STRATEGIC RISK MANAGEMENT [C1] – CHARTERED LEVEL

Marks

Question No. 1

(a) Deficiencies in the Board Structure and Responsibilities:

- The company has 8 directors with 6 persons from the family and 2 executive directors who are not from the family. It is not clear whether 6 directors from the family are executive or non-executive. However, the company is not fulfilling the Corporate Governance requirements, which states that "The board of directors is encouraged to have a balance of executive and non-executive directors, including independent directors and those representing minority interests with the requisite skills, competence, knowledge and experience so that the board as a group includes core competencies and diversity, including gender, considered relevant in the context of the company's operations."
- The company has not held any Board meeting and the first Board meeting of the year has been called for in the last quarter of the year. Therefore, the company is defeating the provisions of the Corporate Governance that Board's meeting should be held once in every quarter.
- The company is not holding any committee's meetings including Internal Audit Committee Meeting, Risk Management Committee Meeting and Human Resources & Remuneration Committee which is against the Corporate Governance provisions and involves operational and reputational risks. It appears that meetings are shown to be held on papers only.
- The chairman is holding dual positions of chairman/ CEO which is also not encouraged under the Corporate Governance provisions.
- There is too much concentration of family members in the BOD, which is again not a sound Corporate Governance practice.

Any three (3) @ 1 mark each = 3

(b) Reputational Risk:

There is a threat to the good name of the company. The reputational risk is there in the company as a result of the actions of the company itself and not indirectly due to the actions of any employee. The company lacks Corporate Governance practices and transparency which is adding to the reputational risk it is facing. The company also needs to be socially responsible and environmentally conscious to avoid reputational risk. The reputation of the company is also spoiling due to not declaring any dividends and poor financial results. 2

(c) Roles and Responsibilities of Risk Management Committee:

Roles:

- To assess the Company's risk profile and key areas of risk in particular.
- To recommend the Board and adoption of risk assessment and rating procedures.
- To articulate the Company's policy for the oversight and management of business risks.
- To examine and determine the sufficiency of the Company's internal processes for reporting on and managing key risk areas.
- To assess and recommend the Board acceptable levels of risk.
- To develop and implement a risk management framework and internal control system.
- To have special investigations into areas of corporate risk and break-downs in internal control.
- To review management's response to the Company's auditors' recommendations and ensure those are adopted.
- To report the trends on the Company's risk profile, reports on specific risks and the status of the risk management process.

Any four (4) @ ½ mark each = 2

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Responsibilities:

- To assist the Board in setting risk strategies, policies, frameworks, models and procedures in liaison with management and in the discharge of its duties relating to corporate accountability and associated risk in terms of management assurance and reporting.
- To review and assess the quality, integrity and effectiveness of the risk management systems and ensure that the risk policies and strategies are effectively managed.
- To review and assess the nature, role, responsibility and authority of the risk management function.
- To ensure that the Company has implemented an effective on-going process to identify risk, to measure its potential impact against a broad set of assumptions.
- To oversee formal reviews of activities associated with the effectiveness of risk management and internal control processes. A comprehensive system of control should be established to ensure that risks are mitigated and that the Company's objectives are attained.
- To review processes and procedures to ensure the effectiveness of internal systems of control so that decision-making capability and accuracy of reporting and financial results are always maintained at an optimal level.
- To monitor external developments relating to the practice of corporate accountability.
- To review the risk bearing capacity of the Company in light of its reserves, insurance coverage, guarantee funds or other such financial structures.
- To fulfill its statutory, fiduciary and regulatory responsibilities.
- To review issues raised by Internal Audit that impact the risk management framework.
- The Board shall review the performance of the risk management committee annually.

Any four (4) @ ½ mark each = 2

Daniyal Limited's Risk Management Committee is not fulfilling the responsibilities entrusted under the Corporate Governance principles. It is clear from the roles & responsibilities mentioned above that these are not followed by the company. 1

Question No. 2

(a) (i) Hedging:

$$\text{Contracts} = \frac{\text{Exposure}}{\text{Contract size}} \times \frac{\text{Loan period}}{\text{Length of contract}}$$ ½

$$\text{Contracts} = \frac{\text{Rs.}50{,}000{,}000}{\text{Rs.}5{,}000{,}000} \times \frac{6}{3} = 20 \text{ contracts}$$ 2

Futures Outcome:

			Marks
At opening rate	92.00	sell	½
At closing rate	89.50	buy	½
	2.50	receipt	½

Receipt in the future market $= \text{Receipt} \times \text{Size of contract} \times \text{Number of contracts} \times \frac{\text{Length of contract}}{\text{One Year}}$ ½

$= 2.50\% \times 5{,}000{,}000 \times 20 \times \frac{3}{12}$ 1

= Rs. 625,000 ½

Payment in spot market = Rs.50 million x 12% x 6/12 = (3,000,000) 1

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(ii) Net Outcome:

		Marks
Payment in spot market	(3,000,000)	½
Receipt in futures market	625,000	½
Net payments	(2,375,000)	½

Effective interest rate $= \frac{2,375,000}{50,000,000} \times \frac{12}{6} = 9.5\%$ 1½

(b) Netting is a process in which credit balances are netted off against debit balances. 1

Bilateral Netting:

In the case of bilateral netting, only two companies are involved. The lower balance is netted off against the higher balance and the difference is the amount remaining to be paid. 2

Multilateral Netting:

Multilateral netting occurs when several companies within the same group interact with the central treasury department to net off their transactions. The arrangement might be co-ordinated by the company's own central treasury or alternatively by the company's bankers. 2

Question No. 3

(a) The responsibilities of the Board with regard to credit risk management shall, interalia, include:

- Delineate bank's overall risk tolerance in relation to credit risk. 1
- Ensure that bank's overall credit risk exposure is maintained at prudent levels and consistent with the available capital. 1
- Ensure that top management as well as individuals responsible for credit risk management possess sound expertise and knowledge to accomplish the risk management function. 1
- Ensure that the bank implements sound fundamental principles that facilitate the identification, measurement, monitoring and control of credit risk. 1
- Ensure that appropriate plans and procedures for credit risk management are in place. 1

(b) **(i)**

Credit Proposal

Client's Profile:

Nemsum Limited is a listed company and has been operating in Pakistan for more than ten years. It is engaged in manufacturing of sugar and its by-products. 2

Client Name:	Nemsum Limited
Business	Sugar Industry
Exposure:	
Current:	Rs.150 million
Proposed:	Rs.500 million (RF), Rs.1 billion (CF Pledge)
CIB Information:	CIB shows no overdue or default
Other Bank Borrowings:	Client has already borrowed Rs.150 million from commercial banks.

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PR Compliance:

The financials of Nemsum Limited are fully compliant to prudential regulations. The audit firm is a QCR rated firm and has issued clean report. 1

Sector Review:

According to the Pakistan Sugar Mills Associations, the country produces about 5.5 million tonne of sugar as against yearly local demand around 4.5 million tonne only. It has been struggling to export the sweetener to support the deteriorating financial health of its mills. Reportedly, Economic Coordination Committee of the Cabinet in its meeting has approved export of 0.5 million tonne of sugar till March 2017 with a subsidy of Rs.13,000 per tonne. 1

Quantitative Data:

	Sugar	Ethanol	
Storage capacity	2.5 million bags of 50 kg each	7 million litre	
Actual production – 2016	0.2 million tonne	15 million litre	1

Financial Summary:

Rs. in million

	2015	2016	Projected 2017	Competitor-1 2016	Competitor-2 2016	
Sales	6,800	8,000	10,000	9,000	7,000	
Gross profit	200	500	700	600	400	
Net profit/ (loss)	(100)	200	400	200	150	
Equity	600	1,000	1,200	1,100	900	
Net non-current assets	7,000	7,500	8,000	8,500	7,000	
Long-term loan	100	150	1,500	1,000	800	
Current assets	2,000	2,200	3,000	4,000	3,500	
Current liabilities	1,000	1,500	2,000	2,000	2,500	
Gross Margin %	3%	6%	7%	7%	6%	1
Net profit %	–1%	3%	4%	2%	2%	1
Current ratio	2.0	1.5	1.5	2.0	1.4	1
Debt equity ratio	0.17	0.15	1.25	0.91	0.89	1

(b) (ii) Nemsum Limited is having a current ratio of 1.5 which is acceptable though not very ideal as it is less than 2. In the peer analysis its better than competitor 2 but not comparable with competitor 1.

Based on above the credit proposal for Rs. 500 million RF and Rs. 1.0 billion CF pledge is approved. 2

(c)

Determinant	Classification	Provisions to be made	
Where mark-up/interest or principal is overdue by 180 days or more from the due date.	Doubtful	Provision of 50% of the difference resulting from the outstanding balance of principal less the amount of liquid assets.	1 + 1
Where mark-up/interest or principal is overdue by one year or more from the due date.	Loss	Provision of 100% of the difference resulting from the outstanding balance of principal less the amount of liquid assets.	1 + 1

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Question No. 4

(a) Process of Risk Control and Self-Assessment (RCSA):

Process of risk control and self-assessment (RCSA) is a three tier process where evaluation of risks and controls is done by the staff that actually performs the activities. These self-assessments encourage employees to assume responsibilities & accountabilities by improving their understanding regarding effective control and risk management. The improved understanding goes a long way in assisting an organization to effectively implement any corrective actions. 2½

The banks may select a process-based approach for self-assessment under which each process (sub-process) from beginning to end is documented. Under the first step of the three tier process of self-assessment, banks may describe the risks inherent in each process and its impact assuming that there are no controls. In the second phase, bank would be able to describe the controls employed to cover these identified risks and to identify key controls in the underlying process. The third information pertains to residual risk assessment (inherent risk after considering controls). The banks are expected to identify/ assess control weaknesses and other specific risks associated with each process under review. 2½

(b) Key Risk Indicators (KRIs):

Key Risk Indicators (KRIs), are measurable indicators which can be termed as early warning signals, provide information regarding increased current or potential level of operational risk exposure to help institution measure and manage emerging risks by identifying risk symptoms. The indicators ensure that the risk monitoring is focused on the key risks to which an institution is exposed. 2

The selected KRIs should contain the following characteristics:

- Be effective in tracking an important risk.
- Must have the predictive power to prevent a future loss i.e. leading KRIs are more desired.
- Be practical and easy to collect i.e. measurable and quantifiable.
- Track at least one aspect of risk profile i.e. risk cause, event, effect and control.
- Can serve as a mean to express risk appetite.

Any three (3) @ 1 mark each = 3

Question No. 5

(a) Interest Rate Risk:

The risk incurred by a financial institution when the maturities of its assets and liabilities are mismatched. Interest rate risk arises when there is a mismatch between positions, which are subject to interest rate adjustment within a specified period. The bank's lending, funding and investment activities give rise to interest rate risk. The immediate impact of variation in interest rate is on bank's net interest income, while a long-term impact is on bank's net worth since the economic value of bank's assets, liabilities and off-balance sheet exposures are affected. Consequently there are two common perspectives for the assessment of interest rate risk: 4

- Earning Perspective:

  In earning perspective, the focus of analysis is the impact of variation in interest rates on accrual or reported earnings. This is a traditional approach to interest rate risk assessment and obtained by measuring the changes in the Net Interest Income (NII) or Net Interest Margin (NIM) i.e., the difference between the total interest income and the total interest expense. 2

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- Economic Value Perspective:

  It reflects the impact of fluctuation in the interest rates on economic value of a financial institution. Economic value of the bank can be viewed as the present value of future cash flows. In this respect economic value is affected both by changes in future cash flows and discount rate used for determining present value. Economic value perspective considers the potential longer-term impact of interest rates on an institution. 2

(b) All banks/DFIs should develop an effective stress testing program and make stress testing a regular feature of their periodic risk assessment and reporting framework. Stress testing provide following advantages:

- Provides a useful base for communication of key risks across the organization;
- Supplements other risk measures by providing a complementary perspective on various risks;
- Indicates how much capital might be needed to absorb losses if worst-case scenarios materialize;
- Provides forward looking assessment of risks and facilitates capital allocation and liquidity management;
- Helps development of risk mitigation or contingency plans across a range of stress conditions;
- Enables management to set limits for risk tolerance and redesign their risk strategies if required;
- Adds value to the risk analysis when combined with other statistical measures like value-at-risk models by particularly focusing on tail events;
- Highlights the limitations of models and historical data by exhibiting the impact of extreme yet plausible shocks which models using normal conditions fail to capture; and
- Helps in Internal Capital Adequacy Assessment Program (ICAAP), by providing information on how much capital, in addition to the minimum capital requirement under Pillar-I of the Basel-II regime, is adequate for an institution.

Any seven (7) @ 1 mark each = 07

Question No. 6

(a) (i) Expected Return of Investing Rs. 10,000 in the Equity Shares of PCL:

50(10,000 ÷ 200) equity shares of PCL, can be bought for Rs. 10,000. The probability distribution of overall return, when 50 equity shares of PCL, are purchased will be as follows:

Economic Condition	Overall Return (A)	Probability (B)	Expected Return (A x B)	Marks
High growth	50 x 200 = 10,000	0.3	3,000	½
Low growth	50 x 210 = 10,500	0.4	4,200	½
Stagnation	50 x 220 = 11,000	0.2	2,200	½
Recession	50 x 240 = 12,000	0.1	1,200	½
			10,600	1

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(ii) Expected Return of Investing Rs. 10,000 in the Equity Shares Lever Company:

50(10,000 ÷ 200) equity shares of Lever Company can be bought for Rs. 10,000. The probability distribution of overall return, when 50 equity shares of Lever Company are purchased will be as follows:

Economic Condition	Overall Return (A)	Probability (B)	Expected Return (A x B)	Marks
High growth	50 x 250 = 12,500	0.3	3,750	½
Low growth	50 x 230 = 11,500	0.4	4,600	½
Stagnation	50 x 190 = 9,500	0.2	1,900	½
Recession	50 x 160 = 8,000	0.1	800	½
			11,050	1

(iii) Expected Return of Investing Rs. 5,000 Each in the Equity Shares of PCL and Lever Company:

If Rs. 5,000 each are invested in the equity stocks of PCL, and Lever Company, 25 shares will be bought of each company. The probability distribution of overall return on this portfolio will be as follows:

Economic Condition	Overall Return (A)	Probability (B)	Expected Return (A x B)	Marks
High growth	(25 x 200) + (25 x 250) = 11,250	0.3	3,375	¾
Low growth	(25 x 210) + (25 x 230) = 11,000	0.4	4,400	¾
Stagnation	(25 x 220) + (25 x 190) = 10,250	0.2	2,050	¾
Recession	(25 x 240) + (25 x 160) = 10,000	0.1	1,000	¾
			10,825	1

(b) (i) Beta Coefficient:

$$\beta_G = \frac{Cov_{G,M}}{Var_M} = \frac{Correlation_{G,M} \times \sigma_G \times \sigma_M}{\sigma_M^2} = \frac{\rho_{G,M} \times \sigma_G}{\sigma_M}$$ 1

$$= \frac{0.34 \times 0.2}{0.16}$$ 1

$= 0.425$ 1

(ii) Correlation Between Stocks 'A' and 'B':

$\sigma_A^2 = (0.6^2 \times 0.04) + 0.12^2 = 0.0288$ 1½

$\sigma_A = 17\%$ ½

$\sigma_B^2 = (1.5^2 \times 0.04) + 0.08^2 = 0.0964$ 1½

$\sigma_B = 31\%$ ½

$Cov(R_A, R_B) = 0.6 \times 1.5 \times 0.04 = 0.036$ 1

Hence, $$\rho_{A,B} = \frac{Cov(R_A, R_B)}{\sigma_A \sigma_B}$$ ½

$$= \frac{0.036}{0.17 \times 0.31}$$ 1

$= 0.683$ ½

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Question No. 7

Control Activities involved in Underwriting Risk:

The underwriting risk management framework would not be useable, reliable, or effective without an appropriate set of control activities.

- Organization Structure:

  Effective underwriting risk management requires the presence of an enabling corporate structure, typically requiring overall board responsibility for ERM, and including a CRO reporting to the CEO or CFO. It also requires the formation of executive and business unit underwriting committees to develop, maintain, and monitor underwriting risk policies, limits, and approvals. Vital to controlling underwriting risk exposures is a skilled team of risk professionals, typically involving actuaries at a senior level within the insurer. 1¼

- Objectives:

  The insurer's board should establish overall risk appetite and risk tolerance objectives for the insurer and all its business units. The detailed list of risk measures to be used by the insurer to track its progress should also require board approval. The insurer's appetite for underwriting risk can be measured in several ways – for example, through premium volume, policy liabilities, or a form of value at risk. 1¼

- Approvals:

  The insurer should be expected to establish appropriate approval levels throughout the steps of the underwriting risk management framework. Those entrusted with approval authority must have appropriate experience and training to fully appreciate the possible consequences of their decisions (financial and organizational impacts on their own areas as well as on the entire company). Key underwriting approvals relate to experience rating decisions (declinations as well as claims approvals or denials). Other decisions relate to product repricing and changes to adjustable product features (for example, dividend scale changes). 1¼

- Limits:

  The insurer should be expected to establish appropriate limits on the risk decisions made by its managers, to control its exposure to risks. The ability of all key processes to operate within agreed limits and authorities must be monitored and exceptions examined for their causes and significance. 1¼

- Training and Communication:

  The insurer should have regular programs for providing relevant staff training and ensuring that all underwriting risk management staff members have an appropriate level of awareness of the risk management policies and practices relevant to their business. The insurer should ensure that the level of training (especially for those involved with highly complex risks) is commensurate with industry and supervisory standards for such responsibilities. 1¼

- Change Controls:

  Risk management depends on the consistent assessment of risks over time. Any change in source data, experience, models, assumptions, or the like should be subject to appropriate change control procedures so that their impact does not cloud a true assessment. Such changes can occur from a natural desire to better meet the insurer's performance (for example, return on equity) targets. 1¼

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- Models:

  It is common for insurers to use models to assess and manage material or complex risks. To avoid these models being viewed as a "black box," insurers should be able to document and describe the key model assumptions, methods, and output. The models should be used regularly in the insurer's operations. The models should also be subject to validation and review by knowledgeable internal and external professionals. The models should conform to all relevant industry and supervisory norms and standards. 1¼

- Audit and Review:

  All key processes of the insurer must be subject to periodic independent review by appropriate experts. An insurer's internal audit function plays a key role in this regard and should report directly to the board on these matters on a routine basis. In addition, several of the insurer's key internal processes may involve significant judgment, outsourcing, or expert systems, necessitating specialized independent (and perhaps external) reviews of specific aspects of the insurer's operations. 1¼

THE END

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