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Further, in the Elective Papers which are Case Study based, the solutions have been worked out on the basis of certain assumptions/views derived from the facts given in the question or language used in the question. It may be possible to work out the solution to the case studies in a different manner based on the assumptions made or views taken.

PAPER-6A – RISK MANAGEMENT

The Question paper comprises five case study questions. The candidates are required to answer any four case study questions out of five.

Answers in respect of Multiple Choice Questions are to be marked on the OMR Answer Sheet only. Candidates may use calculator

CASE STUDY: 1

CRPL commenced its business in the year 2003 at Chennai. Presently, it is having twenty chain stores dealing in fast-moving consumer goods (FMCG). All the stores are situated at Chennai city. The turnover of CRPL was ₹200 Crores for the financial year 2018-19. Out of the above stores, fifteen stores are functioning in the company-owned premises and the rest are operated in lease-hold premises. The main store, which was commenced first, is in the heart of the city.

About the retail chain stores of CRPL:

The main store, along with other retail outlets of CRPL, having the brand name "Classic Retail", have a centralised management. The business policies and procedures are standardised across all the stores.

All purchases are centrally done, and the goods are stored in the basement floor in the main store. After entering the details of goods received, they are barcoded and sent to various stores. CRPL uses proprietary software for recording all the inward and outward movement of the goods. Accounting functions including the statutory compliances of all the stores are centrally done at the accounting department situated in the fourth floor of the main store.

The main advantages of CRPL are that i) most of the stores are strategically located across the city, ii) centralised purchases help in economies of scale and in better profit margins, iii) the customers mostly are repeat customers and iv) the customers can get the products across any store of CRPL.

The customers are given discount points on their purchases, which they can opt to adjust against their future purchases. The customer database is maintained, and unique id is allotted to the customers based on their mobile numbers.

The General Manager, Mr. Sumit, is studying the 'intrinsic complexity of the retail store businesses' across the industry.

E-retailing:

CRPL has an online store also, in which the registered customers can place orders and delivery would be made to their registered address. The bankers did not settle payments for ten transactions totalling to ₹2 lakhs, during a period of three months, stating that the credit cards used were hot-listed. The stores have despatched the goods to those customers.

Issues observed by CRPL:

- i. There are no access control restrictions for entering the area in which bar-coding of products is done.
- ii. The store manager of the main store issued orders manually for a product which is fast selling from a nearby distributor on an urgent basis, without getting approval from the manager and it was later found that the expiry date on the lot was due to expire in the next three days.
- iii. Sometimes, based on the requirements of another store, goods were transferred from one store to the other. It was noticed, on a particular-day, 100 quantities of a product were transferred from one store to another. The receiving store accounted for only 80 quantities. There were no procedures to acknowledge the receipt and delivery of goods from one store to the other.
- iv. The salesmen were given a leeway of allowing a discount upto 2% on the sale price. It was found that some salesmen were giving a constant 2% discount to all the customers with whom they dealt with.
- v. CRPL's policy is that the cash collections of each day, must be deposited on the next working day into the bank account. Such cash was required to be kept in the safety locker by the cashier of the store. On three days in the past three months, there were cash shortages to the tune of ₹ 5 lakhs in four stores. The respective cashiers said that they have correctly calculated the cash collections and kept the cash in the safety lockers, but in the next morning the cash was found to be in shortage. One locker key was with the cashier and the other was with the managing director.
- vi. On some days when the general manager was not available, the purchase manager passed the payments to the suppliers.
- vii. CRPL's credit policy allowed a credit off ₹50,000/- only for customers who have purchased more than ₹ 3 lakhs on an average in the past three years. It was noticed that two customers purchased more than ₹1 lakh on credit.

Extracts of few risks faced by CRPL:

Below are some of the risks faced by CRPL as extracted from its Risk and Control Matrix:

- i. Risk of inadequate training to the employees of CRPL.
- ii. The risk of CRPL being affected by natural calamities.
The probability of flash floods affecting the main store was estimated at i) 1% p.a. and ii) the loss caused thereon would be ₹ 25 Lakhs.
The premium quoted by the insurance to cover such event was ₹ 30,000/- p.a.
- iii. The risk of certain products being discarded after the expiry date due to slow moving of the products.

- iv. Risk of theft of products by employees resulting in breach of confidence and loss of money.

Appointment of a Risk Management consultant:

To study the issues faced by CRPL, a risk management consultant, Mr. Kannan, was appointed to go through issues and risks and suggest a robust risk management system and formulate risk policies and procedures relevant to CRPL.

- He conducted a meeting of all the staff and the management and explained to them:
 - i. risks are those uncertainties of outcome, whether an opportunity or threat, arising out of actions and events
 - ii. the importance of capturing and recording the incidents that would adversely affect the operations of CRPL,
 - iii. the need for a proper and periodic risk management process which would enable the management to deal with risks by reducing their likelihood or downside impact as the same aims to protect the value already created by the company, but also enhances its future opportunities,
 - iv. the commitment required of the Board to fix the quantum and extent of risk that it is willing to take to pursue the objectives, in other words known as Risk Appetite and,
 - v. the need for implementation of proper controls and ensure their working to alleviate the issues faced by CRPL.
- He advised them to have values, attitudes, competencies, and behaviour which would in-tum determine the company's commitment and style of Operational Risk Management.

Children mini theme park project:

- In the main store, adjacent to the building, CRPL is maintaining a garden having an area of 5,000 sft., which is company-owned. It was observed that an average of 1,000 customers visited the store per day and out of them 150 families visited with children.
- To tap the potential, Mr. Deepak, the Managing Director (MD), suggested a proposal to build a children mini theme park in that area. Only children with age group of 3 to 12 would be admitted from whom entrance fee would be collected. This project is expected to have a life of 5 years and the initial project cost is estimated at ₹ 2.50 crores.

On the basis of above, you are required to answer the following questions:

Multiple Choice Questions

Choose the most appropriate answer from the given options.

- (1.1) In which of the following processes of Risk Management, the Risk Register would least likely be considered?

- (A) Risk Analysis
- (B) Risk Identification
- (C) Risk Ranking
- (D) Risk Treatment

(1.2) Which of the following is not a characteristic of Risk Appetite?

- (A) In the normal course, evaluating the Risk Appetite is out of audit scope.
- (B) Risk Appetite is understanding control and other response activities.
- (C) Risk Appetite provides a standard against which a risk can be compared.
- (D) Internal auditors can do a consulting activity of assisting the Board in fixing the Risk Appetite.

(1.3) The advice of Mr. Kannan could be better termed as:

- (A) Risk Culture
- (B) Risk Focus
- (C) Risk Framework
- (D) Corporate Governance

(1.4) In his study, Mr. Sumit, would least likely be concerned with which of the following?

- (A) Online shopping
- (B) Frequent changes to prices of the products
- (C) Compliance with rules and regulations
- (D) Failure in supply chains

(1.5) CRPL could not realise the money of ₹ 2 lakhs on the credit card transactions described in the case study. The best management practice to avoid similar occurrences in the future would be:

- (A) Before accepting the order, verify the card number against rejected cards history.
- (B) Before processing the order, verify the card number against rejected cards history.
- (C) Before despatching the goods, verify the settlement made by the banker.
- (D) Verifying the card number against rejected cards history after rejection of the transaction by the banker.

(5 x 2 Marks = 10 Marks)

Descriptive Questions

(1.6) What are the specific controls that you would suggest for the issues observed by CRPL?

(6 Marks)

(1.7) The proposed theme park project, as suggested by Mr. Deepak, is estimated to have i) an annual cash inflow of ₹ 75 lakhs and ii) cost of capital is 10%.

Identify which of the three factors, viz., initial project cost, annual cash inflow and project life in years, the project is most sensitive if the variable is adversely affected by 10%? (Use annuity factors: for 10% = 3.7908 and 11 % = 3.6959) **(5 Marks)**

(1.8) Write the risk actions and risk responses for the risks faced by CRPL as extracted from its Risk and Control Matrix. **(4 Marks)**

Answer

Multiple Choice Questions

- 1.1 (D)
1.2 (B)
1.3 (A)
1.4 (C)
1.5 (C)

Descriptive Questions

1.6 Specific controls suggested for the issues observed by CRPL:

There are several different, but closely related or similar categorisations used in different kinds of control framework, organisations, but mostly they would fall under these categories.

(i) **Verification:** Refers to a control where a control step necessitates the transaction is verified by a different individual before it is completed.

Cash shortage of ₹ 5 lakhs could have been avoided if two different persons count the cash and place it in the safety locker, after signing the cash register. Cash in the safety locker to be held as a joint custody of a senior officer of the store and the cashier.

(ii) **Reconciliations:** Refers to a control where an output of a process step is reconciled against other known, established sources of information.

One store has sent 100 quantities and the other store has received only 80 quantities. Proper acknowledgement of receipt / delivery of goods transfer must be in place. This helps in reconciliation of stock transfer within stores.

(iii) **Segregation of duties:** Refers to a control where part of the transaction is executed across two segregated departments / functions / verticals thereby eliminating the risk of the originating department to carry out the entire transaction on its own.

The purchase manager having initiated the purchases cannot be the same person who can pass the payment for the purchases. Procedures must be evolved that such things do not happen in future.

- (iv) **Physical control:** Refers to a control type where physical custody of an asset is the control.

The area where bar-coding is done is not having access control restrictions. Control measures are to be implemented that only authorised persons should be able to enter that area

- (v) **Supervisory control:** Refers to a control where the primary transaction / process is executed at a particular level in an organisation, but before finalising it, the supervisor is required to review it and accord an approval.

The sales managers must verify the discounts given by the salesmen periodically. If a particular salesman is always passing on 2% discount to the customers, he can be questioned and properly advised on such practice.

- (vi) **Exception triggers:** Refers to a control where a system, or a responsible individual, throws up regular reports of transactions which are deviant from the accepted, established process.

The software has not been designed according to the credit policy of the company and it should not have allowed the excess credit over ₹ 50,000/-. Controls must be placed in the software that such violation is not repeated.

- (vii) **Authorisation / approval:** Refers to a control step where, after a processing of a transaction basis built in controls is almost complete, a final authority reviews it and approves it.

Even if emergency purchases are made necessary approvals are to be obtained from the superiors, e.g. store manager without getting approval from the manager issued manual order.

- 1.7 To compute the sensitivity of various factors, first we compute the NPV of the project

$$\text{NPV} = - ₹ 2,50,00,000 + ₹ 75,00,000 \times 3.7908$$

$$= - ₹ 2,50,00,000 + ₹ 2,84,31,000$$

$$= ₹ 34,31,000$$

Sensitivity Analysis

- (i) Initial Project Cost

If project is increased adversely by 10%

$$= - ₹ 2,75,00,000 + ₹ 2,84,31,000$$

$$= ₹ 9,31,000$$

$$\text{Change in NPV} = \frac{34.31 - 9.31}{34.31} \times 100 = 72.865\% \text{ or } 72.87\%$$

(ii) Annual Cash Flow

If Annual Cash Flow adversely effected by 10%

$$= -₹ 2,50,00,000 + ₹ 67,50,000 \times 3.7908$$

$$= -₹ 2,50,00,000 + ₹ 2,55,87,900$$

$$= ₹ 5,87,900$$

$$\text{Change in NPV} = \frac{34,31,000 - 5,87,900}{34,31,000} \times 100 = 82.865\% \text{ or } 82.87\%$$

(iii) Present Value of Cash Inflow of each year

Year	Present Value Factor	Cash Flow (₹ Lakhs)	Present Value of Cash Flow (₹ Lakhs)
1	0.9091	75	68.1825
2	0.8264	75	61.9800
3	0.7513	75	56.3475
4	0.6830	75	51.2250
			237.735

Balance Left

12.2650

Thus, the period required to in fifth year

$$\frac{12.2650}{75 \times 0.6209} = \frac{12.2650}{46.5675} = 0.263 \text{ Years}$$

Thus, if project runs for 4 years and 0.263 years then Break Even would occur representing a fall in

$$\frac{(5 - 4.263)}{5} \times 100 = 14.74\%$$

Thus, the most sensitive factor is Annual Cash Flow.

1.8 – The action and risk response to various risks identified are as follows:

Risk actions and risk responses for the risks faced by CRPL:

- Risk:** The risk of certain products being discarded after the expiry date due to slow moving of the products.

Risk Action: Avoid

Response: Since certain products are slowing moving, it is recommended to stop buying and storing such products. Thereby the risk can be avoided.

2. **Risk:** Risk of inadequate training to the employees of CRPL.

Risk Action: Reduce / Manage

Response: To reduce / manage the risks of lack of trained staff, the company must conduct various training programs periodically.

3. **Risk:** Risk of theft of products by employees resulting in breach of confidence and loss of money.

Risk Action: Transfer / Share

Response: Breach of confidence by the employees is one of the chief risks. The loss occurring on account of the same can be covered by taking fidelity insurance, as this type of insurance covers the loss happening due to theft of products / cash by the employees.

4. **Risk:** The risk of CRPL being affected by natural calamities.

Risk Action: Accept

Response: The probability of loss on account of flash floods affecting the store would be ₹ 25,000/- p.a. (₹ 25,00,000 X 1%), while the cost of coverage of the risk by way of payment of insurance premium is ₹ 30,000/-. Thus, the cost of control is more than the estimated risk. In this situation, the company would accept the risk.

CASE STUDY: 2

SUN Fibers Ltd. (SUN), was founded in 2002 to produce nylon fiber at its only plant in Pune by using new technology and domestic raw materials, the company had developed a steady franchise among dozens of small, local textile weavers. It supplied synthetic fiber yarns used to weave colorful cloths for making saris, the traditional women's dress of India.

SUN has robust treasury management and has a huge trading portfolio of AA and BB rated debts. The treasurer is more concern about BB rated debt. In order to hedge this treasury is planning to use credit default swap (CDS). Information about CDS and the action taken is given below:

- (i) *Prime credit spreads are currently trading at 130 basis points (bps) over government security for 5-year maturities, and 190 bps over for 10-year maturities. The treasury manager hedges INR 10 million holding of 10-year paper by purchasing the following credit default swap, written on the 5-year bond.*
- (ii) *The treasurer hedge protects for the first 5 years of the holding. The 10-year bond holding also earns 75 bps over the shorter-term security for the portfolio manager.*

Term	5 years
Reference credit	Prime 5-year bond
Credit event	The business day following occurrence of specified credit event
Default payment	Nominal value of bond x [100 - price of bond after credit event]
Swap premium	3.35%

The management of SUN is concerned about the reputation of the company. Despite making best efforts in past the reputation of the company has not improved to the level enjoyed by the close competitor. There is a feeling that existing model also needs to be changed in view of changed circumstances. Since the inception the company has not reviewed its business model. The demand and revenue loss are the cause of concern of the company. The management is worried that despite best quality products they are lagging behind the competitor. There are multiple suggestions within the organization ranging from change in product, diversification, increase in geography etc. The board does not have formal strategy document and operational issues are mainly based on the understanding of the CEO who is promoter also. The company has been following same strategy since inception in tackling competition.

Except treasury; the risk management in SUN is mostly done at business unit level. The management is thinking about an integrated risk management system especially considering the recent investment in South African country by opening a small but new factory. The management is also concerned about the country risk. In one of the board meetings, it was highlighted that a risk management framework is missing in the company. The risk department has promised to inform the Board in this respect. Also risk register is not being maintained in the company. One version is that it is not useful. The other set of senior executives want it to be maintained. They have decided to take help of a consultant in this.

The company has recently adopted IND-AS. And it is in the process of establishing a robust system of expected credit loss (ECL). A recently qualified chartered accountant who is a part of the treasury team is ready to accept this work and has promised to the treasury head that she will do it. SUN currently operates with separate and independent risk management, compliance and audit functions.

On the basis of above, you are required to answer the following questions:

Multiple Choice Questions

Choose the most appropriate answer from the given options.

(2.1) Assuming now that during the life of the swap, there is a technical default on the Prime 5-year bond, such that its price now stands at 58. Under the terms of the swap, the protection buyer delivers the bond to the seller who pays to the protection buyer INR.....

- (A) INR 4.2 million
- (B) INR 42 million
- (C) INR 5 million

- (D) INR 4 million
- (2.2) In order to assess ECL, Loss Given Default (LGD) is required? Which of the following is correct definition of Loss Given Default (LGD)?
- (A) It measures the remaining economic maturity of the exposure.
 - (B) It is estimated amount outstanding in a loan commitment if default occurs.
 - (C) It measures the proportion of the exposure that will be lost if Default occurs.
 - (D) It measures the likelihood that the borrower will default over a given time horizon.
- (2.3) A recently hired junior in a risk management department is wondering how a pure risk differs from a speculative risk. Which of the following statement is correct in this respect?
- (A) A pure risk always has an environmental cause whereas a speculative risk always involves human error.
 - (B) A pure risk can be measured in probability terms whereas a speculative risk cannot.
 - (C) A pure risk is not subject to regulatory control but a speculative risk always is.
 - (D) Pure risks are associated with uncertainties that can lead to the possibility of a loss, whereas a speculative risk may lead to a gain.
- (2.4) Many companies are taking a broad view of strategic risk that doesn't just focus on challenges that might cause a particular strategy to fail, but on any major risks that could affect a company's long-term positioning and performance. Which one of the following is correct with respect to strategic risks?
- (A) Strategic risk are those that arise from fundamental decisions that Board takes concerning an organisation's objectives.
 - (B) Strategic risks are subdivided into business and non-business risks.
 - (C) CEO, board or risk management committee of the board has the oversight of strategic risk and hence the composition of the Board should be balanced in skills, knowledge and experience.
 - (D) All listed in (A), (B) & (C).
- (2.5) SUN operates with separate and independent risk management, compliance and audit functions. The SUN's Board should be aware that
- (A) all costs will be reduced and more risks will be eliminated.
 - (B) holistic risk management processes will be more effective across the company.
 - (C) this is likely to create a more robust approach to managing risk.
 - (D) work will often be duplicated and costs will usually be increased.

(5 x 2 Marks = 10 Marks)

Descriptive Questions

- (2.6) Briefly explain the strategic risks SUN is facing and what broad key risk drivers you would like to consider assessing that risk? **(4 Marks)**
- (2.7) What is reputational risk? You are hired by the SUN to assess reputational risk. What are the steps needed to assess reputational risks? **(3 Marks)**
- (2.8) What is the purpose of risk management framework? What could be the steps in developing risk management framework? **(2 Marks)**
- (2.9) In your opinion what should be done to establish in-house process to analyze country risk of SUN ? **(3 Marks)**
- (2.10) While you were in the board room one member remarked as under.
 "Having too much on the risk register runs the risk of diluting the focus on the key risks "
 What would be your response to the above and why? **(3 Marks)**

Answer**Multiple Choice Questions**

- 2.1 (A)
- 2.2 (C)
- 2.3 (D)
- 2.4 (D)
- 2.5 (C) or (D)
- 2.6 The main strategic risks faced by SUN Ltd. are as follows:
- ❖ Old Business model not reviewed for a long period of time
 - ❖ Country Risk
 - ❖ Adoption of Ind-AS.
 - ❖ Risk management Framework / Proper risk management strategies are not present
- The main key drivers to be considered to assess these risks
- ❖ Loss of Demand and Revenue
 - ❖ No formal strategy document
 - ❖ Missing of Risk Management in the company
 - ❖ No Risk Register is maintained in the company
- 2.7 Reputational risk – Adverse publicity regarding an entity's practices leading to a loss of revenue or litigation. Any event which affects the name or brand image of the entity is

Reputational Risk. Any adverse publicity, news coverage, comments etc. that has the ability to dent the trust created by the entity and becomes detrimental to the business of the entity.

- ❖ It is a process, involving the following steps:
- ❖ identifying business functions, assets, vulnerabilities and threats;
- ❖ assessing the reputational risk
- ❖ developing a reputational risk management plan;
- ❖ implementing reputational risk management actions, and
- ❖ re-evaluating the reputational risks.

2.8 A holistic risk management framework would empower Boards to:

- ❖ Identify top threats to entity and asset protection measures.
- ❖ Link risks to more efficient capital allocations and business strategy.
- ❖ Develop a common language in the organisation for problem solving.
- ❖ Effectively respond to an evolving business environment.

The RMF should define a policy statement on the following matters:-

- (i) Determining when to review the RMF and the frequency for undertaking the review.
- (ii) Deciding who is responsible for the review. The RMF is generally reviewed by the Audit Committee or a team of Directors. Once in few years the RMF can be reviewed with external facilitation this would provide fresh insights and benchmarking information to the Board.
- (iii) Selecting the scope and method for a review. The scope and boundary of the RMF review can be clearly set out along with the most suited method for review.
- (iv) Manner of circulation of results.

2.9 Country Risk is a major issue of concern in overall management of business. Broadly speaking the country risk management process involves the following steps:

- (i) **Identification of Risk:** First and foremost, step in country risk management is identification of risk. The various quantitative and qualitative techniques can be used to identify the risks.
- (ii) **Analysis of Risk:** Once the risk is identified the next step is analyse the same from various angles.
- (iii) **Evaluation of Risk Management Techniques:** Evaluation of various techniques to manage the risk is carried out.

- (iv) **Selection of suitable techniques:** Once various techniques have been evaluated next steps comes of selection of most suitable technique to manage the risk.
- (v) **Implementation of Techniques:** The techniques to manage the risk are implemented.
- (vi) **Control:** Once the selected techniques are implemented they need to be reviewed on periodic and if required they are revised.

2.10 To some extent the given statement is true, as in creating Risk Register Inherent Risks are identified and recorded. Inherent Risks is their level of risk assuming no internal control. Accordingly, if all risks are covered whether Residual Risk then it will lose its importance.

CASE STUDY: 3

Headquartered in Mumbai, STEPOIL is one of the India's top 10 oil and gas producers. In 2020, the company had revenues of INR 700 billion. In the same year, it had over 23,000 employees. Known for its operational excellence, STEPOIL is a leader in offshore oil production below water depths of 100 meters. In 2010, STEPOIL's shares were listed on the NSE and BSE. After having sold its downstream and petrochemical businesses over the past few years, STEPOIL is today heavily focused on upstream activities (i.e., exploration and development of oil and gas reserves). Its two business areas focusing on development are divided according to geographical regions (India and International with the latter being much smaller).

The company maintains a trading portfolio which is managed by a qualified portfolio manager. In addition, it has four more business areas focusing on marketing, technology, exploration, and strategy. Considering its complexity of business STEPOIL started to implement enterprise risk management (ERM) since 2014. Initially, it hired Mr. Aman who had been asked to systemize the management of risk in finance which previously had been carried out in a fragmented and uncoordinated way. The result of such exercise was that the risks managed by the finance department were measured and managed as a portfolio of risks with central oversight. The CEO of STEPOIL has realized that the same principles could be applied to the whole company, and that there would be benefits to the company from managing its risks in an integrated way.

An important early milestone in the implementation of ERM came in 2016, when the Risk Committee, a cross-disciplinary advisory body on risk, was formed. It consists of a broad range of professionals with different backgrounds, such as the head of strategy, the heads of the treasury, the chief controllers of different business units, and the head of internal control, in addition to the CRO. The CRO is yet to get authority and functional autonomy and is facing obstacle from the CEO.

The idea behind creating the committee was to obtain a forum to which people could put proposals and general risk issues for analysis and recommendations. However, the internal audit team is not providing required support in the ERM implementation exercise as they believe this will reduce their authority in the organization. While STEPOIL's executive officers were generally positive to the idea behind ERM, they still demanded to know "What is in it for us?" A large number of executives and some board members still feel that ERM is an administrative

burden. The CRO demonstrated efforts of Mr. Aman and the benefits STEPOIL is getting after analysis of the costs and benefits from various financial transactions, mostly hedging and foreign exchange (FX) transactions going on in the company. Mr Aman and the CRO were able to show that the number of transactions was staggeringly high, and that they were mostly based on a silo thinking that made no sense at all as seen from the corporate perspective. ERM had demonstrated the economic justification it needed.

A clear mandate was given in 2018, the risk department was formally set up headed by the CRO, and started work on developing a common methodology on risk, as well as continuing the work on developing the company's consolidated risk model that had been initiated four years earlier. The CRO wants to use Value at Risk (VAR) techniques for quantifying risk so that it would be easier for the Board to understand the risk. Some of the members of the board has apprehension about effectiveness of the technique considering mechanical process and limitation of the model. The CRO is trying best to convince the Board about developing 'a sophisticated approach to ERM that centers on the principle of value creation and has a vision to ensure that ERM is thoroughly embedded in the business units' way of doing things despite the fact it is yet to enjoy the wholehearted support of STEPOIL's executive officers and board of directors.

The board is concerned about the current risk culture and wants to have an understanding about the risk culture. The CRO has promised to get an assessment of risk culture done from an independent consultant.

The business continuity plan (BCP) is currently managed by cyber security team and is not part of the ERM. The cyber security team's argument is that these two not linked and should be managed separately.

On the basis of above, you are required to answer the following questions:

Multiple Choice Questions

Choose the most appropriate answer from the given options.

(3.1) Which one of the following is incorrect with respect to VAR?

- (A) It is a unified method of measuring risk.
- (B) VAR does not measure liquidity risk.
- (C) VAR does not measure operational risk.
- (D) VAR is not risk management.

(3.2) Which one of the following is incorrect with respect to ERM?

- (A) It is a process effected by an entity's board of directors, management and other personnel.
- (B) It is applied in strategic setting and across the enterprise.
- (C) It manages risk to be within risk appetite.

- (D) *It provides complete assurance regarding the achievement of entity's objective.*
- (3.3)** *Which one of the following is incorrect with respect to historical simulation?*
- (A) *The model calculates potential losses using actual historical returns in the risk factors and so captures the normal distribution of risk factor returns.*
- (B) *Assumption of constant correlations is not needed.*
- (C) *Assumption of constant deltas is not needed.*
- (D) *It is one of the methods of calculation of VAR.*
- (3.4)** *For what primary reason could enterprise risk management (ERM) systems fail?*
- (A) *ERM decisions are always ignored across a business when a top down approach is used.*
- (B) *Financial constraints could compromise the implementation of ERM systems.*
- (C) *Management can never override ERM decisions.*
- (D) *The use of ERM systems do not give the required assistance to risk managers.*
- (3.5)** *The CRO wants to purchase software in order to use most sophisticated risk analysis tool. In your opinion which of the following statements about Monte Carlo Simulation is FALSE?*
- (A) *It can be useful for estimating the stand-alone risk of a project.*
- (B) *It is capable of using probability distributions for variables as input data.*
- (C) *It is the most accurate risk analysis tool because it is based on real data.*
- (D) *It produces both an expected value and a measure of the variability of that value.*

(5 x 2 Marks = 10 Marks)

Descriptive Questions

- (3.6)** *You have been asked by the management of STEPOIL to define the responsibilities of the CRO who would be the leader in implementing ERM.* **(3 Marks)**
- (3.7) (A)** *Risk management is considered an administrative burden by some senior executives of STEPOIL, what in your opinion is creating the obstacle in implementing ERM and how it will be assessed if you are hired for this purpose?* **(3 Marks)**
- (B)** *Knowing the view of the cyber security team in respect of ERM and BCP, what would be your explanation to the Board in respect of relationship of ERM and BCP if you are hired as a risk consultant?* **(3 Marks)**
- (3.8)** *One of the board members of STEPOIL has background in risk management. During the board meeting she explained that standard model at a 99% confidence level captures event up to 2.33 standard deviations from the mean asset return level. Her question to the CRO was about identifying a method which could be used to calculate the effect on the trading*

portfolio of a 10 standard deviation move? You are required to identify and describe a technique that can fulfil the objective of the board member. (3 Marks)

(3.9) *Is there a standard way of stress testing? What information it would provide? How does stress testing complement the VAR framework? (3 Marks)*

Answer

3.1 (A)

3.2 (D)

3.3 (A) or (B)

3.4 (B)

3.5 (C)

3.6 The Chief Risk Officer (CRO)

- (a) has the organisational stature, skill set, authority, and character needed to oversee and monitor the firm's risk management and related processes and to ensure that key management and board constituents are apprised of the firm's risk profile and relevant risk issues on a timely and regular basis; the CRO should have a direct reporting line to the CEO and a distinct role from other executive functions and business line responsibilities as well as a direct reporting line to the board and/or risk committee;
- (b) meets periodically with the board and risk committee without executive directors or management present;
- (c) is appointed and dismissed with input or approval from the risk committee or the board and such appointments and dismissals are disclosed publicly;
- (d) is independent of business lines and has the appropriate stature in the firm as his/her performance, compensation and budget is reviewed and approved by the risk committee;
- (e) is responsible for ensuring that the risk management function is adequately resourced, taking into account the complexity and risks of the firm as well as its Risk Assessment Framework (RAF) and strategic business plans;
- (f) is actively involved in key decision-making processes from a risk perspective (e.g., the review of the business strategy/strategic planning, new product approvals, stress testing, recovery and resolution planning, mergers and acquisitions, funding and liquidity management planning) and can challenge management's decisions and recommendations;

- (g) is involved in the setting of risk-related performance indicators for business units;
- (h) meets, at a minimum quarterly, with the firm's supervisor to discuss the scope and coverage of the work of the risk management function.

- 3.7 (A)** The obstacle in implementing ERM in the company is lack of support from top management.

Lack of knowledge of managers in using the risk tools in ERM implementation.

Using improper or unsuitable risk modelling tools would cause an obstacle while implementing ERM.

This can be done by assessing, managing and communicating business risks.

- (B)** There is an important relationship between ERM and BCP. The risk assessment that is required as part of the risk management process and the business impact analysis that is the basis of business continuity planning (BCP) are closely related. The normal approach to risk management is to evaluate objectives and identify the individual risks that could impact these objectives. The output from a business impact analysis is the identification of the critical activities that must be maintained for the organization to continue to function.

It can be seen that the ERM approach and the business impact analysis approach are very similar, because both approaches are based on the identification of the key dependencies and functions that must be in place for the continuity and success of the business.

The next activity differs between ERM and BCP, because the former is concerned with the management of the risks that could impact processes, whereas business continuity is concerned with actions that should be taken to maintain the continuity of individual activities.

The business continuity approach, therefore, has the very specific function of identifying actions that should be taken after the risk has materialized in order to minimize its impact.

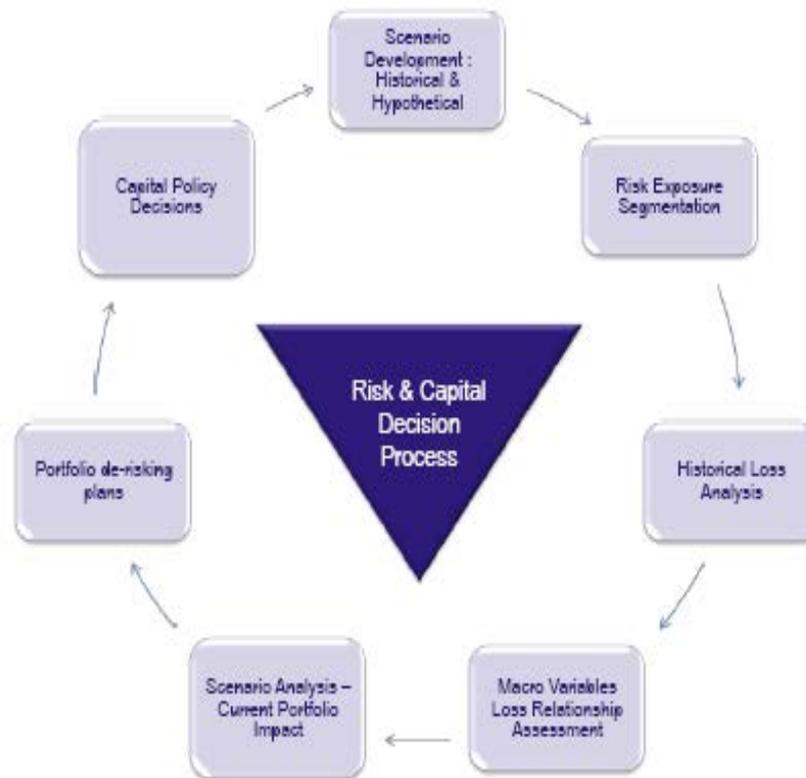
BCP relates to the damage-limitation and cost-containment components of the loss control. BCP as a part of operational risk should always be part of the ERM and should be managed separately.

- 3.8** An approach used by risk managers is to simulate extreme market moves over a range of different scenarios. One method is to use Monte Carlo simulation.

Monte Carlo Simulation, is more flexible than other methods of estimating VAR. As with historical simulation, Monte Carlo simulation allows the risk manager to use actual historical distributions for risk factor returns rather than having to assume normal returns. A large number of randomly generated simulations are run forward in time using volatility and correlation estimates chosen by the risk manager. Each simulation will be different,

but in total the simulations will aggregate to the chosen statistical parameters (i.e., historical distributions and volatility and correlation estimates). This method is more realistic as compared to other methods and, therefore, is more likely to estimate VaR more accurately. However, its implementation requires powerful computers and there is also a trade-off in that the time to perform calculations is longer.

3.9 Yes, there is a standard way of stress testing Process.



The Stress Test process can be applied to generate current assessments of income and expenses, losses and capital ratios etc. of a portfolio.

Yes, it complements VAR measure, whose calculations tends to underestimate extreme losses.

CASE STUDY: 4

Famous Textiles Limited (FTL):

FTL is manufacturing and selling export varieties of textile home furnishings, such as bed, sofa and pillow covers, curtains, towels etc. made of cotton, rayon, and silk. FTL is based in Karur, Tamilnadu and the town is famous for manufacturing such products. Out of the total sales of FTL, nearly 90% were export sales.

Key Financials (figures in crores):

Financial Year	2016-17	2017-18	2018-19
Sales	100	120	150
Gross Profit	10	8	6
EBIT	4	3	2

The management is worried about the poor performance of the company and auditor pointed out that such a decline in profits may be due to faulty processes in the operations of FTL.

Appointment of risk management specialist:

Ms. Meena, who is specializing in risk management is appointed to go through the various problems faced by the company, study the bottlenecks in the processes and suggest ways of removing the same.

Analysis of Operations of FTL by Ms. Meena:

Ms. Meena studied the various operations of FTL, and she found out:

- i. The production operations consisted of buying the cotton and other yarns, manufacturing the fabrics, calendarizing, printing, stitching, and packing and shipping.
- ii. The yarns were sent to textile mills, situated near the town, who converted them into fabrics and sent back to FTL. Such fabrics were sent to service providers for calendaring, dyeing, printing, and sometimes for stitching. The movement of such goods are recorded and maintained in 'Monit', which is an in-housed developed application.
- iii. There were several process bottlenecks in the operations; wrong items / quantities were sent for calendaring, wrong designs were printed, delay in maintaining the time schedule, expected quality standards not met etc.
- iv. The service providers who were given the work for printing, sometimes were found to be using dyes and chemicals in printing the fabrics, which were not approved to be used by the foreign buyers. The same resulted in rejection of the finished products. The service providers said that such specifications were not provided to them by FTL.
- v. She made cost analysis of various products and found out that cost of some products which used exclusive designs exceeded the selling rates. There was lack of coordination of various departments and design changes made by one department were not informed to other departments involved in the production of the same products, which resulted in extra expenses.
- vi. FTL produced an excess of 5% of a product, to accommodate circumstances for possible mistakes in the finished products. Ms. Meena noticed that in some cases, there were excess production to the extent of 10% and the same could not be billed to the buyer.

- vii. *A cheque for ₹ 20,000/- was issued to Mr. Kumar, an employee of FTL on 14th Sep 2019 and the entries were passed by the accounts department then and there. In January 2020, the accountant found out that such cheque was passed for ₹ 2 lakhs by the bank. The accountant approached the bank, who accepted the wrong passing of the cheque and immediately credited the balance of ₹ 1.80 lakhs to FTL's bank account.*
- viii. *Pen drives and other portable media devices were extensively used and most of the computer systems were connected to Internet and the employees were often found to be surfing various websites that are unconnected to the business of FTL. These resulted in viruses affecting the computer systems.*

Suggestions made by Ms. Meena:

- i. *The purpose of ISO 31000 is to provide principles and generic guidelines on risk management that could achieve convergence from a variety of standards, methodologies and procedures that differ between industries, subject matters, and countries. She suggested to the management to prepare Risk Management Checklist (RMC) as enunciated by ISO 31000.*
- ii. *Ms. Meena suggested to the management to consider approaching the bank for a term loan of ₹ 3 crores for overhauling the machinery and a working capital loan of ₹ 1 crore which would enable the company to benefit from the cash discounts offered by the raw material suppliers.*
- iii. *The inherent risks in outsourcing would include, i) that the quality in the activities of the service providers are not according to the quality expectations of the company, ii) the service providers lack knowledge of the processes to be carried out by them, iii) service providers failing to meet the deadlines in time schedule etc, She requested the management to realise the importance of identifying risks and controls associated with the above risks and advised the management that this could be done through Risk Control Self-Assessment (RCSA) activity through an objective, quantitative review.*
- iv. *As FTL is exporting its products to various countries, it is highly essential to assess Country Risk (CR) of those countries. It is a broader concept and covers the adverse impact of host country's economic, financial, and political environment. For assessing such risks, she suggested to the management to study the concept of Quantitative Tools and the connected indices that can be used for Country Risk Analysis (CRA).*
- v. *She also suggested to appoint internal auditors to periodically review various operations of the company.*
- vi. *She suggested to the management to hold regular and periodic meetings of the management with departmental and functional heads to discuss various problems faced by them and to find out solutions for the same.*

Therefore, to further study the implications, she was assigned by the management, an additional task of assessing the post loss risk management.

On the basis of above, you are required to answer the following questions:

Multiple Choice Questions

Choose the most appropriate answer from the given options.

- (4.1)** Which of the following is not an index that would be used in the CRA that Ms. Meena was suggesting to the management to be studied by them?
- (A) Human Development Index
 - (B) Democracy Index
 - (C) Gini Coefficient Index
 - (D) Event Driven Index
- (4.2)** The most important objective in the additional task assigned to Ms. Meena would be?
- (A) To reduce the legal requirements.
 - (B) To ensure the survival of the company.
 - (C) To lessen the concerns of the management.
 - (D) To review the available risk management procedures.
- (4.3)** Which of the following control would have best addressed the wrong passing of the cheque issued to Mr. Kumar?
- (A) Taking photostat copies of all the cheques issued by the company.
 - (B) Obtaining printouts of statement of accounts from the bank.
 - (C) Reconciling the bank accounts atleast once in a fortnight.
 - (D) Verifying the voucher obtained from Mr. Kumar with accounts.
- (4.4)** The best form of control to address the risk of virus attack in the company would be?
- (A) Employing an updated packet filter firewall with strict employee access-control privileges in all the computers.
 - (B) Scanning all the files with updated anti-virus software before downloading or copying in all the computers.
 - (C) Encrypting the data in the portable media devices.
 - (D) Disabling portable media ports in all the computers.
- (4.5)** When preparing the RMC as per the suggestion of Ms. Meena, the checklist under Risk Strategy would most likely include
- (A) Business continuity plans and disaster recovery plans established and regularly tested.

- (B) Risk management responsibilities allocated to an appropriate management committee.
- (C) Arrangements in place to audit the efficiency and effectiveness of the controls in place for significant risks.
- (D) Key dependencies for success identified, together with the matters that should be avoided. **(5 x 2 Marks = 10 Marks)**

Descriptive Questions

- (4.6) The management wants to see a sample RCSA entry in respect of 'outsourcing management process' of FTL in the RCSA register proposed to be maintained. You are requested by the management to write a comprehensive RCSA entry, relating to the 'risk of service providers failing to meet the deadlines in time schedule'. **(6 Marks)**
- (4.7) The following figures of FTL are available as on 31st March 2019.

Item	Rs. in Crores
Retained earnings	1
Total Assets	21
Total Liabilities	6
Working Capital	1
Market Value of equity	2

- Calculate Altman-Z score as on 31st March 2019. **(5 Marks)**
- (4.8) Risk management and governance are intricately linked, and the management of FTL would like to know the importance of risk management. Discuss the same. **(4 Marks)**

Answer

Multiple Choice Questions

- 4.1 (D)
- 4.2 (B)
- 4.3 (C)
- 4.4 (B)
- 4.5 (D)

4.6 Sample entry in the RCSA register covering the Outsourcing Management Process:

1	Process	Outsourcing Management Process
2	Sub-process	Adhering to time schedule

3	Inherent risk description	Risk of service providers failing to meet the deadlines in time schedule
4	Probability rating of the risk	2 out of 10*
5	Impact rating	1 on a scale of five*
6	Risk type	Operational risk
7	Control description	Manager (Operations) reviews on a periodical basis whether the service providers adhere to the timeliness agreed with FTL
8	Control type	Detective
9	Control owner	Manager (Operations)
10	Control Test steps	i) Maintaining and updating the Works Alloted Register. ii) Monitor the movement of goods sent by vehicles and their arrival in the premises on time.
11	Test results	Test results showed minor deviations
12	Residual risk rating	2 out of 10*
13	Financial assertion impact	Extremely low
14	Name of the system used	Monit
15	Sample description of test done	For the sample reviews performed by the Manager, tested and verified whether timely delivery of service has been made by Service Providers A and B

4.7 The Workings

$$X1 = (\text{Working capital} / \text{Total Assets})$$

$$X2 = (\text{Retained Earnings} / \text{Total Assets})$$

$$X3 = (\text{Earnings Before interest and Taxes} / \text{Total Assets})$$

$$X4 = (\text{Market Value of Equity} / \text{Book Value of Total Liabilities})$$

$$X5 = (\text{Sales} / \text{Total Assets})$$

$$X1 = 10000000 / 210000000 = 0.0476$$

$$X2 = 10000000 / 210000000 = 0.0476$$

$$X3 = 20000000 / 210000000 = 0.0952$$

$$X4 = 20000000 / 60000000 = 0.3333$$

$$X5 = 1500000000 / 210000000 = 7.1429$$

The Formula

$$Z = 1.2 \times X1 + 1.4 \times X2 + 3.3 \times X3 + 0.60 \times X4 + 1.0 \times X5$$

$$Z = 1.2 \times 0.0476 + 1.4 \times 0.0476 + 3.3 \times 0.0952 + 0.60 \times 0.3333 + 1.0 \times 7.1429$$

$$Z = 0.0571 + 0.0667 + 0.3142 + 0.20 + 7.1429$$

$$Z \text{ score} = 7.7809 \text{ (or } 7.781)$$

4.8 Importance of Risk Management:

- Risk Management is one of the important pillars of Governance and arguably the only tool to deal with business uncertainty. Risk Management is used most successfully by Fortune 500 and other large companies to sustain and grow their businesses. Risk management is recognised as an integral component of good management and governance. It is an iterative process consisting of steps, which, when undertaken in sequence, enable continual improvement in decision making.
- Risk management is the term applied to a logical and systematic method of establishing the context, identifying , analysing , evaluating, treating, monitoring and communicating risks associated with any activity, function or process in a way that will enable organisations to minimise losses and maximize opportunities.
- Risk management is as much about identifying opportunities as avoiding or mitigating losses.
- Risk consequences can be fatal to any business. The expenditure of fixing damage and/or the loss of valued assets or even customers to competition after a catastrophe can have a significant impact on the bottom line of a business. By identifying and managing risks entities are able to actively protect value from any potential catastrophes and save valuable time and money. A risk management plan and system is there to do more than identify risk, a good system should also quantify the risk, predict the impact, and put procedures in place to mitigate the risk, or even eliminate it to the extent possible.

CASE STUDY: 5

Started in 2018, ALCON is a non-banking finance company (NBFC) and is headquartered at Pune. The company has reported business of INR 500 Crores in FY 2019-20. Currently, ALCON has few products and operates mainly in rural and semi-urban areas. COVID-19 changed economic and operational realities have opened new opportunities for the company.

The strategy and finance team has come out with a next five year plan to capitalize the prevailing situation. The five year business target is INR 1000 Crores and the company also wants to move into urban areas. However, the expansion strategies also involve operational risk moving into different territory. In order to address this the company has hired a full time Chief Risk Officer (CRO). The CRO has informed the Board that considering the expansion strategies of the company, the application of advanced analytics, including machine learning (ML) and artificial

intelligence (AI), should be a core part of for the management of operational and non-financial risk. While the Board agrees with the suggestion of the CRO they are skeptical about the expected return on such investment.

The Board believes with few exceptions, the financial industry is still playing 'catch up' in AI terms. For many firms, the experimental AI phase is ongoing, with practical use cases still emerging. They are wondering whether about the timing of using such technologies and would like more analysis to conclude whether it is the right time to use such tools in the operations. The CRO made number of presentations in this respect to the Board and explained that AI, at its heart, is a set of statistical processes and like any other statistical process, it needs to be understood and managed in the right way. Applied to certain processes, AI techniques can help to standardize manual, time-consuming tasks and make them more efficient. This way company would be able to reduce turnaround time (TAT) and also expects to save significant operational costs. The CRO further clarified that AI's inherently statistical nature is often hidden behind buzzwords and hype. The CRO believes that ML techniques will play a key role in operational risk measurement.

Because a complete list of potential operational risks would be enormous and constantly growing longer as new products and product platforms would be adopted, a necessary first step in operational risk management is to sort operational risks into several broad categories. In addition to organizing an unwieldy area of risk management, categorizing operational risks will also help with subsequent risk measurement and resource allocation decisions. Considering changes in the business environment of ALCON there would be impact on all risk categories. However, the Board has directed the CRO to strengthen operational risk framework of the company first considering its expansion strategy.

The focus on cyber security was not adequate in the past and it has been decided to improve cyber risk controls especially considering the rising volume of digital business. While the existing team is familiar with the basics of firewalls, malware and phishing, they are struggling to connect the technical aspects of cyber security with the people and process risks that operational risk is designed to monitor and control. Currently however there is no coordination between cyber security team and operational risk management team. Currently, the cyber security is managed as third line of defence and it is restricted to the cyber security team only. In a recent past there were multiple instances of malware attack and the CRO is reviewing the governance and practices to ensure that such attacks are minimized.

ALCON has currently outsourced number of operations as a part of cost control and capacity management exercise. At the current size it was found effective but going forward the management believes that the current level of controls may not be adequate as increased operational complexities are bound to increase operational and overall risks.

On the basis of above, you are required to answer the following questions:

Multiple Choice Questions

Choose the correct answer from the given options.

- (5.1) Which one of the following is incorrect with respect to an effective operational risk framework?
- (A) Scenario analysis is only looking for rare, catastrophic risks but it does not push the participants to think outside their comfort zone
 - (B) Loss data tells us what has already happened and also to consider how to control and mitigate those risks in the future.
 - (C) Risk Control Self-Assessment (RCSA) allows us to identify all risks, not just those that have already materialized.
 - (D) A Key Risk Indicator (KRIs) predicts that a risk is changing and would allow for proactive intervention
- (5.2) In which one of the following line of defence operational risk management department can be included?
- (A) First
 - (B) Second
 - (C) Third
 - (D) Fourth
- (5.3) The CRO informed the Board about malware attacks. One of the board members wanted to know more about the malware. In your opinion which one of the following can be covered as part of malware?
- (A) A virus
 - (B) A ransomware
 - (C) A hacker tool
 - (D) All of the above
- (5.4) The CRO has decided to strengthen governance framework of the risk management. Which of the following is correct with respect to governance framework of operational risk?
- (A) Governance
 - (B) Culture and awareness
 - (C) Policy and procedures
 - (D) All of the above

(5.5) *The operational Risk can be divided between people, process, system and external events. Which of the following is not part of operational risk for ALCON?*

- (A) *Technology risk, Legal and Regulatory Risk*
- (B) *Model Risks*
- (C) *Transaction Risk*
- (D) *Interest Rate Risk*

(5 x 2 Marks = 10 Marks)

Descriptive Questions

(5.6) (A) *What is the difference between AI and ML?* **(1 Mark)**

(B) *What are the challenges a typical company like ALCON would face while implementing AI?* **(2 Marks)**

(C) *Considering the nature of business of ALCON, what are the four areas you can think, where in your opinion AI and ML can be applied?* **(2 Marks)**

(5.7) (A) *The CRO has informed to the board that first KRIs need to be identified before implementing RCSA. Do you agree with the suggestion of the CRO? Explain your answer with reasons.* **(2 Marks)**

(B) *Who conducts the RCSA and how it is different from the control assessment? Which are the two methods you think can be used to implement RCSA?* **(2 Marks)**

(5.8) *What processes ALCON should follow before launching new products to address operational risks?* **(2 Marks)**

(5.9) (A) *Cyber security should be treated as another operational risk to be embedded in the organization's enterprise risk management framework. In your opinion, at what level of defence (LOD) the cyber security should be considered?* **(1 Mark)**

(B) *What would be your three recommendations in order to strengthen operational risk of ALCON?* **(3 Marks)**

Answer

Multiple Choice Questions

5.1 (A)

5.2 (B)

5.3 (D)

5.4 (D)

5.5 (D)

5.6 (A) *Machine Learning a standard software code is characterized by explicit rules that a computer is supposed to perform. In case, there is a change in the data / situation, a*

programmer needs to change these explicit rules. In contrast, a machine learning program dynamically responds to change in data / situation by changing the rules that govern the behaviour.

Machine learning, meanwhile, uses an inductive approach to form a representation of the world based on the data it sees. It is able to tweak and improve its representation as new data arrive. In that sense, the algorithm “learns” from new data inputs and gets better over time.

Artificial Intelligence is the science that makes intelligent machines especially computer programs. It is a way of making a computer in a similar manner the intelligent humans think.

It works by studying how human brain thinks and how humans learn, decide and work while trying to solve a problem, and then the outcomes of this study is used in developing intelligent software and systems. It has been dominant in many fields such as Gaming, Natural Language Processing, Expert Systems, Vision Systems etc.

(B) Some of the challenges which a typical company like ALCON is likely to face while implementing AI are as follows:

- (i) Finance industry is still to ‘catchup’ in AI terms.
- (ii) For many firms experiment stage of AI is going on.
- (iii) Changes in the business environment.
- (iv) No coordination between cyber security team and operational risk management team.
- (v) Outsourcing number of operations as a part of Cost Control.
- (vi) Board’s skeptical view about the expected return on investment in AI.
- (vi) Might involve huge IT expenditure.
- (vii) Huge data to be made available

(C) Following are some areas where we can AI and ML can be applied by ALCON:

- (i) Development of new products.
- (ii) Managing the cyber risks.
- (iii) Replying the queries of the customers.
- (iv) Analyzing the behaviour of the customers.
- (v) Checking of KYC of customers before arriving at any loan.
- (vi) Avoiding any regulatory violation.

5.7 (A) No. The suggestion made by the CRO is not correct. It is helpful to complete the RCSA program before seeking KRIs so that the search can be narrowed down to only

those metrics that are relevant to the risks that have been identified in the RCSA.

- (B) RCSA is conducted by the department or business unit. The scoring of risks and controls reflects not the view of a third party, but the view of the department or business.

Two methods form implementing RCSA

- (i) **Questionnaire method:** The questionnaire based approach uses a template to present standard risk and control questions to participants. The content of the questionnaire is designed by the operational risk team, usually after intensive discussions across the firm. Each risk category or business process is analysed and a list of related risks is prepared.
- (ii) **Workshop method:** For each risk, expected controls are identified workshop method RCSA is discussed in a group setting, with facilitation from the operational risk department. Each risk is discussed, and related controls are scored for effectiveness. Once the controls have been scored, the residual risk is scored, often on a high-medium-low scale, along with related probabilities.

- 5.8 The process ALCON should follow before launching new product to address operational risk are as follows:

- identifying business functions, assets, vulnerabilities and threats;
- assessing the risks of launching new product;
- developing a risk management plan;
- implementing risk management actions, and
- re-evaluating the risks.

- 5.9 (A) Cyber Security should be considered in Second Line of Defence (LOD).

- (B) Following are some of the recommendations in order to strengthen the Operational Risk of ALCON:

- (i) Establishing coordination between Cyber Security team and Operational Risk Management team.
- (ii) Have a better control over outsourcing operations
- (iii) Carrying out Business Impact Analysis (BIA).