PAPER – 20A : STRATEGIC PERFORMANCE MANAGEMENT AND BUSINESS VALUATION

SUGGESTED ANSWERS

SECTION - A

1. (a)

(i) (A)

(ii) (A)

(iii) (B)

(iv) (D)

(v) (A)

(vi) (A)

(vii) (C)

(viii) (C)

(ix) (A)

(x) (A)

1. (b)

(xi) (B)

(xii) (C)

(xiii) (A)

(xiv) (D)

(xv) (A)

SECTION - B

2 (a):

Effective SCM requires critical decisions in five specific areas to balance customer satisfaction with internal operating efficiencies. These are elaborated as under:

(i) **Production:** Producing as per requirements of the market is the primary requirement of supply chain management. It needs immaculate planning. Master production schedules have to be in place which takes into account plant capacities, workload balancing, quality control and equipment maintenance scheduling.

(ii) **Inventory:** In supply chain management, decisions regarding inventory to be held at each stage of the supply chain is crucial as a wrong decision has a cascading effect. Inventory often acts as a buffer against uncertainty in the supply chain. However higher the inventory, higher is the cost of holding. Thus optimal inventory levels need to be fixed which will have a positive impact on all the links of the supply chain.

(iii) **Location:** The next important decision making issue, in supply chain management, is the selection of location for production and storage of inventory. The underlying issue is cost efficiency. These decisions facilitate products to flow through the supply to the final customer.

(iv) **Transportation:** Decision regarding inventory, discussed previously, is related to the mode of transportation. Cost effective mode of transportation results in delayed movement of products and uncertainty in transportation. The uncertainty may be countered with higher stock levels which will increase the cost of investment in inventory. Thus deciding upon the mode of transportation is critical to the success of the supply chain.

(v) **Information:** Smooth flow of information is the key to successful implementation of supply chain and its management. With good information, people can make effective decisions about what to produce and how much, about where to locate inventory, and how best to transport it.

An OEM's supply chain strategy directly reflects its market positioning.

(i) An OEM - targeting cost leadership to address the mass market - would create and manage a supply chain, based on optimization of cost.

(ii) If the OEM targets a niche market, it would have created a supply chain optimized on the basis of customer satisfaction and responsiveness.

Thus, a supply chain and its management creates an identification of the company and the market it serves.

2. (b):
Steps for 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 user requirements. Hence, the Firm finds out the answer to – What are the customer's decision-making requirements and product utilities? The answer is sought by listing out managerial perceptions and not by actual interaction with the customers.

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& 8: Identification of improvement opportunities and implementation of Quality Improvement Process:
The outcomes of the customer survey, benchmarking and internal analysis, provides the inputs for stages 7 and 8 i.e., the identification of improvement opportunities and the implementation of a formal improvement process.

3. (a):

Calculation of profit maximization price and associated profit

When the producer does not discriminate between market X & market Y and charges the same price, the two demand functions can be aggregated and P1 and P2 may be replaced by a uniform price, say P.

Thus, we have Q = Q1+Q2 = (21-0.1P) + (50-0.4P) = 71-0.5P

Or, P = 142-2Q
The total revenue is given by
TR = P X Q = (142-2Q) X Q = $142Q - 2Q^2$
MR = d/dQ ($142Q - 2Q^2$) = 142 – 4Q

Marginal Cost = d/dQ (2000+10Q) = 10
For maximization of profit, MR = MC
142-4Q =10
Q = 33

Putting Q=33 in the equation P = 142-2Q, we get P = 76

Therefore, the profit maximizing price is 76.

Assessment of Maximum Profit (Rs)
Profit = TR-TC = P X Q - (2000 + 10Q)
= 33 x 76 - (2000+10 x 33) = 178
The associated profit is 178

3 (b):

Risk Management:
Risk has significant implications in the world of finance. Conceptualising the term is the first and foremost task for every manager before any attempt is made to measure and manage it. Risk is a condition where there exists a quantifiable dispersion in the possible outcomes from any activity, it can be classified in a number of ways. For monitoring the performance of an organization with respect to corporate objectives, it is imperative to form control mechanisms that enable the identification of risks and which meet the predefined objectives.

Thus, in business world, risk connotes the extent to which any selected action or inaction leads to some impact on desirable outcome. In finance, risk is categorised from various perspectives.

Features of various Types of Risk:

In the following lines brief categorisation of the types of financial risk is classified and its features are given :

1) **Systematic Risk:** It occurs due to macro economic factors. It is also called market risk or non-diversifiable risk or volatility risk. It is beyond the control of a specific company. It is categorised as follows:

(i) Interest risk
(ii) Market risk
(iii) Purchasing power risk
(iv) Foreign Exchange risk
(v) Political risk

2) **Unsystematic Risk:** It is that portion of total risk which results from known and controllable factors. It refers to that portion of the financial risk of an entity which is caused due to factors unique or related to an entity rather than the industry. It is categorised as:

(i) Liquidity risk
(ii) Credit risk
(iii) Operational risk

4 (a):

Return On Net Assets (RONA):

Return On Net Assets (RONA) is measure of profitability which calculates net profit as a proportion of the sum of fixed assets and net working capital. Thus RONA is yet another variation of the return on investment which considers the investment in the working capital, as well. The net profit, considered is after interest and taxes. Thus,

RONA= Net Profits/ Fixed Assets+ Net Working capital
Where, NWC= Net Working Capital= Current Assets- Current Liabilities
RONA= Return on Net Assets

RONA ratio shows how well a company and its management are deploying assets in in economically valuable ways; a high ratio result indicates that management squeezing more earnings out of each rupee invested in assets. RONA is also used to assess how well a company is performing compared to others in its industry.

Implications of RONA:

RONA provides a comparison between a firm's income and its assts (fixed assets and excess of its current assets over current liabilities). This provides assistance to financial analysts to define how well company is generating profits from its assets.

RONA is an especially important metric for capital intensive companies, which have fixed assets as their major asset component.

4. (b):

Calculation of Altman Z-Score:

Predictor Variable	Formula	RIL	SIL
X1	Working Capital/Total Assets	1.00	1.67
X2	Retained Earnings / Total Assets	0.50	0.79
X3	EBIT/Total Assets	0.75	0.63
X4	MV of Equity / Book Value of Total Liability	1.50	1.50
X5	Sales/Total assets	1.20	1.25
Altman Z Score	1.2X1 +1.4X2 +3.3X3 +0.6X4 +0.999X5	6.47	7.34

Advice:

From the above, it can be inferred that both the companies have pretty good scores and considered to be financially healthy since the Z-Score of the companies under consideration is substantially higher than three.

However, the score of SIL is slightly better than that of RIL. Thus, it is advised that though both the companies are safe as regards to bankruptcy risk, SIL is a slightly safer company to invest than RIL as projected by the Altman Z-Score.

5 (a):

Computation of Present Value (PV) of Cash Flows

YEAR	Cashflows (₹ in Lakh)	Discount Rate PVIF (15%)	Present Value ₹ in Lakh
1	(10) (Negative)	0.8696	(8.696)
2	5	0.7562	3.781
3	10	0.6576	6.576
4	15	0.5718	8.577
5	20	0.4972	9.944
TOTAL			20.182

Assessment of Value of Firm:

(i) Total sum of present value = ₹ 20.18

(ii) Terminal Value t = (Cash Flow t+1 / r – g stable)

Cash Flow t+1 = Cash Flow t (1+g)

= ₹ 20 (1 + 0.05) = 21 Lakhs.

Terminal Value = 21 / (0.08 – 0.05)

= ₹ 700 Lakhs.

Present Value of Terminal Value = ₹ 700 × (0.4972) = ₹ 348.04 Lakh

Value of the Firm = ₹ (20.18 + 348.04) = ₹ 368.22 Lakh

5. (b):

(i) Business Value:

Approach	Valuation Method	Value (₹)	Weight	Weighted Value (₹)
Market	Comparative business sales	10,00,000	30%	3,00,000
Income	Discounted Cash Flow	15,00,000	20%	3,00,000
Income	Multiple of Discretionary Earnings	20,00,000	10%	2,00,000
Asset	Asset Accumulation	25,00,000	40%	10,00,000
		Total	100%	18,00,000

Thus, business value is the sum total of weighted values = ₹ 18,00,000

(ii) Capitalisation Rate: Capitalisation rate = 30% – 5%= 25%

6. (a):

The copyrights valuation can be done using the Market or Income or even Cost Approach. By applying the Income approach the value of Copyrights are as follows:

(Amount in ₹ Lakh)

Year	0	1	2	3	4	5	6	7	8	9	10
Annual Increase	--	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%
Book Price (₹)	1,750										
Unit Sales per Year	2,500										
Revenue*	43.75										
Less: Costs* @70%	30.63										
Cash Flows*	**13.13**	13.78	14.47	15.19	15.95	16.75	17.09	17.43	17.78	18.13	18.49
PV Factor @ 10%		0.909	0.826	0.751	0.683	0.621	0.564	0.513	0.467	0.424	0.386
PV of Future Cash Flows*		12.53	11.95	11.41	10.90	10.40	9.64	8.94	8.30	7.69	7.14

Value of Copyrights (Year 1 To 10) (₹ In Lakh):

12.53 + 11.95 + 11.41 + 10.90 + 10.40 + 9.64 + 8.94 + 8.30 + 7.69 + 7.14 = ₹ 98.90 Lakh

6. (b):

Computation of Present Value of Cashflow from Bonds:

Year	Cash flows from Bond (₹)	Discounting Factor PVIF (8.50%)	PV of cash flows (₹)
1	95.00	0.9217	87.56
2	95.00	0.8495	80.70
3	95.00	0.7829	74.38
4	95.00	0.7216	68.55
5	1,095.00	0.6650	728.18
			Total ₹ 1,039.37

The fair value of the bond is ₹ 1,039.37

7 (a):

(i) Calculation of Swap Ratio:

Particulars	RAJ Ltd.	PREET Ltd.
EAT (₹)	2000 lakh	400 lakh
No of shares outstanding	200 lakh	100 lakh
P/E Ratio	10	5
EPS (₹)	2000/200 = 10	400/100 = 4
Market Price /Share (EPS X P/E) (₹)	100	20

Therefore, swap ratio in terms of market prices = MPS of target firm / MPS of acquiring firm = 20/100 = 0.20 i.e. 1 share of RAJ Ltd for 5 Shares of Preet Ltd.

(ii) Calculation of Market Price after acquisition:

EPS of Raj Ltd. after acquisition = (2000 + 400) / (200 + 0.2 X100)

= 2400 / 220 = ₹ 10.91

Therefore, expected market price per share of RAJ Ltd. with the same P/E Ratio of 10 will be = EPS X P/E = ₹ 10.91 x 10 = ₹ 109.10

(iii) Calculation of Gain / Loss to the shareholders:

	Total	RAJ Ltd.	PREET Ltd.
No. of shares after acquisition	220 lakhs	200 lakhs	20 lakhs
MPS after acquisition	₹ 109.10	₹ 109.10	₹ 109.10
Total Market Value	₹ 24002 lakhs	₹ 21820 lakhs	₹ 2182 lakhs
Existing Market Value	₹ 22000 lakhs	₹ 20000 lakhs	₹ 2000 lakhs
Gain to shareholders	₹ 2002 lakhs	₹ 1820 lakhs	₹ 182 lakhs

7. (b):

(i) Calculation of post-acquisition benefit:

Rate of Return required by the investors of BODON Ltd. is given by

$K_e = (D_1 / P) + g = 1/15 + 0.07 = 0.1367$ or 13.67%

If g = 8%, market price per share of BODON Ltd. = 1 X 1.08 / (0.1367 - 0.08)

= ₹ 19.05

Benefits of acquisition = PV of BODON Ltd. with merger – PV of BODON Ltd. without merger

= (19.05 - 15) X 20,00,000 = ₹ 81,00,000

(ii) Cost of acquisition to DODON Ltd.:

1. **If it pays cash compensation of ₹ 17 per share:**

Cost of acquisition = Cash Compensation – PV of BODON Ltd.

= (17 X 20,00,000) – (15 X 20,00,000)

= ₹ 40 lakh

2. **If offers one share for every three shares:**

In this case share of BODON Ltd. in the combined entity will be

= (1/3 X 20,00,000) / (60,00,000 + 1/3 X 20,00,000) = 0.10

Value of the merged entity = Value of DODON Ltd. + Value of BODON Ltd + Synergy

= (60 lakh X ₹ 48) + (20 lakh X ₹ 15) + 81 lakh

= ₹ 3,261 lakh

Cost of acquisition to DODON Ltd. given the exchange ratio,

= The value of what BODON's shareholder's get – the value what they give up

= 0.10 X 3,261 – 300 = ₹ 26.10 lakh

8. (a):

CUSTOMER-PROFITABILITY ANALYSIS				
	A	B	C	D
Units Sold	60,000	35,000	20,000	15,000
List Price	Rs.2,000	Rs.2,000	Rs.2,000	Rs.2,000
Price Discount (%)	5%	3%	1%	0
Price Discount (Rs.)	Rs.100	Rs.60	Rs.20	0
Invoice Price	Rs.1,900	Rs.1,940	Rs.1,980	Rs.2000
Revenue	**Rs.11,40,00,000**	**Rs.6,79,00,000**	**Rs.3,96,00,000**	**Rs.3,00,00,000**
Less: Cost of Goods Sold @ Rs. 800 per unit	Rs.4,80,00,000	Rs.2,80,00,000	Rs.1,60,00,000	Rs.1,20,00,000
GROSS MARGIN	**Rs.6,60,00,000**	**Rs.3,99,00,000**	**Rs.2,36,00,000**	**Rs.1,80,00,000**
CUSTOMER-LEVEL COSTS : [WN : (I) & (II)]				
Number of purchase orders @ Rs. 66.67	Rs.2,40,000	Rs.2,00,000	Rs.1,20,000	Rs.80,000
Number of sales visits @ Rs. 80	Rs.72,000	Rs.60,000	Rs.48,000	Rs.36,000
Number of deliveries @ Rs. 3	Rs.18,000	Rs.9,000	Rs.6,000	Rs.4,500
Set Up and Inspection @ 50	Rs.1,50,000	Rs.1,20,000	Rs.72,000	Rs.12,000
Kilometres travelled per delivery @ Rs. 1.60	Rs.1,040	Rs.2,496	Rs.4,160	Rs.1,264
Number of expedited deliveries @ Rs. 300	Rs.48,000	Rs.0	Rs.96,000	Rs.0
TOTAL CUSTOMER-LEVEL COST	**Rs.5,29,040**	**Rs.3,91,496**	**Rs.3,46,160**	**Rs.1,33,764**
CUSTOMER-LEVEL OPERATING PROFIT	**Rs.6,54,70,960**	**Rs.3,95,08,504**	**Rs.2,32,53,840**	**Rs.1,78,66,236**
	A	B	C	D
Units sold	60,000	35,000	20,000	15,000
Customer level per unit operating profit	Rs.1091.18	Rs.1128.81	Rs.1162.69	Rs.1191.08

WORKING NOTES:

(I) CUSTOMER-LEVEL COSTS:	Total Cost (₹)	Total Number	Cost Per Unit or Activity (₹)
Purchase orders	6,40,000	9,600	66.67
Sales visits	2,16,000	2,700	80.00
Deliveries	37,500	12,500	3
Set Up and Inspection	3,54,000	7,080	50
Delivery for Km travelled	8,960	5,600	1.60
Expedited deliveries	1,44,000	480	300.00

(II) Customers	A	B	C	D
Number of Purchase orders	3,600	3,000	1,800	1,200
Number of Sales Visits	900	750	600	450
Number of Deliveries	6,000	3,000	2,000	1,500
Set Up and Inspection	3,000	2,400	1,440	240
Kilometres travelled per delivery	650	1,560	2,600	790
Number of expedited deliveries	160	0	320	0

Comment:

It is seen that in terms of total customer level profitability the net operating profit from customers is highest for A, followed by B, then C & finally D. However, it is seen that in terms of per unit sold customer level operating profit D is most profitable at ₹ 1191.08 per unit, followed by C at ₹ 1162.69, B at ₹ 1128.81 and A at ₹ 1091.18. In terms of total profitability, the rank is A, B, C & D. however considering that per unit profitability is higher for D followed by C, B & A attempt should be made to increase sales volumes of D & C to earn higher profitability.

8. (b):

Copulation of Value of D Company:

Year	Cash Flow after tax (₹)	PV Factor @ 9%	PV of cash flow after tax (₹)
1.	20,00,000	0.917	18,34,000
2.	25,00,000	0.842	21,05,000
3.	28,00,000	0.772	21,61,600
4.	30,00,000	0.708	21,24,000
5.	40,00,000	0.650	26,00,000
Total value			₹ 1,08,24,600

RECOMMENDATION:

Since the value of D company, is **₹ 1,08,24,600** which is higher than purchase consideration of ₹ 1 crore to be paid to D Company, it is recommended that C company may consider to acquire D company at the purchase consideration of ₹ 1 crore.
