FINAL EXAMINATION
Syllabus 2016

Paper 20: STRATEGIC PERFORMANCE MANAGEMENT AND BUSINESS VALUATION (SPBV)

Time Allowed: 3 Hours **Full Marks: 100**

There are Sections A, B, C and D to be answered subject to instructions given against each.

Section A **You are required to answer all the questions. Each question carries 1 mark.** **Instructions: Each question is followed by 4 Answer choices and only one is correct.** **You are required to select the choice which according to you represents the correct answer.**					**20 × 1 = 20 Marks**
1.	**a.**	The Customer Relationship Management (CRM) which mainly supports the actual contact with customers conducted by front office workers and general automation of business processes including sales of products, services and marketing called as______________.			
		(i)	Operative CRM	A	
		(ii)	Analytical CRM		
		(iii)	Collaborative CRM		
		(iv)	None of the above		
	b.	The ratios are used to compare financial statements of different-size companies or of the same company over different periods called as_____________.			
		(i)	Financial Structure Analysis		
		(ii)	Activity Analysis		
		(iii)	Profitability Analysis		
		(iv)	Common Size Ratio	A	
	c.	Period of Glass Steagal Act, USA is____________.			
		(i)	1933-1999	A	
		(ii)	1930-1990		
		(iii)	1931-1991		
		(iv)	None of the above		
	d.	Inherent Risk relates to____________.			
		(i)	Beta		
		(ii)	Market Risk		
		(iii)	Unsystematic Risk	A	
		(iv)	Interest rate risk		
	e.	Liquidation value at which the asset or assets are sold as quickly as possible such as at an auction is known as___________.			
		(i)	Force Liquidation value	A	
		(ii)	Liquidation value		
		(iii)	Orderly Liquidation value		
		(iv)	All of the above		
	f.	ABC firm’s current assets and current liabilities are Rs. 2500 and Rs.1500 respectively. How much			

		can it borrow on a short-term basis without reducing the current ratio below 1.3?			
		(i)	Rs.2055.33		
		(ii)	Rs.1833.33	A	
		(iii)	Rs.5833.33		
		(iv)	Rs.5833.33		
	g.	The concept of Total Productive Maintenance (TPM) is originated in _________________.			
		(i)	Japan in 1971	A	
		(ii)	China in 1970		
		(iii)	Japan in 1991		
		(iv)	China in 1991		
	h.	DMAIC is used for ________________.			
		(i)	Improve an existing business process	A	
		(ii)	Create new product or process designs for predictable, defect-free performance		
		(iii)	None of above		
		(iv)	(i) and (ii) both		
	i.	If the proportionate change in the price is more than the proportionate change in the demand, it is known as __________________.			
		(i)	Relatively elastic demand		
		(ii)	Unitary elastic demand		
		(iii)	Relatively inelastic demand	A	
		(iv)	Perfectly inelastic demand		
	j.	The Average Cost function for a certain commodity is given by AC = 3a – 2 + 100/a in terms of output a. Find the total Cost.			
		(i)	$3a^2 - 2a + 100$	A	
		(ii)	$2a - 3a - 100$		
		(iii)	$3a^2 - 2a + 100/a$		
		(iv)	$dy/dx\ (3a^2-2a+100)$		
	k.	If company X has earnings after tax of Rs.300 crore and number of outstanding shares are 30 lakhs. P/E ratio is 5. What will be the EPS?			
		(i)	10	A	
		(ii)	60		
		(iii)	15		
		(iv)	66		
	l.	Performance Appraisal is closely connected with __________.			
		(i)	The Logistic Network		
		(ii)	The ability of a firm to obtain maximum output from a given set of inputs.		
		(iii)	The focus on quantified objectives	A	
		(iv)	The process owned by line managers		
	m.	A firm earns economic profit when total profit exceeds ____________.			
		(i)	Implicit Costs		
		(ii)	Fixed Cost		

		(iii)	Super Profit		
		(iv)	Normal Profit	A	
	n.	Which of the following is correct when the yield on a bond is more than coupon rate?			
		(i)	The bond will be trading at par		
		(ii)	The bond will be trading at a premium		
		(iii)	The bond will be trading at a discount	A	
		(iv)	None of the above		
	o.	Calculate the stock price of ABC company, if company has Rs.200 crore worth of common equity on its balance sheet comprising of 50 lakhs shares and Market Value Added (MVA) of ABC company is Rs. 30 crore.			
		(i)	Rs.460	A	
		(ii)	Rs.400		
		(iii)	RS.120		
		(iv)	RS.350		
	p.	Demerger involves division of company into wholly owned subsidiary of parent company by distribution of all its shares of subsidiary company on Pro-rata basis. It is known as ________.			
		(i)	Spinoff	A	
		(ii)	Split ups		
		(iii)	Equity carve out		
		(iv)	Divestitures		
	q.	Measure of the variation of distribution for the expected returns is called as_____________.			
		(i)	Liner regression		
		(ii)	ANOVA		
		(iii)	Standard Deviation	A	
		(iv)	Normal Distribution		
	r.	When two companies in unrelated lines of business with nothing in common join hands, it is known as _________________.			
		(i)	LLP		
		(ii)	Horizontal integration		
		(iii)	Conglomerate	A	
		(iv)	Vertical integration		
	s.	The required rate of return may also be called as ______________of capital.			
		(i)	Average Cost		
		(ii)	Super Profit		
		(iii)	Opportunity Cost	A	
		(iv)	None of the above		
	t.		Increase in the interest and corresponding decrease in the intrinsic value of debt instruments indicates____________ .		
		(i)	Interest rate risk	A	
		(ii)	Liquidity risk		
		(iii)	Default risk		
		(iv)	Purchasing power risk		

		Section B **You are required to answer all the questions. Each question carries 2 marks.** **Instructions: Each question is followed by a space where you are required to type your answer.**	**10 × 2 = 20 Marks**
2.	a.	Cost = $300x - 10x^2 + \frac{1}{3}x^3$ Calculate output at which Average Cost is minimum.	
		Type your answer here Average Cost is minimum at output of x = 15	
	b.	What do you mean by Economic Margin?	
		Type your answer here It focuses on economic profit. The approach makes adjustments for differences in capital structure, age and life of the assets, mix of the assets, and investment needed to generate earnings.	
	c.	What is Divestiture?	
		Type your answer here Divestiture represent the sale of a part of a total undertaking.	
	d.	What is meant by Market Value Added?	
		Type your answer here] Market Value Added (MVA) is the difference between the current market value of a firm and the capital contributed by investors.	
	e.	Which form of efficiency implies that current share price reflects all the information which could be gleaned from a study of past share prices?	
		Type your answer here Weak form	
	f.	What value is used when an investor wants 'true' or 'real' value on the basis of an analysis of fundamentals without considering the prevailing price in the market?	
		Type your answer here Intrinsic or fundamental value	
	g.	What is risk mapping?	
		Type your answer here Risk mapping is the process of identifying, quantifying, and prioritizing the risks that may interfere with the achievement of your organizational objectives.	
	h.	What is partial factor productivity?	
		Type your answer here The change in output owing to the change in the quantity of one input refers to Partial Factor Productivity.	
	i.	Who is the founder and the builder of Monopolistic competition?	
		Type your answer here Prof. E.H Chambeline.	
	j.	What do you mean by Hubris in the context of Mergers and Acquisitions?	
		Type your answer here A theory of Mergers and Acquisitions that explains the result of the winner 's curse, causing a bidder	

		to overpay is known as Hubris.	
		Section C **You are required to answer any 4 out of 6 questions in this section** **Instructions: Each question is followed by a space where you are required to type your answer.**	**12 × 4 = 48 Marks**
3.	a.	What do you mean by "Benchmarking"? Explain different types of Benchmarking.	2 +6
		Type your Answer here Traditionally control involves comparison of the actual results with an established standard or target. The practice of setting targets using external information is known as 'Bench marking'. 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. The different types of Benchmarking are: (i) Product Benchmarking (Reverse Engineering): It is an age old practice of product oriented reverse engineering. Every organization buys its rival's products and tears down to find out the features and performances etc.to compare with its products. (ii) Competitive Benchmarking: This has moved beyond product-oriented comparisons to include comparisons of process with those of competitors. It may include the study marketing, finance and, R&D etc., (iii) Process Benchmarking: It is the activity of measuring discrete performance and functionality against organization through performance in excellent analogous business process e.g. for supply chain management - the best practice would be that of Mumbai Dubbawallas. (iv) Internal Benchmarking: It is an application of process benchmarking, within an organization by comparing the performance of similar business units or business process. (v) Strategic Benchmarking: Strategic benchmarking helps to develop a vision of the changed organizations. It will develop core competencies that will help sustained competitive advantage. (vi) Global Benchmarking: It is an extension of Strategic Benchmarking to include benchmarking partners on a global scale.	
	b.	The measurements on some components are bound to vary from piece to piece even though the process may be well under control. What are the causes to these variation in quality?	4
		Type your Answer here: The variation in quality is attributable to two types of causes: (a) Natural or Chance Causes and (b) Assignable Causes. Variations due to natural or chance causes are inherent in a process. It is due to multitude of causes which are difficult to identify and uneconomical to eliminate. Common causes of variation are based on random causes that we cannot identify. Further, variations due to chance causes follow statistical laws. In other words, it follows a distribution pattern. Natural variation reduction requires a fundamental change in the process. Assignable causes of variation are generally due to few individual causes which can be identified and eliminated. Some typical chance causes of variation are a small variation in raw material, a small vibration of a machine etc. On the other hand, some typical assignable causes of variations are a batch of defective raw material, faulty set-up, new operator etc.	

4.	a.	The five accounting ratios of S and Co Ltd. Are given below: a) Working Capital to Total Assets = 0.50 b) Retained Earnings to Total Assets = 75% c) EBIT to Total Assets = 20% d) Book Value of Equity to Book Value of Total Debt = 1.85 e) Sales to Total Assets = 4 times With the information given above answer to the following questions:	
	(i)	Using Altman's Multiple Discriminant Function, calculate Z-score of S & Co. Ltd.	4
		Type your Answer here Z-score of S & Co. Ltd.=6.38 **ROUGH WORK** 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: $Z = 0.717x_1 + 0.847x_2 + 3.107x_3 + 0.420x_4 + 0.998\ x_5$ Here, the five variables are as follows: x_1 = Working Capital to Total Assets = 0.50 x_2 = Retained Earnings to Total Assets = 0.75 x_3 = EBIT to Total Assets = 0.20 x_4 = Book Value of Equity Shares to Book Value of Total Debt = 1.85 x_5 = Sales to Total Assets = 4 times Hence, Z-score = (0.717 x 0.50) + (0.847 x 0.75) + (3.107 x 0.20) + (0.420 x 1.85) + (0.998 x 4) = 0.3585 + 0.63525 + 0.6214 + 0.777 + 3.992 = 6.38	
	(ii)	What inference can you draw on the financial position of the company?	2
		Type your Answer here Conclusion: 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.	The cost and profit functions of a firm are: TC = 200+10Q Profit = $-10Q^2 + 200Q - 200$ What should be the output if the firm aims at maximizing total revenue?	3
		Type your Answer here Total output (Q) = 10.5 units. **ROUGH WORK** Revenue = Profits +Total Cost $= -10\ Q^2 + 200Q - 200 + 200 + 10Q$ $= -10\ Q^2 + 210Q$ Revenue will be maximum when $\frac{dTR}{dQ} = 0$ Here, $\frac{dTR}{dQ} = -20Q + 210 = 0$ So, Q = 10.5 units.	

c. Mention the three core concepts of Total Quality Management. **3**

Type your Answer here

The three core concepts of TQM are –

(i) Quality Control (QC): It is concerned with the past and deals with data obtained from the previous production, which allow an action to be taken to stop the production of defective units.

(ii) Quality Assurance (QA): It deals with the present and focuses to create and operate appropriate systems to prevent defects from occurring.

(iii) Quality Management (QM): It concerned with the future and manages people in a process of continuous improvement to the products and services offered by the firm.

5. a. R Cycles Ltd. operates under conditions of perfect competition. The Total Cost (TC) function of the firm is estimated as follows: $200 + 150Q - 20Q^2 + Q^3$ Where, Q is quantity. **6**

What is the price below which the firm will be forced to shut down its operations?

Type your Answer here

It is not viable for the firm to produce output at any price less than Rs.50.

ROUGH WORK

The firm will be forced to shut down its operations if the price is less than the minimum average variable cost.

From the total cost function

$TC = 200 + 150Q - 20Q^2 + Q^3$

Marginal cost is the first derivative of the total cost function

$MC = \frac{dTC}{dQ}$

$= 150-40Q + 3Q^3$

From the total cost function, total variable cost function can be derived as

$TVC = 150Q-20Q^2 + Q^3$

Average variable cost $= \frac{TVC}{Q}$

$= (150Q-20Q^2 + Q^3)/Q$

$= 150-20Q + Q^2$

Since the average variable cost will be minimum at its intersection with marginal cost, the minimum average variable cost is where, AVC = MC

So, $150 - 20Q + Q^2 = 150 - 40Q + 3Q^2$

Or, $150 - 20Q + Q^2 - 150 + 40Q - 3Q^2 = 0$

Or, $20Q-2Q^2 = 0$

Or, $2Q(10-Q) = 0$

Which has the roots Q = 0 and 10.

Disregarding the root associated with a zero output, the average variable cost is the minimum at an input of 10 units.

$AVC = 150-20(10) +10^2 = 150-200+100 =$ Rs.50

Thus, it is not viable for the firm to produce output at any price less than Rs.50.

b. Acquiring company is considering the acquisition of Target Company in a stock- for- stock transaction in which target Company would receive Rs. 90 for each share of its common stock. The Acquiring company does not expect any change in its price/ earnings ratio multiple after the merger and chooses to value the target company conservatively by assuming no earnings growth due to synergy. **3+3**

The following additional information is available:

Particulars	Acquiring	Target
Earnings	Rs. 2,50,000	Rs.72,500
Number of shares	1,10,000	20,000

Market Price per Share	Rs. 50	Rs.60	

Calculate:
(i) The purchase price premium and exchange ratio
(ii) The number of new shares issued by the acquiring company and post-merger EPS of the combined firms.

Type your Answer here

(i) Purchase price premium = Offer price for Target company stock/Target company Market price per share = Rs.90/Rs.60 = Rs.1.5
Exchange ratio = Price per share offered for Target Company/Market Price per share for the acquiring company = 90/50 = 1.8
Acquiring company issues 1.8 shares of stock for each of Target Company's stock.

(ii) New shares issued by acquiring company = shares of Target Company x Exchange ratio = 20,000 × 1.8 = 36,000.

(iii) Post-merger EPS of the combined companies = Combined earning/ total number of share.
Combined earnings = Rs. (2,50,000 + 72,500) = Rs.3,22,500
Total shares outstanding of the new entity
= 1,10,000 + 36,000 = 1,46,000
= Rs. 3,22,500 ÷ 1,46,000 = Rs. 2.21

6. a. Two Corporations A Ltd. and P Ltd. operate independently and have the following financial statements:

Particular	A Ltd (in Rs.)	P Ltd (in Rs.)
Revenues	10,00,000	6,00,000
Cost of Goods Sold	7,00,000	4,00,000
EBIT	3,00,000	2,00,000
Expected growth rate	7%	5%
Cost of capital	10%	13%

Both firms are in steady state, with capital spending offset by depreciation. No working capital is required, and both firms face a tax rate of 30%. Combining the two firms will create economies of scale in the form of shared distribution and advertising cost, which will reduce the cost of goods sold from 60% of revenues to 50% of revenues. Assume that the firm has no debt capital.

You are required to answer the following questions:

(i) Estimate the value of the two firms before the merger. 4

Type your Answer here

Value of the Firms before the Merger:
Value of A Ltd = Rs.74,90,000
Value of P Ltd = Rs.18,37,500
Combined Firm Value with No Synergy = Rs.93,27,500

ROUGH WORK

Calculation of Free Cash Flow to each of the Firm
Free cash flow to A Ltd = EBIT (1 – tax rate) = Rs. 3,00,000 (1 – 0.3) = Rs.2,10,000
Free cash flow to P Ltd. = EBIT (1 – tax rate) = Rs.2,00,000 (1 – 0.3) = Rs.1,40,000
Value of the two firms independently

Value of A Ltd = $\frac{[\text{Rs.}2{,}10{,}000\ (1.07)]}{0.10 - 0.07}$ = Rs. 74,90,000

Value of P Ltd. = $\frac{[\text{Rs.}1{,}40{,}000\ (1.05)]}{0.13 - 0.05}$ = Rs. 18,37,500

In the absence of synergy the combined firm value is:

		Combined Firm Value with No Synergy Rs.7490000 + 1837500 = Rs.93,27,500	
	(ii)	What will be the value of the combined firm with the synergy effect?	6

Type your Answer here:

Value of the firm with Synergy = Rs.1,49,80,000

ROUGH WORK

Value of the Firm with Synergy on combining the two firm the cost of goods sold is reduced from 60% to 50% of revenues.

The revenue of the combined firm = Rs.10,00,000 + 6,00,000 = Rs.16,00,000

Cost of goods sold = 50% of revenues = 0.50 × Rs.16,00,000 = Rs.8,00,000

Weighted average cost of capital for the combined firm = 10% [7490000 / 9327500] + 13% [1837500/9327500] = 0.0803 + 0.0256 = 10.6 Or 11% approximately

Weighted average expected growth rate for the combined firm

= 7% [7490000 / 9327500] + 5% [1837500 / 9327500] = 0.0562 + 0.0098

= 0.066 Or 7% approximately

Particular	Firm with no synergy	Firm with synergy
Revenues	16,00,000	16,00,000
Cost of Goods Sold	11,00,000	8,00,000
EBIT	5,00,000	8,00,000
Expected growth rate	7%	7%
Cost of capital	11%	11%
FCF = EBIT (1 – T)	3,50000	560000

Value of the Firm without Synergy = $\frac{[\text{Rs.}3{,}50000\ (1.07)]}{0.11-0.07}$ = Rs. 93,62,500

Value of the firm with Synergy = $\frac{[\text{Rs.}5{,}60000\ (1.07)]}{0.11-0.07}$ = Rs. 1,49,80,000

	b.	What do you mean by financial synergy?	2

Type your Answer here

Financial synergy refers to increase in the value of the firm that accrues to the combined firm from financial factors. There are many ways in which a merger can result into financial synergy and benefit. A merger may help in:

(i) Eliminating financial constraint

(ii) Deployment surplus cash

(iii) Enhancing debt capacity

(iv) Lowering the financial costs

(v) Better credit worthiness

7. a. RS Ltd. furnishes the following information relating to the previous three years, and requests you to compute the value of the brand of the Company — 6

[Rs. in Lakhs]

Particulars	2019	2020	2021
Profits Before Interest and Tax	75.00	85.25	150.00
Loss on Sale of Assets	3.00	---	18.00
Non Operating Income	12.00	7.25	8.00

Inflation was 9% for 2020 and 15% for 2021. If the capitalization factor considering internal and external value drivers to the brand is 14, determine the brand value. Assume an all-inclusive future tax rate of 35%.

Type your Answer here

Brand Value = Rs.1125.18 Lakhs

ROUGH WORK

[Rs.in Lakhs]

Particulars	2019	2020	2021
Profits Before Interest and Tax	75.00	85.25	150.00
Add: Loss on Sale of Assets	3.00	---	18.00
Less: Non -Operating Income	(12.00)	(7.25)	(8.00)
Branded Earnings	66.00	78.00	160.00
Inflation Adjustment Factor	1.09 x 1.15 = 1.25	1.15	1.00
Inflation Adjusted Earnings as at 31.03.2021	82.50	89.70	160.00
Weights	1	2	3
Product	82.50	179.40	480.00
Weighted Average Earnings Before Tax [(82.50 + 179.40 + 480)/(1+2+3)]			123.65
Less: Taxes at 35%			(43.28)
Weighted Average Brand Earnings After Tax			80.37
Capitalization Factor			14
Brand Value			Rs.1125.18 Lakhs

b. ABC Ltd has FCFF of Rs.170 Crores and FCFE of Rs.130 Crores. ABC Ltd's WACC is 13% and its cost of equity is 15%. FCFF is expected to grow forever at 7% and FCFE is expected to grow forever at 7.5%. ABC Ltd has debt outstanding at Rs.1500 Crores. Find the value of ABC Ltd using FCFF approach and FCFE approach. 3+3

Type your Answer here

Value of ABC Ltd. Using FCFF approach = Rs.1531.67 Crores

Value of ABC Ltd. Using FCFE approach = Rs.1863.33 Crores

ROUGH WORK

FCFF Approach: (discount rate = WACC)

The firm value is the present value of FCFF discounted at the weighted-average cost of capital (WACC):

$= FCFF_t /(k-g) = 170 \times 1.07 / (0.13 - 0.07) =$ Rs.3031.67 Crores

The market value of equity is the value of the firm minus the value of debt:

Equity = 3031.67 - 1500 = Rs.1531.67 Crores

FCFE Approach: (discount rate = Cost of Equity)

		Using the FCFE valuation approach, the present value of FCFE, discounted at Cost of equity = $FCFE_t/(k-g) = 130 \times 1.075/(0.15 - 0.075)$ = Rs.1863.33 Crores	
8.		**Write Short Notes on any 4 out of 5 from the following questions.**	**4 × 3 = 12 Marks**
	a.	Geographic Information System (GIS)	3
		Type your Answer here Disaster planning involves predicting the risk of natural hazard and possible impact. The use of GIS can be successfully made in communication, risk and vulnerability assessment, study of loss patterns, and searches. Hazard maps could be created for cities, districts, states or even for the entire country. Such maps prove helpful for analysis and determination of hazard zones and for the likely effects during disasters. The maps can be successfully used in establishing response priorities, developing actions plans, quickly assessing disaster location, carrying out search and rescue operations effectively, and zoning operations accordingly to risk magnitudes, population details, and assets at risk. Geographic Information Systems (GIS) and remote sensing facilitate record-keeping and obtainment of status or ongoing works that are the most critical task for disaster management.	
	b.	NCAER Model	
		Type your Answer here According to NCAER, an industrial undertaking may be financially viable, if its three elements are proved to be positive. The NCAER Study on Corporate Distress Prediction prescribed the following three elements/ parameters for predicting the stages of corporate sickness: (i) Cash profit position (a profitability measure). (ii) Net working capital position (a liquidity measure). (iii) Net worth position (a solvency measure). In a firm, if any of the above three elements/parameters are found to be negative, it may be considered that the firm has a 'tendency of becoming sick'. If any two of the above three elements/parameters are found to be negative in a firm, it may be considered that the firm possesses 'incipient sickness'. If all the above three elements/ parameters are found to be negative in a firm, it may be considered that the firm is 'fully sick.	
	c.	OLAP Server	
		Type your Answer here 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.	
	d.	Reverse Merger	
		Type your Answer here When a healthy company merges with a sick or a small company is called reverse merger. This may be for various reasons. Some reasons for a reverse merger are: The transferee company is a sick	

company and has carry forward losses and Transferor Company is profit making company. If Transferor Company merges with the sick transferee company, it gets advantage of setting-off carry forward losses without any conditions. If sick company merges with healthy company, many restrictions are applicable for allowing set off, the most important one is change of ownership at entity level.

e. Conglomerate merger

Type your Answer here

These are mergers between two or more companies having unrelated business. These transactions are not aimed at explicitly sharing resources, technologies, synergies or product. They do not have an impact on the acquisition of monopoly power and hence are favoured throughout the world. They are undertaken for diversification of business in other products, trade and for advantages in bringing separate enterprise under single control namely:

(a) Synergy arising in the form of economies of scale.
(b) Cost reduction as a result of integrated operation.
(c) Risk reduction by avoiding sales and profit instability.
(d) Achieve optimum size and carve out optimum share in the market.

Section D **12 Marks**

You are required to answer all the questions in this section

Instructions: Each question is followed by a space where you are required to type your answer.

9. TDS Ltd. Company deals in consultancy in Law and IT sector. TDS Ltd. wants to acquire XYZ Ltd. Which is in the software managing services. But TDS Ltd. and XYZ Ltd. Company's shareholders have some doubts so they want to understand the benefits and feasibility about the merger.

Balance Sheet of TDS Ltd

Liability	Amount (in Rs.)	Assets	Amount (in Rs.)
Share Capital	8,00,000	Fixed Assets	10,00,000
Retained Earnings	3,00,000	Current Assets	7,00,000
Non Current Liability - 12% Debenture	4,00,000		
Current Liabilities: - Sundry Creditors	2,00,000		
TOTAL	17,00,000	TOTAL	17,00,000

Balance sheet of Company XYZ Ltd.

Liability	Amount (in Rs.)	Assets	Amount (in Rs)
Share Capital(1,20,000 equity share @20)	24,00,000	Plant and Machinery	20,00,000
Retained Earnings	4,00,000	Land	11,00,000
Long Term Borrowings - 13% Debenture	3,00,000	Current Assets Inventories 1,50,000 Debtors 50,000	2,00,000
Current Liabilities: - Sundry Creditors	3,00,000	Cash	1,00,000
TOTAL	34,00,000	TOTAL	34,00,000

Additional information:

(i) Shareholder of TDS Ltd. assume that XYZ Ltd will accept one share in TDS for every three shares. External liabilities are expected to be settled at Rs. 5,00,000. Shares of TDS Ltd. would be issued at its current price of Rs. 20 per share. Debenture holders will get 14% convertible debentures in the purchasing companies for the same amount. Current assets Debtors and inventories are expected to release Rs.2,00,000.

(ii) TDS Ltd. has decided to operate the project of the XYZ Ltd Company. The project is likely to give cash flow (after tax) to the extent of Rs.5,00,000 per year for 5 years. TDS. has planned that after 5 years this project would be damaged and disposed of for Rs.1,00,000.
Company's cost of capital is 15%.

a. Is the acquisition of TDS Ltd. with XYZ Ltd feasible? 3

Type your Answer here:

NPV = Rs. 4,26,200

Since the NPV is positive it is suggested to acquire XYZ Ltd. to maximize the value of shareholders of both the companies.

ROUGH WORK

Cost of Acquisition	Amount (in Rs.)
Equity share (1,20,000/3) X20	8,00,000
13% convertible debenture	3,00,000
Cash (Payment for external liabilities – Realisation of Cash from Debtors and inventories – Cash of XYZ Ltd.) i.e., (5,00,000 – 2,00,000 – 1,00,000)	2,00,000
Total Consideration	13,00,000

Calculation of NPV

Year	Cash flow	15% PV factor	Amount(in Rs)
1	5,00,000	0.870	4,35,000
2	5,00,000	0.756	3,78,000
3	5,00,000	0.658	3,29,000
4	5,00,000	0.572	2,86,000
5	5,00,000 + 1,00,000	0.497	2,98,200
	Total PV of cash inflow		17,26,200
	Cost of Acquisition		13,00,000
	NPV		4,26,200

Since the NPV is positive it is suggested to acquire XYZ Ltd. to maximize the value of shareholders of both the companies.

b. If TDS Ltd. is interested to merge with XYZ Ltd and the following information are available in respect of both the companies 3

Particulars	TDS Ltd.	XYZ Ltd.
Total current Earnings	Rs.14,00,000	Rs. 15,00,000
No. of Outstanding Shares	70,000	50,000
Market price per share	Rs.10	Rs. 7

What is the present EPS of both the companies and find the market price if P/E Ratio of TDS =7 and XYZ = 5? also calculate the market capitalization of TDS Ltd. and XYZ Ltd. ?

Type your Answer here

EPS of TDS = Rs.20

EPS of XYZ = Rs.30

		TDS Ltd Market Price = Rs.140 XYZ Ltd. Market Price = Rs.150 Market Capitalization TDS Ltd.'s Market cap = Rs.98,00,000 XYZ Ltd.'s market cap = Rs.75,00,000 **ROUGH WORK** EPS = total earnings/ No. of equity shares EPS of TDS = Rs.14,00,000/70,000=Rs.20 EPS of XYZ = Rs.15,00,000/50,000=Rs.30, P/E = Market Price/ EPS. Therefore we have, Market price = P/E × EPS TDS Ltd Market Price = 7 × Rs.20 = Rs. 140 XYZ Ltd. Market Price = 5 × Rs.30 = Rs.150 Market Capitalization TDS LTd = Number of outstanding shares × market Price TDS Ltd.'s Market cap = 70,000 × Rs.140 = Rs. 98,00,000 XYZ Ltd.'s market cap = 50,000 × Rs.150 = Rs. 75,00,000	
10.		ABC Ltd. manufactures tyre product using natural rubber and synthetic rubber. The processes of manufacturing go through two machinery A and machinery B. The firm gives you the following details for the manufacturing of one tyre	

Cost of natural tyre per unit

Input	Unit	Rate
Materials	10	10 per Kg
Wages	3 hour	20 per hour
Overhead recovery	On the basis of direct labour hours	
Fixed overhead		10 per hour
Variable overhead		15 rupee unit
Selling overhead	50fully variable per unit	

Cost of synthetic tyre per unit

Input	Unit	Rate
Materials	15	12 per Kg
Wages	5 hour	30 per hour
Overhead recovery	On the basis of direct labour hours	
Fixed overhead		12 per hour
Variable overhead		20 rupee unit
Selling overhead		

	a.	Find out the minimum price to be fixed for the tyre, when the alloy is new to the market. Briefly explain this if pricing strategy is to penetrate the market. After the ABC Firm is well established in the market, what should be the minimum selling price? Why?	3

Type your Answer here

If pricing strategy is to penetrate the market, the minimum price for a new product should be the variable cost i.e. Rs.Rs.685. Total variable cost is the penetration price

When the ABC Ltd. is well established, the minimum selling price will be the total cost - including the fixed cost i.e. Rs.775 per unit. Long-run costs should cover at least the total cost.

ROUGH WORK

Materials: natural tyre (10 × Rs.10) = 100 synthetic tyre (15 × Rs.12) = 180	Rs.280
Wages Machinery A (3 × Rs.20) = 60 Machinery B (5 × Rs.30) = 150	Rs.210
Variable overhead – production Machinery A (3 × Rs.15) = 45 Machinery B (5 × Rs. 20) = 100	Rs.145
Variable overhead – Selling	Rs.50
Total variable cost	Rs.685
Add: Fixed overhead Machinery A (3 × Rs.10) = 30 Machinery B (5 × Rs. 12) = 60	Rs.90
Total Cost	Rs.775

b. What will be the equilibrium output in each segment and what will be the price if the price discrimination is practiced by the ABC Ltd. as monopolist? If cost function and demand function of natural tyre are given below. 3

Total cost function of ABC monopolist is given by $C = 50 + 40x = 50 + 40 (x_1 + x_2)$

The total demand is given by

$P = 100 - 2x$

The demand function of the segmented market are

$P_1 = 80 - 2.5x_1$

$P_2 = 180 - 10 x_2$

Type your Answer here

Total output = 15 units

Price of the output = Rs.60

Price of the output if discrimination is practiced = Rs.110

ROUGH WORK

The firm aims at the maximisation of profit.

$\pi = R_1 + R_2 + C$

$R_1 = P_1 x_1 = (80 - 2.5x_1)x_1 = 80 x_1 - 2.5x_1^2$

$MR_1 = 80 - 5x_1$ ....(1)

$R_2 = P_2 x_2 = (180 - 10x_2) x_2$

$= 180x_2 - 10x_2^2$

$MR_2 = 180 - 20x_2$ ....(2)

		$C = 50 + 40(x_1 + x_2)$ $MC = \frac{dc}{dx_1} = \frac{dc}{dx_2} = \frac{dc}{dx} = 40$................(3) Equating (1) & (3) $80 - 5x_1 = 40$ $X_1 = 8$ and, equating (2) & (3) $180 - 20x_2 = 40$ $x_2 = 7$ Total output = 8 + 7 = 15 units $P_1 = 80 - 2.5x_1 =$ Rs.60 $P_2 = 180 - 10x_2 =$ Rs.110	

END