= 1100x - \frac{3}{2}x^2$

$MR = \frac{dR}{dx} = 1100 - 3x$

(v) (D) The causes for corporate distress can be — Technological Causes, Working Capital Problems, Economic Distress, Mismanagement, Fraud by Management etc.

(vi) (C) Balanced Score Card has four perspectives, such as: Customer perspective, internal business perspective, Learning and growth perspective and financial perspective.

(vii) (D) Efficiency, Utilization & Productivity, since this option fully covers all aspects of Performance.

(viii) (C) Both (A) and (B), since risk management strategies covers all points under both A and B.

(ix) (A) Supply Chain Management encompasses the planning and management of all activities involved in sourcing, procurement, conversion and logistics management activities.

(x) (A) The components of Shewhart Cycle or PDCA or Deming Cycle or Deming wheel are Plan, Do, Check and Act.

2.(a) Write down the components of Performance Management.

(b) What are the factors to be considered when analyzing customer profitability?

Answer:
(a) Components of Performance Management:

1. Performance Planning: Performance planning is the first crucial component of any performance management process which forms the basis of performance appraisals. Performance planning is jointly done by the appraiser and the reviewer in the beginning of a performance session. During this period, the employees decide upon the targets and the key performance areas which can be performed over a year within the performance budget, which is finalized after a mutual agreement between the reporting officer and the employee.

2. Performance Appraisal and Reviewing: The appraisals are normally performed twice in a year in an organization in the form of mid reviews and annual reviews which is held at the end of the financial year. In this process, the appraise first offers the self filled up ratings in the self appraisal form and also describes his/her achievements over a period of time in quantifiable terms. After the self appraisal, the final ratings are provided by the appraiser for the quantifiable and measurable achievements of the employee being appraised. The entire process of review seeks an active participation of both the employee and the appraiser for analyzing the causes of loopholes in the performance and how it can be overcome.

3. Feedback on the Performance followed by personal counseling and performance facilitation: Feedback and counseling is given a lot of importance in the performance management process. This is the stage in which the employee acquires awareness from the appraiser about the areas of improvements and also information on whether the employee is contributing the expected levels of performance or not. The employee receives an open and a very transparent feedback and along with this the training and development needs of the employee is also identified. The appraiser adopts all the possible steps to ensure that the employee meets the expected outcomes for an organization through effective personal counseling and guidance, mentoring and representing the employee in training programs which develop the competencies and improve the overall productivity.

4. Rewarding good performance: This is a very vital component as it will determine the work motivation of an employee. During this stage, an employee is publicly recognized for good performance and is rewarded. This stage is very sensitive for an employee as this

may have a direct influence on the self esteem and achievement orientation. Any contributions duly recognized by an organization helps an employee in coping up with the failures successfully and satisfies the need for affection.

5. Performance Improvement Plans: In this stage, fresh set of goals are established for an employee and new deadline is provided for accomplishing those objectives. The employee is clearly communicated about the areas in which the employee is expected to improve and a stipulated deadline is also assigned within which the employee must show this improvement. This plan is jointly developed by the appraise and the appraiser and is mutually approved.

6. Potential Appraisal: Potential appraisal forms a basis for both lateral and vertical movement of employees. By implementing competency mapping and various assessment techniques, potential appraisal is performed. Potential appraisal provides crucial inputs for succession planning and job rotation.

(b) Customer profitability analysis has become an important new management accounting tool. Customers utilize company resources differently; thus customer costs vary from one customer to another. The following issues/ factors should be considered when analyzing customer profitability:

- How to develop reliable customer revenue and customer cost information;
- How to recognize future downstream costs of customers;
- How to incorporate a multi-period horizon in the analysis; and
- How to recognize different drivers of customer costs.

This requires a broader examination of the costs associated with customer service. For example, post- sale customer service costs must be included in any analysis of customer costs. Some customers require substantially more post-sale service than others. In addition, future environmental liabilities related to the sales of current products are additional downstream costs that must be included. With management's increased focus on customers, this analysis can provide forward- looking information about individual customers and customer segments and more broadly examine both the revenues and Costs related to customer transactions. Revenues can vary among customers due to variations in volume levels, and differences in price structures, products and services.

Costs can also vary depending on how customers use the company's resources such as marketing, distribution, and customer service. Unless a complete analysis of the benefits and costs of customer relationships is undertaken, companies will unknowingly continue to service unprofitable customers. Only after a thorough analysis of the costs and benefits, a firm can decide which customers to service and strategically price its products and services.

3.(a) "Financial performance analysis can be classified into different categories on the basis of material used and modus operandi" — Write about the various types of financial performance analysis in this context.

(b) State the significance of the Financial Performance Analysis.

Answer:

(a) Financial performance analysis can be classified into different categories on the basis of material used and modes operandi as under:

A. Material used: On the basis of material used financial performance can be analyzed in following two ways:

1. External analysis: This analysis is undertaken by the outsiders of the business namely investors, credit agencies, government agencies, and other creditors who have no access to the internal records of the company. They mainly use published financial statements for the analysis and as it serves limited purposes.
2. Internal analysis: This analysis is undertaken by the persons namely executives and employees of the organization or by the officers appointed by government or court who have access to the books of account and other information related to the business.

B. Modus operandi: On the basis of modus operandi financial performance can be analyze in the following two ways:

1. Horizontal Analysis: In this type of analysis financial statements for a number of years are reviewed and analyzed. The current year's figures are compared with the standard or base year and changes are shown usually in the form of percentage. This analysis helps the management to have an insight into levels and areas of strength and weaknesses. This analysis is also called Dynamic Analysis as it based on data from various years.
2. Vertical Analysis: In this type of Analysis study is made of quantitative relationship of the various items of financial statements a particular date. This analysis is useful in comparing the performance of several companies in the same group, or divisions or departments in the same company. This analysis is not much helpful in proper analysis of firm's financial position because it depends on the data for one period. This analysis is also called Static Analysis as it based on data from one date or for one accounting period.

(b) Significance of Financial Performance Analysis:

Interest of various related groups is affected by the financial performance of a firm. Therefore, these groups analyze the financial performance of the firm. The type of analysis varies according to the specific interest of the party involved.

Trade creditors: interested in the liquidity of the firm (appraisal of firm's liquidity)

Bond holders: interested in the cash-flow ability of the firm (appraisal of firm's capital structure, the major sources and uses of funds, profitability over time, and projection of future profitability)

Investors: interested in present and expected future earnings as well as stability of these earnings (appraisal of firm's profitability and financial condition)

Management: interested in internal control, better financial condition and better performance (appraisal of firm's present financial condition, evaluation of opportunities in

relation to this current position, return on investment provided by various assets of the company, etc).

4.(a) What are the objectives of Supply Chain Management? There are five basic components of Supply Chain Management. — Write about those components.

(b) What is Customer Relationship Management? State the advantages of Customer Relationship Management Application.

Answer:

(a) Objectives of Supply Chain Management:

i. Supply chain Management (SCM) takes into consideration every facility that has an impact on cost and plays a role in making the product conform to customer requirements: from supplier and manufacturing facilities through warehouses and distribution centers to retailers and stores.

ii. The supply chain management is to be efficient and cost –effective across the entire system; total system wide costs from transportation and distribution to inventories of raw materials, work – in- process and finished goods are to be minimized.

iii. Finally, supply chain management revolves around efficient integration of suppliers, manufacturers, warehouses and stores; it encompasses the firm's activities at many levels, from the strategic level through the tactical to the operational level.

Component of Supply Chain Management: There are five basic components of Supply Chain Management, as follows:

1. Plan: This is the strategic portion of SCM. It needs a strategy for managing all the resources that go toward the meeting customer demand for your product and services.
2. Source: Choose the suppliers that will deliver the goods and services it needs to create its product. Develop a set of pricing, delivery and payment processes with suppliers and create metrics for monitoring and improving the relationships.
3. Make: This is the manufacturing step. Schedule the activities necessary for production, testing, packaging and preparation for delivery.
4. Deliver: This is the part that many insiders refer to as logistics. Coordinate the receipt of orders from customers, develop a network of warehouses, pick carriers to get products to customers and set up an invoicing system to receive payments.
5. Return: The problem part of the supply chain. Create a network for receiving defective and excess products back from customers and supporting customers who have problems with delivered products.

(b) Customer Relationship Management (CRM) entails initiatives that surround the customer side of the business. CRM is a business strategy comprised of process, organizational and technical change whereby a company seeks to better manage its enterprise around its customer behaviors. It entails acquiring and deploying knowledge about customers and using this information across the various customers touch points to increase revenue and achieve cost reduction through operational efficiencies.

The advantages of CRM are these:

- satisfied customer does not consider leaving
- product development can be defined according to current customer needs

- a rapid increase in quality of products and services
- the ability to sell more products
- optimization of communication costs
- proper selection of marketing tools (communication)
- trouble-free run of business processes
- greater number of individual contacts with customers etc.

5.(a) What is Benchmarking? Identify difficulties in implementation of benchmarking.

(b) Describe the steps to be taken in the implementation of Total Quality Management (TQM).

Answer:

(a) Benchmarking: While planning is a feed forward process, control is a feedback process. Control involves comparison of the actual results with an established standard or target. The practice of setting targets using external information is known as benchmarking. In other words, Benchmarking is the establishment through data gathering of targets and comparatives, with which performance is sought to be assessed.

Alter examining the firm's present position, benchmarking may provide a basis for establishing better standards of performance, It focuses on improvement in key areas and sets targets which are challenging but evidently achievable. Benchmarking implies that there is one best way of doing business and orients the firm accordingly. It is a catching - up exercise and depends on the accurate information about the comparative company - be it inside the group or an outside firm.

Benchmarking is the continuous process of enlisting the best practices in the world for the process, goals and objectives leading to world class levels of achievement.

Difficulties in implementation of benchmarking:

(1) Time consuming: Benchmarking is time consuming and at times difficult. It has significant requirement of staff time and company resources. Company may waste time in benchmarking non-critical functions.
(2) Lack of management support: Benchmarking implementation requires the direct involvement of all managers. The drive to be best in the industry or world cannot be delegated.
(3) Resistance from employees: It is likely that there may be resistance from employees.
(4) Copy-Paste attitude: The key element in benchmarking is the adaptation of a best practice to a company's needs and culture. Without that step, a company merely adopts another company's process. This approach condemns benchmarking to fail leading to a failure of benchmarking goals.

(b) The various stages/steps to be taken in the implementation of Total Quality Management (TQM) are as follows:

Stage 1: Identification of customers / customer groups:
Through a team approach (a technique called Multi - Voting), the firm should identify major customer groups. This helps in generating priorities in the identification of customers and critical issues in the provision of decision - support information.

Stage 2: Identifying customer expectations: Once the major customer groups are identified, their expectations are listed. The question to be answered is - What does the customer expect from the Firm?

Stage 3: Identifying customer decision-making requirements and product utilities: By identifying the need to stay close to the customers and follow their suggestions, a decision - support system can be developed, incorporating both financial and non-financial information, which seeks to satisfy used requirements.

Stage 4: Identifying perceived problems in decision-making process and product utilities: Using participative processes such as brainstorming and multi-voting, the firm seeks to list out its perception of problem areas and shortcomings in meeting customer requirements. This will list out areas of weakness where the greatest impact could be achieved through the implementation of improvements. The firm identifies the answer to the question - What problem areas do we perceive in the decision-making process?

Stage 5: Comparison with other Firms and benchmarking: Detailed and systematic internal deliberations allow the Firm to develop a clear idea of their own strengths and weaknesses and of the areas of most significant deficiency. Benchmarking exercise allows the Firm to see how other Companies are coping with similar problems and opportunities.

Stage 6: Customer Feedback: Stages 1 to 5 provide a information base developed without reference to the customer. This is rectified at Stage 6 with a survey of representative customers, which embraces their views on perceived problem areas. Interaction with the customers and obtaining their views helps the Firm in correcting its own perceptions and refining its process.

Stage 7: Identification of improvement opportunities: The outcomes of the customer survey, benchmarking and internal analysis, provides the inputs for stages 7 i.e., the identification of improvement opportunities.

Stage 8: Implementation of Quality Improvement Process: Implementation of Quality Improvement Process through - a) Determination of new strategies, b) Elimination of deficiencies, and c) Identifying solutions.

6.(a) Write down the steps as how to start Total Productive Management (TPM). Also state the benefits of TPM.

(b) "The Balanced Score Card (BSC) translates an organization's mission and strategy into a comprehensive set of performance measures that provides the framework for implementing its strategy." — State the steps in developing Balanced Score Card (BSC) in this context. Mention the information required for Performance Measurement under BSC.

Answer:
(a) Steps to Start TPM: The Steps are –

- Identify the key people
- Management should learn the philosophy.
- Management must promote the philosophy.
- Training for all the employees.
- Identify the areas where improvements are needed.
- Make an implementation plan.
- Form an autonomous group.

Benefits: With the adoption of TPM at the enterprise level, your organisation would benefit from the following aspect:

- A set of new management goals will be developed by the Management, using the skills and training provided during the implementation of the TPM
- Team bonding and better accountability
- Improved quality and total cost competitiveness
- Productivity and quality team training for problem solving
- Earlier detection of factors critical to maintaining equipment "uptime"
- Measure impact of defects, sub-optimal performance, and downtime using OEE (Overall Equipment Effectiveness)
- Motivated people function better all the time

(b) The Balanced Score Card (BSC) translates an organization's mission and strategy into a comprehensive set of performance measures that provides the framework for implementing its strategy.

Steps in developing Balanced Score Card (BSC): The steps in the process of developing a BSC are:

- Identify the key outcomes to the success of the organization.
- Identify the process that leads to these outcomes.
- Develop key performance indicators for these processes.
- Develop reliable data capture and measurement systems.
- Develop a mechanism for reporting these to the relevant managers and staff.
- Enact improvement programs to ensure that performance improves.

Information required for Performance Measurement under Balanced Score Card (BSC): The main types of information required by the managers to implement the balanced scorecard approach to performance measurement are:

- Customer Perspective - How do customer see us? - Price, quality, delivery, customer support etc.
- Internal Perspective- Where we must excel at? - Efficiency of manufacturing process, sales penetration, new production introduction, skilled manpower etc.
- Learning and Growth Perspective - Can we continue to improve and create value? - Technology leadership, cost leadership, market leadership, research and development, cost reduction, etc.

- Financial Perspective - How do we look to the shareholders? - Sales, cost of sales, return on capital employed, profitability, prosperity etc.

7.(a) State the objectives of MIS (Management Information System).

(b) Write a short note on OLAP Server.

Answer:

(a) The objectives of Management Information System (MIS):

1. To provide the managers at all levels with timely and accurate information for control of business activities
2. To highlight the critical factors in the operation of the business for appropriate decision making
3. To develop a systematic and regular process of communication within the organization on performance in different functional areas
4. To use the tools and techniques available under the system for programmed decision making
5. To provide best services to customers
6. To gain competitive advantage
7. To provide information support for business planning for future.

(b) OLAP Server:

An OLAP server is a high-capacity, multi-user data manipulation engine specifically designed to support and operate on multi-dimensional data structures. A multi- dimensional structure is arranged so that every data item is located and accessed based on the intersection of the dimension members which define that item. The design of the server and the structure of the data are optimized for rapid ad-hoc information retrieval in any orientation, as well as for fast, flexible calculation and transformation of raw data based on formulaic relationships. The OLAP Server may either physically stage the processed multi-dimensional information to deliver consistent and rapid response times to end users, or it may populate its data structures in real-time from relational or other databases, or offer a choice of both. Given the current state of technology and the end user requirement for consistent and rapid response times, staging the multi-dimensional data in the OLAP Server is often the preferred method.

8.(a) What are the characteristics of Enterprise Resource Planning (ERP)?

(b) State the features of Materials Requirement Planning (MRP).

Answer:

(a) The characteristics of Enterprise Resource Planning (ERP) are:

ERP refers top techniques and concepts for integrated management of business as a whole from the view point of the effective use of management resources to improve the efficiency of enterprise management. ERP provides integrated business software modules to support functional units of an enterprise. An ideal ERP system should have following characteristics;

1. Flexibility: An ERP system must be flexible enough to respond fast to the changing needs of the organization. The client server technology enables ERP to run across various databases at the back end using open database connectivity.

2. Modular and open: ERP system has the open architecture i.e. any modules can be interfaced or dethatched without affecting the rest of the modules. It should support multiple hardware platforms as well as third party add-on solutions.
3. Comprehensive - It supports various organizational functions and is suitable for wide range of business organizations.
4. Beyond the company: It is confined to the organizational boundaries rather it is extended to the external business entities connected to the organization with online connectivity.
5. Best business practice - It has inbuilt best business practices applicable worldwide and imposes its own strategies and logics over existing culture and processes of organization.

(b) Features of MRP: The notable features of MRP system include:

- Material requirements for each assembly and sub-assembly are determined on the basis of 'master production schedule', thus termed as 'backward technique'.
- Updating of material requirements is done regularly to take stock of the charges in production schedule on account of receipt of new orders, cancellation of orders, machine breakdown, unanticipated scrap, vendor delivery problems etc.
- The order points for each assembly and sub-assembly are determined in advance on the basis of delivery date and lead time. The materials are made available when needed and not prior to their use. This aspect of MRP had helped to reduce investments.
- Very little safety stocks are maintained under MRP system. Under EOQ model, the safety stocks are maintained to protect the manufacturing operations against future uncertainties.
- Constant check is being exercised to see that the items have been ordered and received in time. The delay is expedited by resorting to emergency measures. Forward planning to forecast the future demand is also made.

9.(a) Enumerate the essential elements of Manufacturing Resource Planning (MRP II).

(b) Write down the steps of quality improvement as conceptualized by Philip Crosby.

Answer:

(a) Essential Elements of MRP II: The essential elements of MRP II system are as follows:

- Demand Forecast - it takes into account firm orders and sales forecasts.
- Production Planning - it converts the demand forecast into a broad statement of output requirements and the necessary production program.
- Resource Planning - it determines the manufacturing resources (materials and bought-in components etc.) required to meet the production program.
- Rough-cut Capacity Planning - it is used to test the feasibility of meeting the production program, taking into account the capacity available.
- Master Production Schedule - it is prepared on the basis of the information obtained from the demand forecasting, production planning, resource planning and rough-cut capacity planning processes.

- Bills of Material - it is storage of basic data for defining products, i.e., lists of the components and material required to produce the end-product or assembly.
- Materials Requirement Planning - which determines component and material requirements on the basis of information from the master production schedules and the purchasing and inventory control function,
- Detailed Material and Capacity Plans - which set out the detailed schedules for providing material and capacity as derived from the material requirement plans and detailed capacity planning - only if capacity is available is the plan allowed to proceed.
- Shop and Purchase Order Release - which activate production and purchasing.
- Shop-floor Control - which monitors production against the plan and feeds back which enables the master production schedule and capacity and material plans to be updated.
- Purchase and Inventory Control - which monitors purchasing against the material plans and feeds back to the master production schedules and material plans to enable updating to take place as required, Inventory control are also maintained on the basis of shop-floor usage.

(b) Quality improvement steps as conceptualized by Philip Crosby: The following are the ten steps of Quality improvement, as per Philip Crosby:

1. Management is committed to quality and this is clear to all.
2. Create quality improvement teams, with representatives from all departments.
3. Measure processes to determine current & potential quality issues.
4. Calculate the cost of poor quality.
5. Raise quality awareness of all employees.
6. Take action to correct quality issues.
7. Monitor progress of quality improvement-Establish a zero-defect committee.
8. Train supervisors in Quality improvement.
9. Encourage employees to create their own quality improvement goals.
10. Recognize participants' efforts.

10.(a) What is Law of demand? State the exceptions of Law of demand.

(b) What is income elasticity of demand? Write about various types of income elasticity of demand.

Answer:

(a) Law of Demand:

The Law of Demand simply expresses the relation between quantity of a commodity demanded and its price. The law states that "demand varies inversely with price, not necessarily proportionately". If the price falls, demand will extend, and vice versa. The law of demand indicates this inverse relationship between price and quantity demanded. "Other

things remaining same, higher will be demanded at a lower price and lower will be demanded at a higher price" - Prof. Benham.

The exceptions of Law of Demand:

1. Giffen Paradox: According to the Law of demand when the price rises demand decreases and vice-versa. But, according to Sir Robert Giffen even though the price, for necessary goods rise, the demand for them will not decrease. These goods are called Giffen goods.
2. Prestigious goods: The law of demand will not operate in case of prestige goods like diamonds, cars etc. The demand for these goods does not decrease with the rise in the price as these goods are attached with prestige.
3. Speculative Business: The law of demand does not operate in case of the speculative business. If people think that the prices of goods increase in the future, now they will buy more units of that commodity. This is against to the law of demand. This is another limitation to the law of demand.
4. Trade cycles: The law of demand does not operate in periods of trade cycles. During the prosperity period people may buy more goods at higher prices. In periods of depression, people buy fewer goods even though the prices are less.
5. Ignorance of the consumers: The law of demand is not applicable in case of the ignorant consumers. By ignorance people think that high priced goods are qualitative goods. Therefore the consumers may buy the goods even at high prices.

(b) Income Elasticity of Demand:

The income elasticity of demand explains the proportionate change in income and proportionate change in demand. The rate of change in the demand due to the change in the income is called income elasticity of demand.

$$\text{Income elasticity of demand} = \frac{\text{Proportionate change in demand}}{\text{Proportionate change in income}}$$

Types of income elasticity of demand:

1. Zero income elasticity of demand: If the change in the income fails to bring any change in demand, it is called zero income elasticity of demand. ($E_y=0$).
2. Negative income elasticity of demand: If the demand decreases with the increase in the income is called negative income elasticity of demand.
3. Unitary income elasticity of demand: If the proportionate change in the demand is equal to proportionate change in the income, it is called unitary income elasticity of demand ($E_y=1$)
4. Income elasticity of demand is greater than one: If the proportionate change in the demand is more than the proportionate change in income, it is called relatively income elastic of demand ($E_y>1$).
5. Income elasticity of demand is less than one: If the proportionate change in the demand is less than the proportionate change in the income, it is called relatively income inelastic demand ($E_y<1$).

11.(a) A firm assumes a cost function $c(x) = x\left(\frac{x^2}{10} + 200\right)$, x is a monthly output in thousands of units. Its revenue function is given by $R(X) = \left(\frac{2200 - 3x}{2}\right)x$. Find i) If the firm decides to produce 10,000 units per month, the firms cost and Marginal cost. ii) If the firm decides to produce Marginal cost of 320, the total cost of the firm. iii) The marginal revenue function. iv) If a decision is taken to produce 10,000 units each month, the total revenue and marginal revenue of the firm. v) If the firm produces with a marginal revenue of 1040, the firm's monthly revenue.

(b) A manufacturer can sell "X" items (X ≥ 0) at a price of (330 – X) each; the cost of producing 'X' items is ₹ (X^2 + 10X + 12). How many items should he sell to make the maximum profit? Also determine the maximum profit.

Answer:

(a)

$$c = x\left(\frac{x^2}{10} + 200\right) = \frac{x^3}{10} + 200x$$

X = '000 units p.m.

$$R = \left(\frac{2200-3x}{2}\right)x = \frac{2200x-3x^2}{2}$$

i) if firm output - 10,000 units per month

$$\text{Cost} = 10\left(\frac{100}{10} + 200\right) = 2100$$

$$MC = \frac{dc}{dx} = \frac{3x^2}{10} + 200$$

$$\text{Marginal Cost (at } x = 10) = \frac{3(100)}{10} + 200 = 230$$

ii) Here, MC = 320

$$\frac{3x^2}{10} + 200 = 320$$

$$3x^2 + 2000 = 3200$$

$$3x^2 = 1200$$

$$x^2 = 400$$

$$x = \sqrt{400} = 20$$

$$\text{Therefore, Total cost} = \frac{(20)^3}{10} + 200 \times 20 = 800 + 4000 = 4800$$

iii) Marginal Revenue

$= MR = \frac{dR}{dx} = \frac{2200}{2} - \frac{6x}{2}$

$= 1100 - 3x$

iv) Total revenue at $x = 10$

is $\frac{2200 \times 10 - 3(100)}{2} = \frac{22000 - 300}{2} = \frac{21700}{2}$

$= 10,850$

Marginal Revenue $= 1100 - 3 \times 10 = 1070$

v) Given, $MR = 1040$

i.e. $1100 - 3x = 1040$

$-3x = -60$

$x = 20$

Monthly Revenue $= \frac{2200 \times 20}{2} - \frac{3 \times 400}{2}$

$= 22000 - 600 = 21400$

(b) Given price (p) = 330-x

Cost(c) = $x^2 + 10x + 12$

Output = $x \geq 0$

Revenue (R) = $p\ x = (330 - x)\ x = 330\ x - x^2$

Profit = R - C

= $(330x - x^2) - (x^2 + 10x + 12) = 320X - 2X^2 - 12$ (say y)

In order to achieve maximum profit

$\frac{dy}{dx} = 0$ and $\frac{d^2y}{dx^2}$ = positive

$\frac{dy}{dx} = 320 - 4x = 0$

or, $4x = 320$

or, $x = 80$

$\frac{d^2y}{dx^2} = -4$, which is negative. Therefore profit is maximum at x = 80 units.

Maximum profit = $320\ (80) - 2(80)^2 - 12$

$= 25600 - 12800 - 12$

$= 12788$

12.(a) Describe demand forecasting. State the factors involved in demand forecasting.

(b) State the features of perfect competition market.

Answer:

(a) Demand Forecasting: Expecting future demand for a product is called "Demand Forecasting". This estimate is made considering various factors like controllable and non-controllable and present and anticipated market conditions. Accurate forecasting is essential for a firm to enable it to produce the required quantities at the right time and arrange well in advance for the various factors of production viz., material, money, men, management, machinery etc. Demand forecasting is not a speculation. It cannot be hundred per cent correct. But it gives a reliable information and estimation of future demand. It is based on mathematical law of probability. Business planning is based on forecasting of sales or demand. Most of the business decisions depend on the basis of expected sales in future. The success of business is also influenced by the accuracy of forecasted reports. A firm can maximise profits only when it produces on the basis on the demand for its products. There will be no problem of over and under production if the figure of sales forecasts or demand forecasts is accurate. As it will reduce or have control over costs, the profits will certainly go up. Hence, the importance of forecasting is more or less depends upon the nature of business.

Factors involved in Demand Forecasting:

1. Time factor: Forecasting may be done for short-term or long-term. Short-term forecasting is generally taken for one year while long-term forecasting covering a period of more than 1 year.
2. Level factor: Demand forecasting may be undertaken at three different levels.
    a. Macro level: It is concerned with business conditions over the whole economy.
    b. Industry level: Prepared by different industries.
    c. Firm-level: Firm-level forecasting is the most important from managerial view point.
3. General or specific purpose factor: The firm may find either general or specific forecasting or both useful according to its requirement.
4. Product: Forecasting varies type of product i.e., new product or existing product or well established product.
5. Nature of the product: Goods can be classified into — (i) consumer goods and (ii) producer goods. Demand for a product will be mainly dependent on nature of the product. Forecasting methods for producer goods and consumer goods will be different accordingly.
6. Competition: While making forecasting, market situation and the product position in particular market should be analyzed.
7. Consumer Behaviour: What people think about the future, their own personal prospects and about products and brands are vital factors for firm and industry.

(b) Features of perfect competition market:

1. There must be large number of Buyers and sellers.
2. In perfect competition, the goods produced by different firms are homogenious or identical.
3. In perfect competition there is free entry and exit of the firms into the industry.
4. The buyers and the sellers must have the knowledge with regard to the prices of various commodities at different supply and demand forces.
5. The factors must be mobilized from those places where they are getting less remuneration to those places where they will get maximum remuneration.

6. All commodities are identical in perfect competition. So the prices of the commodities are also uniform.
7. In order to maintain the uniform price level in perfect competition we should not include the transport cost in the price level.
8. There is a difference between firm and industry under perfect competition. Firm is a production unit and where as industry is a group of firms.

13.(a) What is the essence of ERM? What is the actual need for implementing ERM?

(b) What is Risk Mapping? Briefly explain. State the benefits of Risk Mapping.

Answer:

(a) The Enterprise Risk Management (ERM) is defined as "a process, affected by an entity's Board of Directors, management and other personnel, applied in strategy setting and across the enterprise, designed to identify potential events that may affect the entity and manage risk to be within its risk appetite, to provide reasonable assurance regarding the achievement of entity objectives". It is a structured and embedded approach that supports the alignment of strategy, processes, people, technology, and knowledge with the purpose of evaluating and managing the uncertainties an organization faces as it creates value. In so doing equip the organization with quality management information to make decisions more effectively and with more confidence."

The essence of ERM is built around the pragmatic use of risk management as an effective management tool and to be a significant driver of value. In today's economic climate, the demand for a more comprehensive approach to risk management to ensure that risks and opportunities are systematically identified and the risk responses are developed has never been more critical.

ERM is about designing and implementing capabilities for managing the risks that matter. The greater the gaps in the current state and the desired future state of the organizations risk management capabilities, the greater the need for ERM infrastructure to facilitate the advancement of risk management capabilities over time. ERM is about establishing the oversight, control and discipline to drive continuous improvement of an entity's risk management capabilities in a changing operating environment.

ERM deals with risk and opportunities affecting value creation or preservation. ERM is a comprehensive and integrated approach to addressing corporate risk. ERM enables management to effectively deal with uncertainty and associated risk and opportunity, enhancing the capacity to build value.

Need for Implementation of ERM:

ERM needs to be implemented for the following reasons:

1. Reduce unacceptable performance variability.
2. Align and integrate varying views of risk management.
3. Build confidence of investment community and stakeholders.
4. Enhance corporate governance.
5. Successfully respond to a changing business environment.

6. Align strategy and corporate culture.

Traditional risk management approaches are focused on protecting the tangible assets reported on a company's Balance Sheet and the related contractual rights and obligations. The emphasis of ERM, however, is on enhancing business strategy. The scope and application of ERM is much broader than protecting physical and financial assets. With an ERM approach, the scope of risk management is enterprise-wide and the application of risk management is targeted to enhancing as well as protecting the unique combination of tangible and intangible assets comprising the organization's business model.

(b) Risk Mapping:

Risk Mapping is the first step in operational risk measurement, since it requires identifying all potential risks to which the bank is exposed and then pointing out those on which attention and monitoring should be focused given their current or potential future relevance for the bank. While the risk mapping process is sometimes identified with the usual classification of operational risks in a simple frequency/severity matrix, what is really needed to map bank's internal processes in order to understand what could go wrong, where and why, to set the basis for assessing potential frequency and severity of potential operational events and to define a set of indicators that can anticipate problems based on the evolution *of* the external and internal environments.

Risk mapping is the process of identifying, quantifying and prioritizing the risks that may interfere with the achievement of your organizational objectives.

The aim of Risk mapping is to arrive at a clear set of action plans that improve risk management controls, in areas where these are necessary and help the management of the organization's direct resources.

Benefits of Risk Mapping: The following are some of the benefits of Risk Mapping:

- Promotes awareness of significant risks through priority ranking, facilitating the efficient planning of resources
- Enables the delivery of solutions and services across the entire risk management value chain.
- Serves as a powerful aid to strategic business planning
- Aids the development of an action plan for the effective management of significant risks
- Assigns clear responsibilities to individuals for the management of particular risk areas
- Provides an opportunity to leverage risk management as a competitive advantage
- Facilitates the development of a strategic approach to insurance programme design
- Supports the design of the client's financing and insurance programmes, through the development of effective/optimal retention levels and scope of coverage etc.,

14.(a) Using Altman's Multiple Discriminant Function, calculate Z-score of S & Co. Ltd., where the five accounting ratios are as follows and comment about its financial position:
Working Capital to Total Assets = 0.250
Retained Earnings to Total Assets = 50%
EBIT to Total Assets = 19%
Book Value of Equity to Book Value of Total Debt = 1.65

Sales to Total Assets = 3 times

(b) From the information given below relating to Unfortunate Ltd., calculate Altman's Z-score and comment:

$\left(\frac{\text{Working capital}}{\text{Total assets}}\right) = 0.45$

$\left(\frac{\text{Retained earnings}}{\text{Total assets}}\right) = 0.25$

$\left(\frac{\text{Earnings before interest \& taxes}}{\text{Total assets}}\right) = 0.30$

$\left(\frac{\text{Market value of equity}}{\text{Book value of total debt}}\right) = 2.50$

$\left(\frac{\text{Sales}}{\text{Total assets}}\right) = 3 \text{ times}$

Answer:

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

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

Here, the five variables are as follows:
X_1 = Working Capital to Total Assets = 0.250
X_2 = Retained Earnings to Total Assets = 0.50
X_3 = EBIT to Total Assets = 0.19
X_4 = Book Value of Equity Shares to Book Value of Total Debt = 1.65
X_5 = Sales to Total Assets = 3 times

Hence, Z-score = (0.717 x 0.25) + (0.847 x 0.50) + (3.107 x 0.19) + (0.420 x 1.65) + (0.998 x 3)
= 0.17925 + 0.4235 + 0.59033 + 0.693 + 2.994 = 4.88

Note: As the calculated value of Z-score is much higher than 2.9, it can be strongly predicted that the company is a non-bankrupt company (i.e., non-failed company).

(b) As per Altman's Model (1968) of Corporate Distress Prediction:

$Z = 1.2 X_1 + 1.4 X_2 + 3.3 X_3 + 0.6 X_4 + 1.0 X_5$

Here, the five variables are as follows:

X_1 = Working Capital to Total Assets = 0.45

X_2 = Retained Earnings to Total Assets = 0.25

X_3 = EBIT to Total Assets = 0.30

X_4 = Market Value of Equity Shares to Book Value of Total Debt= 2.50

X_5 = Sales to Total Assets = 3 times

Hence, Z-score = (1.2 x 0.45) + (1.4 x 0.25) + (3.3 x 0.30) + (0.6 x 2.50) + (1 x 3)

= 0.54 + 0.35 + 0.99 + 1.50 + 3 = 6.38

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

15.(a) "Risk Management Process refers to the process of measuring or assessing risk and then developing strategies to manage risk." Discuss the steps, which are taken to minimize the risk.

(b) Write a short note on Value at Risk (VaR).

Answer:

(a) Risk Management Process refers to the process of measuring or assessing risk and then developing strategies to manage risk. In the risk management, the following steps are taken up to minimize the risk;

Step 1: Risk Identification and Assessment:
This step involves event identification and data collection process. The institution has to put in place a system of capturing information either through key risk drivers (KRIs) or through a rating system. Once risks are identified, combine like risks according to the following key areas impacted by the risks — people, mission, physical assets, financial assets, and customer/ stakeholder trust.

Step 2: Risk Quantification and Measurement:
The next step is to Quantify and Measure risks-tins means Rate risks according to probability and impact. Various standard tools are used by financial institutions to measure risk and understand their impact in terms of capital or its importance to the organization through a scoring technique.

Step 3: Risk Analysis, Monitor and Reporting:
The next step is risk analysis, monitoring and reporting. This will help one to get the big picture and decided on the approach to risk management.

Step 4: Capital Allocation:
Risk Analysis, Monitoring & Reporting sends information to the top management of the organization to take strategic decisions. Capital allocation plays key role in management decision making.

Step 5: Risk Management and Mitigation:
After the above step, the last step is to make strategic decisions to manage the risk in order to mitigate free risks.

(b) Value at Risk:
Value at Risk (VaR) is one of the popular methods of measuring financial risks. There are different types of VaR— long-term VaR, marginal VaR, factor VaR, and shock VaR is also

defined as the threshold value such that the probability of a portfolio making a market to a market loss over a specific time horizon exceeds this value. For example, if a portfolio stock has a one day 3 per cent VaR of ₹ 10 million, there is 0.03 probability that the portfolio may face a reduction in value by more than ₹ 10 million over a specific time period. This is on assuming that normal market operations and there is no trading. A loss which exceeds VaR threshold is known as 'VaR break'. VaR has applications in financial risk management, risk measurement, control and reporting. It can also be used in calculating regulatory capital.

VaR essentially identifies the boundary between normal days and extreme occurrences. The probability level is specified as 1 minus probability of a VaR Break. Normally VaR parameters are 1 per cent and 5 per cent probabilities and 1 day and 2 week horizons. While VaR represents loss, a negative VaR would indicate that a portfolio has a high probability for making profits.

There are two types of VaR — one is applied primarily in risk management and the other in risk measurement. For a manager who is managing financial risk, VaR is essentially a system and not just a number as it runs periodically and is compared with the movement of computed prices in opening positions over the particular time horizon. An interesting application of VaR is the governance of endowments, trusts and pension plans. VaR utilized for this purpose is to monitor risk.

VaR has the advantage of a structured methodology for critically analyzing a risk that is available as part of management function. Daily publication of a number on time and with particular statistical data enables an organization to maintain a high objective standard. However, robust backup systems and assumptions regarding default need to be established.

Another advantage of VaR is that it differentiates risks into two regimes, that is, normal days and extreme occurrences. Inside the VaR limit, application of the conventional statistical methods is reliable. Out VaR limit risk should be analyzed with stress testing on the basis of data available on the long-term and in the broad market. Distribution losses beyond VaR point are both impossible and useless. As such the finance manager should concentrate on developing plans to limit the loss if possible or to survive the loss.

VaR as a risk measurement is usually reported with other risk measurements such as standard deviation, expected shortfall, partial derivatives of portfolio value, etc.

Application of VaR is to segregate extreme occurrences in a systematic way. They can be studied over the long-term in a qualitative manner on the basis of day-to-day movement of prices, both quantitatively and qualitatively. As VaR can at best be utilized to define risk as a market to market loss on a fixed portfolio over a fixed time horizon in normal markets, it is not useful in abnormal situations.

There has been criticism against VaR. It is said that this concept has led to excessive risk taking and leveraging by financial institutions. Again VaR is not sub-additive which means that VaR of a combined portfolio can be larger than the sum of the VaRs of its components.

Section B: Business Valuation

16. Multiple choice questions with justification wherever necessary:

(i) The risk-free rate = 5.5%, the market price of risk = 7%, the company's beta = 1.2, then Cost of equity will be?

(A) 12.5%
(B) 13.6%
(C) 13.7%
(D) 13.9%.

(ii) A major advantage of Price/Sales ratio is that:
(A) It can be used to value firms with negative earnings.
(B) It can be used to value firms with negative net worth.
(C) Both (A) and (B) above.
(D) It can be used effectively in cyclical industries.

(iii) Under _____ method, increasing shareholders wealth is given maximum importance.
(A) Economic Value Added
(B) Constant growth FCFE model
(C) Dynamic true growth model
(D) Variable growth FCFE model

(iv) A company with PAT of ₹40 lacs, tax rate 50%, RONW of 100%, Reserves of ₹30 lac and a par value of ₹5 will have pre-tax EPS of:
(A) ₹4.00
(B) ₹80.00
(C) ₹40.00
(D) Insufficient information

(v) Kalinga Cements Ltd. earned free cash flow to Equity Shareholders during the financial year ending 2018 at ₹ 4.5 lakhs and its cost of equity is 13% with a projected earnings growth rate of 10%. The market value of debt is ₹ 50 lakhs. The value of firm as per constant Growth Valuation Model will be:
(A) ₹ 4,50,00,000
(B) ₹ 1,45,00,000
(C) ₹ 1,50,00,000
(D) ₹ 1,65,00,000.

(vi) An investment is risk free when actual returns are always ……..the expected returns.
(A) equal to
(B) less than
(C) more than
(D) depends upon circumstances

(vii) In valuing a firm, the…….tax rate should be applied to earnings of every period.
(A) marginal
(B) effective
(C) average
(D) maximum

(viii) In the context of an acquisition of a firm, which one of the following concepts of value is least relevant?
(A) Market Value
(B) Opportunity Cost
(C) Synergy Value
(D) Value Gap

(ix) Shareholders of target companies are typically paid in
(A) Government bonds held by the target company
(B) Government bonds held by the acquiring company
(C) Cash and / or shares of the acquiring company
(D) None of the above.

(x) Assume that in a Stock Market, the CAPM is working. A company has presently beta of 0.84 and its going to finance its new project through debt. This would increase its Debt / Equity Ratio to 1.56 from the existing 1.26. Due to increased Debt / Equity Ratio, the Company's beta would:
(A) Increase
(B) Decrease
(C) Remain unchanged
(D) Nothing can be concluded.

Answer:
(i) (D) 13.9%
Cost of Equity = 5.5% + 7% (1.2)
= 13.9%

(ii) (C) Both (A) and (B) above.
Price/Sales ratio is the multiplication of P/E ratio to profit margin. It can be used to value firms with negative earnings and negative net worth

(iii) (A) Economic Value Added.
The theory of Economic Valued Added has traditionally suggested that every company's primary goal is to maximize the wealth of shareholders

(iv) (C) ₹40.00.
PBT = 80 lac, i.e. 40/5, RONW = PAT/NW = 40/NW = 100%, So NW = 40lac, Value of equity shares = 40-30 = 10 lac, No. of Shares = 10/5 = 2 lac, so Pre tax EPS = 80/2 = 40Lac

(v) (D) ₹ 1,65,00,000.
According to the constant growth valuation model,
$V_0 = (FCFF)_1 / (K_e - g)$
Where $FCFF_1 = FCFF_0(1+g)$
$V_0 = 4,50,000 \times 1.10/(0.13-0.10)$
$V_0 = 495000/0.03$
V_0 = ₹ 1,65,00,000.

(vi) (A) equal to.

(vii) (A) marginal.

(viii) (B) Opportunity Cost

(ix) (C) Cash and / or shares of the acquiring company

(x) (C) Remain unchanged, because as per CAPM the company specific risk has no impact on the systematic risk.

17.(a) From the following details, compute the total value of human resources of the employee group skilled and unskilled, using Lev and Schwartz (1971).

	Particulars	Skilled	Unskilled
1	Annual average earning of an employee till the retirement age	₹ 80,000	₹ 40,000
2	Age of retirement (years)	65	60
3	No. of employees in the group	40	100
4	Average age (years)	62	58
5	Discount rate	12%	12%

PV of ₹ 1 @ 12% discounting rate:

Year	P.V. @ 12%
1	0.8929
2	0.7972
3	0.7118

(b) How do you relate coupon rate, required yield and price?

Answer:

(a)

Particulars	Skilled	Unskilled	Total
Annual average earning of an employee till the retirement age (₹)	80,000	40,000	
Age of retirement (years)	65	60	
Average age (years)	62	58	
Years left for an employee	3	2	
Present value of annuity for the remaining years at 12%	2.4019	1.6901	
Present Value of an employee (₹)	1,92,152	67604	
Number of employees	40	100	
Total Value of the groups (₹)	76,86,080	67,60,400	1,44,46,480

(b) As the expected yield changes in the market place, prices of bonds change to reflect the new required yield. When the required yield on a bond rises above its coupon rate, the bond sells at Discount. When the required yield on a bond falls below its coupon rate, the bond sells at a premium. We can summarize the relationship between coupon rate, required yield and prices as follows:

Coupon rate < Required yield = Price < par value (Discount bond)

Coupon rate = required yield = Price = Par value (At par bond)

Coupon rate > required yield = Price > par value (Premium bond)

18.(a) A Ltd., is considering the acquisition of B Ltd., with stock. Relevant financial information is given below:

Particulars	A Ltd.	B Ltd.
Present earnings (₹)	7.5 Lakhs	2.5 Lakhs
Equity (no. of shares)	4.0 lakhs	2.0 Lakhs
EPS (₹)	1.875	1.25
P/E ratio	10	5

Answer the following questions:

(i) What is the market price of each company?

(ii) What is the market Capitalization of each company?

(iii) If the P/E of A Ltd., changes to 7.5. What is the market price of A Ltd.?

(iv) Does market value of A Ltd., change?

(v) What would be the exchange ratio based on Market Price? (Take the revised price of A Ltd.)

(b) The shareholders of A Co. Ltd., have voted in favour of a buyout offer from B Co. Ltd. Information about each firm is given here below. Moreover, A Co. Ltd.'s shareholders will receive one share of B Co. Ltd. Stock for every three shares they hold in A Co. Ltd.

Particulars	B Co. Ltd.	A Co. Ltd.
Present earnings (in ₹)	6.75	3.00
EPS (in ₹).	3.97	5.00
Number of share (Lakhs)	1.70	0.60
P/E ratio	20	5

(i) What will the EPS of B Co. Ltd., will be after the merger? What will the PE ratio if the NPV of the acquisition is zero?

(ii) What must B Co. Ltd. feel would be the value of the synergy between these firms?

Answer:

(a) (i) P/E = Market Price/EPS.
Therefore we have, Market Price = P/E x EPS
A Ltd.'s Market Price = 10 x 1.875 = ₹ 18.75.
B Ltd.'s Market Price = 5 x 1.25 = ₹ 6.25.

(ii) Market Capitalization (same as market value or in short referred to as market cap)
= Number of outstanding shares x market price
A Ltd.'s Market cap = 4.0 lakhs x ₹ 18.75 = ₹ 75 Lakhs.
B Ltd.'s Market cap = 2.0 Lakhs x ₹ 6.25 = ₹ 12.5 Lakhs.

(iii) If the P/E of A Ltd., changes to 7.5, then the market price is given by
= 7.5 x ₹ 1.875 = ₹14.0625.

(iv) Yes. The market value decreases, i.e., = A Ltd.'s market value = 4.0 lakhs x ₹ 14.0625 = ₹ 56.25 Lakhs.

(v) General Formula for exchange ratio = MPS of Target Firm / MPS of acquiring Firm
= 6.25/14.0625 = 0.44.

(b) (i) The EPS of the combined company will be the sum of the earnings of both companies divided by the shares in the combined company. Since the stock offer is one share of the acquiring firm for three shares of the target firm, new shares in the acquiring firm will increase by one-third (Exchange ratio = 1/3)
So, the new EPS will be = (₹ 3,00,000 + 6,75,000) / [1,70,000 + (1/3)(60,000)]
= (9,75,000/1,90,000) = ₹ 5.132.
The market price of B Co will remain unchanged if it is a zero NPV acquisition. Using the P/E ratio, we find the current market price of B. Co stock, which is = P/E x EPS = 20 x (6.75 lakhs / 1.70 lakhs) = 20 x (3.97) = ₹79.40

If the acquisition has a zero NPV, the stock price should remain unchanged.
Therefore, the new P/E will be = P/E= ₹79.40 / ₹5.132 = 15.47.

(ii) If the NPV of the acquisition is zero, it would mean that B Co. would pay just the market value of A Co. i.e., Number of shares x market price of A Co. i.e.,
= 60,000 x 25 (MPS = P/E x EPS = 5 x 5 =25)
The market value received by B Co. = ₹ 15,00,000.
The cost of the acquisition is the number of shares offered times the share price, so the cost is = (1/3) (60,000) (₹ 79.40) = ₹ 15,88,000.
The difference is synergy i.e., ₹ 88,000.

19.(a) Discuss the steps involved in valuing a firm under Discounted Cash Flow Method.
(b) Why discounted cash flow method is not appropriate for valuation of real estate.

Answer:
(a) Steps in valuing firm under Discounted Cash Flow Method:

(I) Computation of Free Cash Flows for the forecast period. Free cash flow is the post tax cash flow generate from operations of the company after providing for investments in fixed capital and net working capital required for operations of the firm. Thus it is the cash flow available for distribution to shareholders (by way of dividend and buyback of shares) and lenders (by way of interest payment and debt repayment). Symbolically, free cash flow = Net income (+) Depreciation (+ / -) Non Cash items (-) changes in Working Capital (-) Capital expenditure (+) (New debt issues – repayment of debt) (-) preference dividends.

(II) Determination of Discount Rate for estimating present value. In general, the cost of capital is appropriate discount rate.

(III) Computation of Present Value of cash flows. The free cash flows are discounted using appropriate discount rate

(IV) Estimation of Terminal Value, i.e., present value of cash flows occurring after the forecast period.

(V) Value of firm = It is aggregate of the present value of free cash flows and the terminal value.

(b) Discounted Cash Flow (DFC) Method of valuation is not appropriate for valuation of real estate due to following reasons:

(1) Difficult to estimate discount rates for most real estate investments.
(2) Estimating cash flows for the time horizon is tedious and difficult to do, as is the estimation of the terminal value.
(3) DCF does not reflect market conditions – that the market is strong or weak at the time of valuation.

The third argument can be rejected at two levels. On one level, cash flows should reflect the market conditions, since they will be higher (higher rents and lower vacancy rates) and grow faster in strong market conditions. On the other hand, any additional value being assigned by the market beyond the cash flow levels can be considered to be 'overvaluation' and should not be built into the appraised value in the first place.

20.(a) What are different methods valuing self generated brands.
(b) What do you mean by LIFO Reserve?

Answer:

(a) Important methods in valuation of self generated brands are discussed below:

(I) Historical cost method: Here Brand value is the sum total of Brand Development cost + Brand Marketing and Distribution cost + Brand Promotion cost including advertising and other cost.
(II) Replacement Price Model: It is the opportunity cost of investment made for replacement of brand, Brand Value = Replacement Brand Cost.
(III) Market Price Model: Here Brand value is net realizable value on sale in the market.
(IV) Current Cost Model: According to this approach the current corporate brands are valued at the current value to the group which is reviewed annually and not subject to amortization.
(V) Potential Earning Model: The potential earning model is based on the estimated potential earning that would be generated by a brand and their capitalization by using appropriate discount rate. The volume of revenues raised by a brand in the market determines its value.

Total market value of brand = Net brand revenue / capitalization rate
Net – Brand revenue = (Brand units x Unit brand price) – (Brand units x Unit brand cost) – (Marketing cost + R & D cost + tax costs.

(b) Companies that use LIFO for determining their balance sheet valuation of inventory nevertheless keep their detailed inventory records on a FIFO or average cost basis. The inventory amounts on these other bases usually will be higher than the LIFO valuation shown on the balance sheet. At the end of each accounting period, the difference between the LIFO valuation and the FIFO or average cost valuation is determined. This difference is sometimes called the LIFO reserve. The terminology is unfortunate because "reserve" suggests something set aside or saved for some special future purpose. The LIFO reserve is nothing more than the mathematical difference between two inventory amounts, one based on LIFO and the other one based on a different method of valuing inventory. LIFO companies disclose their LIFO reserve in the notes for their financial

statement.

21.(a) A PSU is proposing to sell a 8 years bond of ₹1,000 at 10% coupon rate per annum. The bond amount will be amortized equally over its life. If an investor has a minimum required rate of return of 8%, what the bond's present value? If this bond sells at ₹1100, should an investor buy this bond?

(b) Consider a bond selling at its par value of ₹1,000, with 6 years to maturity and a 7% coupon rate (with annual interest payment), what is bond's duration? If the YTM of this bond increases to 10%, how it affects the bond's duration? And why? Why should the duration of a coupon carrying bond always be less than the time to its maturity?

Answer:

(a) Discount rate is given as 8%

Year	Cash Flow	Principal Amortized	Cash Outflow	PV factor 8%	PV of Cash Flows
1	100.00	125	225.00	0.926	208.350
2	87.50	125	212.50	0.857	182.113
3	75.00	125	200.00	0.794	158.800
4	62.50	125	187.50	0.735	137.813
5	50.00	125	175.00	0.681	119.175
6	37.50	125	162.50	0.630	102.375
7	25.00	125	150.00	0.583	87.450
8	12.50	125	137.50	0.540	74.250
Total	450	1000	1450		1070.326

The Bond's present value is ₹1070.33. Since the market value of bond is higher than the intrinsic value the investor should not buy this bond.

(b) We are given the price of the bond as ₹1000.

We also know that duration is given by:

$$D = \frac{\sum_{t=1}^{n} \frac{t \times C}{(1+i)^1} + \frac{n \times M}{(1+i)^n}}{P}$$

Where

n = number of cash flows = 6

t = time to maturity = 6

C = Coupons - ₹ 70

i = required yield =7%

M = maturity (par) value = 1000

P = bond price = ₹1000

D = Required

$$D = \frac{\frac{1\times 70}{1.07} + \frac{2\times 70}{(1.07)^2} + \frac{3\times 70}{(1.07)^3} + \frac{4\times 70}{(1.07)^4} + \frac{5\times 70}{(1.07)^5} + \frac{6\times 70}{(1.07)^6} + \frac{6\times 100}{(1.07)^6}}{1000} = 5.098 \text{ years}$$

If the YTM increases to 10%, then the coupons would be re-invested at higher rates, thereby decreasing the time required for getting the initial investment. Hence, duration, which is nothing but, weighted discounted payback period, decreases. We can re-calculate to verify the same:

$$D = \frac{\frac{1\times 70}{1.1} + \frac{2\times 70}{(1.1)^2} + \frac{3\times 70}{(1.1)^3} + \frac{4\times 70}{(1.1)^4} + \frac{5\times 70}{(1.1)^5} + \frac{6\times 70}{(1.1)^6} + \frac{6\times 1000}{(1.1)^6}}{1000} = 5.025 \text{ years}$$

1000 The term duration is a measurement of how long in years it takes for the price of a bond to be repaid by its internal cash flows. In a zero coupon bond we do not receive any intermediate cash flows and the entire money is available only on maturity, and hence duration of a Zero-Coupon Bond is equal to maturity period. On the same lines since coupon bonds, pays coupons (intermediate interest), we get our price much earlier to maturity period. Moreover, we receive the re-investment income too. Therefore, duration of a coupon bond will always be less than its maturity period.

22.(a) Shares of A Ltd. is currently quoted at ₹ 40/-. Dividend expected offer 1 year is ₹ 8, which is expected to grow by 8% p.a. Their standard deviation of the return from the security is 4%. Co-relation Coefficient is 0.6 and the market standard deviation is 3%.
Determine expected return from Government securities is return from market portfolio is 22%

(b) X Ltd. earns ₹ 8 per share. Market role of return is 12% and risk free return is 8%. Beta of shares is 1.50. Suggest whether an investor should buy the shares at current price of ₹ 40/-.

Answer:

(a) Cost of Equity (dividend growth model) = $\frac{Rs.8}{Rs.40}$ + 0.08 = 0.28

Security Beta = B_1
Co-relation Co-efficient = $P_{1m} = 0.06$
Standard deviation of security return = 6_1
Standard deviation of market return = 6_m

$B_p = P_{1m} \times \frac{6_p}{6_m}$ 0.6 x $\frac{4}{3}$ = 0.80

Using CAPM model:
$R_I = R_f + 0.8\ (0.22 - R_f) = K_e$
$0.28 = R_f + 0.8\ (0.22 - R_f)$
$R_f = 0.10$
Or 10%

(b) Desired rate of return = 8% + 1.5 (12% - 8%) = 14%

Actual rate of return = $\frac{8}{40}$ = 20%

Equilibrium price = $\frac{8}{0.14}$ = ₹57.14

Actual price = ₹40

Suggestion:
The investor should buy the share at ₹40/-.

23.(a) A company has a capital base of ₹ 1 crore and has a earned profits to the tune of ₹11,00,000. The Return on Investment (ROI) of the particular industry to which the company belongs is 12.5%. If acquired by a company, it is expected that the profits will increase by ₹ 2,50,000 over and above the target profit. Determine the amount of maximum bid price for that particular executive and the maximum salary that could be offered to him.

(b) The following information is available of a concern; calculate E.V.A.:

Debt capital 12%	**₹ 2,000 crores**
Equity capital	**₹ 500 crores**
Reserve and Surplus	**₹ 7,500 crores**
Capital employed	**₹ 10,000 crores**
Risk-free rate	**9%**
Beta factor	**1.05**
Market rate of return	**19%**
Equity (market) risk premium	**10%**
Operating profit after tax	**₹ 2,100 crores**
Tax rate	**30%**

Answer:

(a) Capital base = ₹ 100,00,000

Actual profit = ₹ 11,00,000

Target profit = ₹ 100,00,000 x 12.5% = ₹ 12,50,000

Expected profit on employing the particular executive = ₹ 12,50,000 + ₹ 2,50,000
= ₹ 15,00,000

Additional profit = Expected profit - Actual profit
= ₹ 15,00,000- ₹ 11,00,000
= ₹4,00,000

Maximum bid price = Additional profit / rate of return
= ₹ 4,00,000/12.5% = ₹ 32,00,000

Maximum salary that can be offered = ₹32,00,000 x 12.5% = ₹ 4,00,000.

(b) E.V.A. = NOPAT – COCE
NOPAT = Net Operating Profit after Tax
COCE = Cost of Capital Employed
COCE = Weighted Average Cost of Capital x Average Capital Employed
= WACC x Capital Employed

Debt Capital		₹ 2,000 crores
Equity capital 500 + 7,500	=	₹ 8,000 crores
Capital employed	=	2,000 + 8,000 = ₹10,000 crores
Debt to capital employed	=	$\frac{2,000}{10,000}$ =0.20
Equity to capital employed	=	$\frac{8,000}{10,000}$ =0.80
Debt cost before tax		12%

Less: Tax (30% of 12%) 3.6%
Debt cost after Tax 8.4%
According to capital Asset Pricing Model (CAPM)
Cost of Equity Capital = Risk Free Rate + Beta x Equity Risk Premium
Or
= 9 + 1.05 x ((19-9)
= 9 + 1.05 x 10 = 19.5%
WACC = Equity to CE × Cost of Equity capital +Debt to CE × Cost of Debt
= 0.8 × 19.5% + 0.20 × 8.40%
= 15.60% + 1.68% = 17.28%
COCE = WACC × Capital employed
= 17.28% × 10,000 crores =1728 crores
E.V.A. = NOPAT – COCE
= (₹ 2,100 – ₹ 1,728) crores = ₹ 372 crores.

24.(a) A Ltd. for acquiring B Ltd. intends to pay ₹ 12,00,000 (i) by cash (ii) by issue of shares. The relevant particulars about the companies are stated below:

Particulars	A Ltd.	B Ltd.
Market price per share (₹)	**50**	**20**
No. of shares	**1,20,000**	**50,000**

Three alternative situations are assumed:

(i) Share price is expected to reflect true value of the company. There is no gain for synergy in acquisition.

(ii) B Ltd. share price includes a speculation premium of ₹ 2 per share.

(iii) There is a gain for synergy amounting to ₹ 4,00,000. You are required to measure cost/gain to the bidder company for each of the methods of financing acquisition under each of the alternative situations.

(b) Explain Relative Valuation and give the steps in Relative Valuation.

Answer:

(a)

	Particulars	A Ltd.	B Ltd.	Merged
	Market price per share (₹)	50	20	
	No. of shares	1,20,000	50,000	
	Market Value of the company (₹)	60,00,000	10,00,000	70,00,000
	Cash Payment (₹)		12,00,000	
Aa	Cost to bidder company (₹) (12,00,000 – 10,00,000)		2,00,000	
Ab	Worth of B Ltd. (₹) (20-2) × 50,000		9,00,000	
	Cost to bidder company (₹) (12,00,000 – 9,00,000)		3,00,000	
Ac	Gain due to synergy (₹)			4,00,000
	Value of the merged company (₹)	70,00,000 + 4,00,000		74,00,000
	Cash Payment (₹)			12,00,000
	Worth of the bidder company (₹)	74,00,000-12,00,000		62,00,000
	Market Value of the bidder company before merger(₹)			60,00,000

	Gain to bidder company (₹)	62,00,000-60,00,000		2,00,000
Ba	Payment by shares (₹)		12,00,000	
	Cost to bidder company (₹) (12,00,000 – 10,00,000)		2,00,000	
Bb	Payment by shares (₹)		12,00,000	
	Cost to bidder company (₹)(12,00,000 – 9,00,000)		3,00,000	
Bc	No. of Shares to be issued by A Ltd.	12,00,000/50		24,000
	Value of the merged company (₹)	70,00,000+4,00,000		74,00,000
	Total No. of shares of the merged company	1,20,000 + 24,000		1,44,000
	Value per share (₹)	74,00,000/1,44,000		51.3889
	Value of 120000 shares of A Ltd (₹)	1,20,000×51.3889		61,66,668
	Gain to the bidder company (₹)	(61,66,668 – 60,00,000)		1,66,668

(b) Relative Valuation:

(i) This approach is based on the premise that the value of any asset can be estimated by analyzing how the market prices 'similar' or 'comparable' assets. The basic belief here is that it is impossible or extremely difficult to estimate the intrinsic value of an asset, and therefore, the value of an asset is whatever the market is willing to pay for it.

(ii) Most valuations in the Stock Market are relative valuations

(iii) The following data relating to the US Stock Market are quite revealing:
   (1) Almost 85% of equity research reports are based upon a multiple and comparables.
   (2) More than 50% of all acquisition valuations are based upon multiples.
   (3) Rules of thumb based on multiples are not only common but are often the basis for final valuation judgments.

Steps in Relative Valuation:

(i) The following steps have to be followed in carrying out relative valuation:
   (1) Identify comparable assets and obtain market values for these assets.
   (2) Convert these market values into standardized values, since the absolute prices cannot be compared. This process of standardizing creates price multiples.
   (3) Compare the standardized value or multiple for the asset being analyzed with the standardized value for comparable asset, adjusting for any differences between the firms that might affect the multiple, to judge whether the asset is under or overvalued.

(ii) The most commonly used multiples are:
   (1) Revenue or sales multiples
   (2) EBITDA multiples
   (3) Operational multiples
   (4) Operating free cash flow multiples
   (5) Earnings multiples
   (6) Book value multiples.

25.(a) Distinguish between equity value and enterprise value of a company.

(b) Explain the steps in Valuation of Brand.

Answer:

(a) While both equity value and enterprise value serve the purpose of putting a value on the company, they are calculated differently and give a slightly different picture of the company's price tag.

The equity value / market cap is defined simply as the total value of all outstanding stock for the company. Since the ownership of a public company lies in its outstanding shares, the theoretical price to buy the entire company would be the price of a single share of stock multiplied by the number of shares currently outstanding.

The enterprise value jumps off the back of the equity value and calculates what the company is worth net of the amount of cash and debt that the company has on its balance sheet. This is important to look at since, if anyone were to actually buy an entire company, they inherit both the cash and the debt of the company.

Valuation of Equity / Equity Value = Common Shares Outstanding × Share Price

Enterprise Value = Equity Value – Cash + Debt + Minority Interest + Preferred Stock

(b) Steps in Valuation of Brand:

(i) Market segmentation: Brands influence customer choice, but the influence varies depending on the market in which brand operates. For valuation we need to split brand's market into non-overlapping and homogeneous groups of consumers according to applicable criteria such as product or service, distribution channels, consumption patterns, purchase sophistication, geography existing and new customers and so on. The brand is valued in each segment and the sum of the segments constitutes the total value of the brand.

(ii) Financial analysis: Identify and forecast revenue and earnings from intangibles generated by the brand for each of the distinct segments determined in step – 1. Intangibles earnings are defined as brand revenue less operating costs, applicable taxes and a charge for the capital employed. The concept is similar to the economic profit.

(iii) Demand analysis: Assess the role that the brand plays in driving demand for products and services in the markets in which it operated and determine what proportion of intangible earning is attributable to the brand measured by an indicator referred to as the 'role of branding index'. The role of branding index represents the percentage of intangible earnings that are generated by the brand. Brand earnings are calculated by multiplying the role of branding index by intangible earnings.

(iv) Competitive benchmarking: Determine the competitive strengths and weakness of the brand to derive the specific brand discount rate that reflects the risk profile of its expected future earnings. This comprises extensive competitive benchmarking and a structured evaluation of the brand's market, stability, leadership position, growth trend, support geographic footprint and legal protect ability.

(v) Brand value measurement: Brand value is the net present value (NPV) of the forecast brand earnings, discounted by the brand discount rate. The NPV calculation comprises

both the forecast period and the period beyond, reflecting the ability of brands to continue generating future earnings.

This computation is useful for brand value modeling in a wide range of situations, viz.,

- Predicting the effect of marketing and investment strategies;
- Calculating the return on brand investment;
- Calculating the return on brand investment;
- Focus it as an icon of quality and customer loyalty;
- Assessing opportunities in new or unexpected markets; and
- Tracking brand value management and its consequential effect on business value and overall corporate image.

26. J Co. Ltd. is studying the possible acquisition of K Co. Ltd., by way of merger. The following data are available in respect of the companies:

Particulars	J Co. Ltd.	K Co. Ltd.
Earnings after tax (₹)	80,00,000	24,00,000
No. of equity shares	16,00,000	4,00,000
Market value per share (₹)	200	160

(i) If the merger goes through by exchange of equity and the exchange ratio is based on the current market price. What is the new earning per share for J co. Ltd?

(ii) K Co. Ltd. wants to be sure that the earnings available to its shareholders will not be diminished by the merger. What should be the exchange ratio in that case?

Answer:

(i) Calculation of new EPS of J Co. Ltd.

No. of equity shares to be issued by J Co. Ltd. to K Co. Ltd.

= 4,00,000 shares × ₹1.6/₹2.0 = 3,20,000 shares

Total No. of shares in J Co. Ltd. after acquisition of K Co. Ltd.

= 16,00,000 + 3,20,000 = 19,20,000

Total earnings after tax [after acquisition]

= 80,00,000 + 24,00,000 = 1,04,00,000

$$\text{EPS} = \frac{₹1,04,00,000}{19,20,000 \text{ equity shares}} = ₹5.42$$

(ii) Calculation of exchange ratio which would not diminish the EPS of K Co. Ltd. after its merger with J Co. Ltd.

Current EPS:

$$\text{J Co. Ltd.} = \frac{₹80,00,000}{16,00,000 \text{ equity shares}} = ₹5$$

$$\text{K Co. Ltd.} = \frac{₹24,00,000}{4,00,000 \text{ equity shares}} = ₹6$$

Exchange ratio = 6/5 = 1.20

No. of new shares to be issued by J Co. Ltd. to K Co. Ltd.

= 4,00,000 ×1.20 = 4,80,000 shares

Total number of shares of J Co. Ltd. after acquisition

= 16,00,000 + 4,80,000 = 20,80,000 shares

$$\text{EPS [after merger]} = \frac{₹1,04,00,000}{20,80,000 \text{ shares}} = ₹5$$

Total earnings in J Co. Ltd. available to new shareholders of K Co. Ltd.

= 4,80,000 ×₹5 = ₹24,00,000

Recommendation: The exchange ratio (6 for 5) based on market shares is beneficial to shareholders of 'K' Co. Ltd.

27. M Limited wants to takeover N Limited and their Summarized Balance Sheet as on March 31, 2018 are given below:

	M Limited (₹ in Crores)	N Limited (₹ in Crores)
Equity and Liabilities:		
Equity Capital - ₹ 10 each	**500**	**175**
Reserves and Surplus	**750**	**475**
Non-Current Liabilities	**250**	**85**
Current Liabilities and Provisions	**175**	**65**
Total	**1,675**	**800**
Assets:		
Non-Current Assets — Net fixed Assets	**1,130**	**435**
Current Assets	**545**	**365**
Total	**1,675**	**800**

Additional Information:

	M Limited	N Limited
(i) Profit after Tax (PAT)	**₹ 78 crores**	**₹ 35 crores**
(ii) Market Price per Share	**₹ 75.00**	**₹ 45.00**

I. Using the above information, what should be the share exchange ratio to be offered to the shareholders of N Limited by M Limited based on:

(i) Net Worth
(ii) Earnings Per Share (EPS)
(iii) Market Price

II. Suggest which one out of the above basis should be preferred by N Limited?

III. Assuming that there are no synergy gains, then determine the EPS after merger if the exchange ratio is one as suggested in (II) above.

Answer:

(I)

(₹ in crores)

	M Limited	N Limited
Calculation of Net Worth:		
Equity Capital - ₹ 10 each	₹ 500.00	₹ 175.00
Reserves and Surplus	₹ 750.00	₹ 475.00
Total Net Worth	₹ 1,250.00	₹ 650.00
No. of Shares (in crores)	50.00	17.50
Value per Share	₹ 25.00	₹ 37.14

Exchange Ratio is 37.14:25 or 1.486:1; that is 26 crores shares (1.486 x 17.50) of M Limited will be issued to the shareholders of N Limited.

(₹ in crores)

	M Limited	N Limited
Calculation of EPS:		
PAT	₹ 78.00	₹ 35.00
No. of Shares	50.00	17.50
EPS	₹ 1.56	₹ 2.00

Exchange Ratio is 2.00:1.56; or 2.00/1.56 = 1.282
It means is (17.50 × 1.282 = 22.435) crores shares of M Limited will be issued to the shareholders of N Limited.

	M Limited	N Limited
Market Price Per Share	₹ 75.00	₹ 45.00

Exchange Ratio is 45:75; or 45/75 = 0.60.
It means is (17.50 × 0.60 = 10.50) crores shares of M Limited will be issued to the shareholders of N Limited.

(II) Since the shareholders of N Limited are getting maximum number of shares - 26 crores when the Exchange Ratio is fixed as per the Book Value or Net Worth, Shareholders of N Limited will prefer fixing of the Exchange Ratio as per Net Worth.

(III)

Total PAT after Merger (78+35)	₹ 113.00
Total No. of Shares assuming that Exchange Ratio is determined as per Book Value (50+26)	76
EPS after Merger will be	₹ 1.49

28.(a) What do you mean by Takeover by Reverse Bid?

(b) From the following data calculate the cost of merger:

i) when the merger is financed by cash ii) when the merger is financed by stock

Particulars	Firm A	Firm B
Market price per share (₹)	60	15
Number of shares	1,00,000	50,000
Market value of firm (₹)	60,00,000	750000

Firm A intends to pay ₹10,00,000 cash for B if B's market price reflects only its value as a separate entity.

Answer:

(a) Reserve Merger happens when, in order to avail benefit of carry forward of losses which are available according to tax law only to the Company which had incurred them, the profit making company (Target Company, or Big Company) is merged with Companies having Accumulated Losses (Acquirer, or Small Company).

Salient Features:

1. In a 'Reverse Takeover', "Takeover by Reverse Bid" or "Reverse Merger", a smaller Company gains control of a larger one.
2. The entire undertaking of the healthy and prosperous Company (Big Company) is merged and vested in the Sick Company (Small Company) which is non-viable and whose Net Worth has eroded.
3. Reverse Takeover is also applicable to the purchase of a Listed Company by an Unlisted Company with control passing to the Shareholders and Management of the Unlisted Company. This is known as a 'Back Door Listing'.
4. A Reverse Takeover may take place by way of a Pure Equity Acquisition, also called a Share Swap.

To be a "Reverse Merger", the following conditions should be satisfied -

A. Assets of the Transferor company are greater than the Transferee Company,
B. Equity Capital to be issued by the Transferee Company pursuant to the acquisition exceeds its Original Issued Capital, and
C. There is a change of control in the Transferee Company, through the introduction of a minority holder or group of holders.

(b)

(i) Cost of merger when the merger is financed by cash:

Cost of merger = (Cash-MV_B) + (MV_B-PB_B)
Where, MV_B = Market value of share.
PB_B = Intrinsic value of Firm B
= (10,00,000 – 750000) + (750000-750000)
= ₹250000 + 0
= ₹250000.

If cost of merger becomes negative, shareholders of firm A gain higher by acquiring firm B in terms of its market value.

(ii) Cost of merger when the merger is financed by stock:

Cost of merger = α PV_B- PV_B
Where, α PV_B = Value in firm A that firm B's shareholders get.

No. of shares equivalent to ₹10,00,000 = 10,00,000/60
= 16,667

Apparent cost of merger:
16667 shares @ ₹60 = ₹1000000
Less: Value of firm B = ₹750000
Apparent cost of merger = ₹250000
PV_{AB} = PV_A + PV_B
= ₹(6000000 + 750000)
= ₹6750000.

Proportion that Firms B's shareholders get in Firm A's capital structure will be:
α = 16667 / (100000 + 16667)
= 16667 / 116667
= 0.143

True cost of merger = (6750000 x 0.143 – 750000)
= 965250 – 750000
= ₹215250

As apparent cost is more than true cost, merger is beneficial to Firm B.

29.(a) The chief executive of a Company thinks that shareholders always look for the earnings per share. Therefore, he considers maximization of the earning per share (EPS) as his Company's objective. His company's current net profit are ₹80 lakhs and EPS is ₹4. The current market price is ₹42. He wants to buy another firm which has current income of ₹15.75 lakhs, EPS of ₹10.50 and the market price per share of ₹85. What is the maximum exchange ratio which the chief executive should offer so that he could keep EPS at the current level? If the chief executive borrows funds at 15 per cent rate of interest and buys out the other Company by paying cash, how much should he offer to maintain his EPS? Assume a tax rate of 52%.

(b) A financial analyst has been asked to appraise N LTD. an IT company in terms of the future cash generating capacity. He has projected the following after – tax cash flows:

Year	**1**	**2**	**3**	**4**	**5**
Cash Flows (₹ In Lakhs)	**352**	**96**	**128**	**172**	**234**

It is further estimated that beyond 5th year, cash flows will perpetuate at a constant growth rate of 7% per annum, mainly on account of inflation. The perpetuate cash flows is estimated to ₹2,052 lakhs at the end of the 5th year.

Additionally the following informations are available:

(1) The cost of capital is 20%
(2) The company has outstanding debt of ₹ 724 lakhs and cash /bank balance of ₹ 542 lakhs.

(3) The number of outstanding shares of the company is 30.30 lakhs.

Requirements:

(I) What is the value of N LTD. in terms of expected future cash flows?
(II) Calculate the value of shareholders.
(III) The company has received a takeover bid of ₹402 per share. Is this good offer?

Answer:
(a)

(Amount in ₹)

Current data	Acquiring company	Target company
Net profit	80,00,000	15,75,000
EPS	4	10.50
Market price of share	42	85
Number of equity shares	20,00,000	1,50,000

Calculation of Share Exchange Ratio

$\frac{Combined\ \ net\ profit}{No.of\ shares}$ =4

$\frac{80,00,000+15,75,000}{20,00,000+x}$ =4

95,75,000 =80,00,000 + 4x

4x =95,75,000 / 4 = 3,93,750 shares

X = 15,75,000 / 4 = 3,93,750 shares

Share exchange ratio = 3,93,750 shares / 1,50,000 = 2.625

The acquiring company can offer its 2.625 shares against the target company's 1 share.

If funds borrowed @15% interest and buys out the target company by paying cash, and maintain the same level of EPS as before.

$\frac{80,00,000+15,75,000-0.15\ Debt\ \ (1-0.52)}{20,00,000\ shares}$ = ₹4

95,75,000 – 0.072 Debt = 80,00,000

0.072 Debt = 95,75,000 – 80,00,000

Debt = 15,75,000 / 0.072 = ₹2,18,75,000

∴CFO can offer ₹2,18,75,000 to acquire the target company.

Amount payable to each share in target company:

= ₹2,18,75,000 / 1,50,000 = ₹145.83 per share.

(b)

[Given: (PVIF at 20% for year 1 to 5): 0.833, 0.694, 0.579, 0.482, 0.402.]

(I) Present value of Cash flows for the year 1 to year 5:
352 ×0.833 + 96 × 0.694 + 128 × 0.579 + 172 × 0.482 × 234 × 0.402 = 610.92 Lakhs.
Present value of Perpetual Cash flows:

[2052 (1 + 0.07) × 0.402 = 16889.54 × 0.402 [(0.20 – 0.07)] = ₹6789.60 Lakhs

VALUE OF THE COMPANY:

₹(610.92 + 6789.60) = ₹ 7400.52 Lakhs

(II) SHARE HOLDERS VALUE:

₹7400.52 + 542 (Cash / Bank Balance) – 724 (Outstanding debt) = ₹7218.52 Lakhs.

The number of outstanding share of the company is 30.30 lakhs.

(III) VALUE PER SHARE:

7218.52 / 30.30 = 238.23

This is much lower than the takeover bid value (₹402) thus the Bid value is good offer from the point of view of the company.

30.(a) XYZ Ltd. is considering merger with ABC Ltd. XYZ Ltd.'s shares are currently traded at ₹25. It has 2,00,000 shares outstanding and its profits after taxes (PAT) amount to ₹4,00,000. ABC Ltd. has 1,00,000 shares outstanding. Its current market price is ₹12.50 and its PAT are ₹1,00,000. The merger will be effected by means of a stock swap (exchange). ABC Ltd. has agreed to a plan under which XYZ Ltd. will offer the current market value of ABC Ltd.'s shares:

(i) What is the pre-merger earnings per share (EPS) and P/E ratios of both the companies?

(ii) If ABC Ltd.'s P/E ratio is 8, what is its current market price? What is the exchange ratio? What will XYZ Ltd.'s post-merger EPS be?

(iii) What must the exchange ratio be for XYZ Ltd.'s that pre and post-merger EPS to be the same?

(b) Write a short note on impact of Merger on Value of Shares.

Answer:

(a)

(i) Pre-merger EPS and P/E ratios of XYZ Ltd. and ABC Ltd.

Particulars	XYZ Ltd.	ABC Ltd.
Profits after taxes	₹ 4,00,000	₹ 1,00,000
Number of shares outstanding	2,00,000	1,00,000
EPS (Earnings after tax/No. of shares)	₹ 2	₹ 1
Market price per share	₹ 25.00	₹ 12.50
P/E Ratio (times) (MPS ÷ EPS)	12.50	12.50

(ii) Current market price of ABC Ltd., if P/E ratio is 8 = ₹ 1 × 8 = ₹ 8

Exchange ratio = ₹ 25/8 = 3.125

$$\text{Post merger EPS of XYZ Ltd.} = \frac{₹4,00,000 + ₹1,00,000}{2,00,000\,(1,00,000 / 3.25)} = \frac{5,00,000}{2,32,000} = 2.16$$

(iii) Desired exchange ratio:

Total number of shares in post-merged company

= Post merged earnings/ Pre merger EPS of XYZ Ltd. = 5,00,000/2 = 2,50,000

Number of shares required to be issued = 2,50,000 – 200,000 = 50,000

Therefore, the exchange ratio is = 50,000/ 1,00,000 = 0.50

(b) Shareholder Value Analysis (SVA) focuses on the creation of economic value for shareholders, as measured by share price performance and flow of funds.

Shareholder Value is used to link management strategy and decision to the creating of value for shareholders.

Value Drivers: Factors or value Drivers which influence the shareholder's value are identified.

Example: Growth in sales, profit Margin, Capital Investments Decisions, etc.

Management Responsibilities: Management should pay attention to Value drivers, while taking investment and finance decisions.

Benefits:

1. SVA helps the management to concentrate on activities which create value to the shareholders rather than on short –term profitability.
2. SVA and EVA together help to strengthen the competitive position of the Firm, by focusing on wealth creation.
3. They provide an objective and consistent framework of evaluation and decision – making across all function, departments and units of the Company.