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# PAPER-11 FMBDA

## FM Important Questions

**Question. 1** What is Wealth Maximization as the Objective of Financial Management? Why is profit maximization not an operationally feasible criterion? State briefly Interrelationship between Investment, Financing and Dividend Decisions.

**Answer. 1** Wealth Maximization means maximization of the market price of the equity shares of the company in the long run. The long run implies a period which is long enough to reflect the normal market price of the shares irrespective of short-term fluctuations. The long-term price of an equity share is a function of two basic factors:

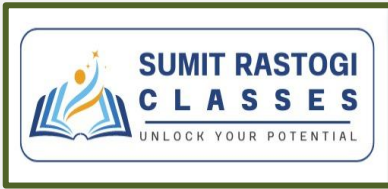
- (i) The likely rate of earnings or earnings per share (EPS) of the company; and
- (ii) The Capitalization rate reflects the liking of the investors of a company.

**Profit maximization is not an operationally feasible criterion because it suffers from the following limitations:**

1. It is vague because it is not clear whether the term relates to economic profit, accounting profit, profit after tax or before tax.
2. It ignores the Timing of Returns.
3. It ignores Risk factor.
4. It assumes Perfect Competition.
5. In new business environment profit maximization is regarded as –
  - (i) Unrealistic
  - (ii) Difficult
  - (iii) Inappropriate
  - (iv) Immoral

**Investment, financing, and dividend decisions are integral components of a company's financial management, and they are closely interconnected, collectively shaping the company's overall financial strategy.**

1. Investment decisions directly impact both financing and dividend decisions. When a company decides to undertake an investment project, it requires funds to finance it. This leads to financing decisions, where the company must choose the appropriate mix of debt and equity to raise the necessary capital. If the company opts for more debt, it might have higher interest obligations, affecting the available funds for dividends. Conversely, if it raises more equity, it could lead to dilution of ownership and potentially affect shareholders' dividend expectations.



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2. Financing decisions, in turn, influences investment and dividend decisions. The cost and availability of financing can affect the feasibility of certain investment opportunities. If financing is costly or restricted, the company might forego potentially profitable investments. Moreover, the level of debt in the capital structure impacts on the company's financial risk, affecting its dividend policy. High debt levels may result in the company retaining more earnings to repay debt, limiting dividend payouts.
3. Dividend decisions also play a role in the interrelationship. The company's dividend policy depends on its financial performance and the available cash flow. If the company pays out a substantial portion of earnings as dividends, it might have fewer funds available for investments. This could impact on the company's growth prospects and, consequently, its ability to undertake profitable projects in the future. Ultimately, the goal of these interrelated decisions is to maximize shareholder wealth while balancing risk and return. Financial managers must carefully assess the company's financial position, growth opportunities, and capital market conditions to strike an optimal balance between investment, financing, and dividend decisions. An efficient and well-structured interrelationship between these decisions can lead to a financially healthy and successful company in the long run.

**Question. 2 Explain Ex-ante and Ex-post Return**

**Answer. 2**

**Ex-ante Return:**

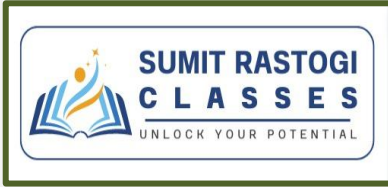
**Ex-ante refers to future events. Ex-ante return is the prediction of returns that investor can get from a security or a portfolio.**

- (i) It helps investor to predict future return and to take right decision from investment.
- (ii) Ex-ante predictions help companies to attract investors and raise capital.
- (iii) It helps company to effectively plan inflation, deflation, or serious situations like a recession.

**Ex-post Return:**

Ex-post means after the event. Ex-post returns are the returns that investor has already got from investment, i.e., historical return.

- (i) It is useful for prediction of future trend, price.
- (ii) It helps in predicting returns from a security based on actual returns from it over years.
- (iii) Companies can use historical data to predict future earnings
- (iv) Government and other agencies can use actual results from the past data.



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**Question. 3** Discuss Types of Risk

**Answer. 3** According to Horne and Wachowicz, risk is the variability of returns from those that are expected. The greater the variability, the riskier the security is said to be.

Risk in an investment asset may be divided into: (i) Systematic Risk and (ii) Unsystematic Risk.

- A. **Systematic Risk:** It represents that portion of Total Risk which is attributable to factors that affect the market as a whole. Economic, political and sociological changes are sources of systematic risk. Beta is a measure of Systematic Risk.
- B. **Unsystematic Risk:** It is the position of total risk that is unique to a firm or industry.

**A. Systematic Risk:**

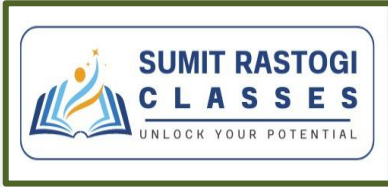
It represents that portion of total risk which is attributable to factors that affect the market as a whole. It arises out of external and uncontrollable factors, which are not specific to a security or industry to which such security belongs. It is that part of risk caused by factors that affect the price of all the securities. Beta is a measure of Systematic Risk. It cannot be eliminated by diversification. Systematic risks are discussed below:

1. **Market Risk:** These are risks that are triggered due to social, political and economic events. For example, when CBOT issued a draft circular on how to treat income from trading in shares, whether as Capital Receipts or Business Receipts, the stock prices fell down sharply, across all sectors. These risks arise due to changes in demand and supply, expectations of the investors, information flow, investor's risk perception, etc. consequent to the social, political or economic events.
2. **Interest Rate Risk:** Uncertainty of future market values and extent of income in the future, due to fluctuations in the general level of interest, is known as Interest Rate Risk. These are risks arising due to fluctuating rates of interest and cost of corporate debt. The cost of corporate debt depends on the interest rates prevailing, maturity periods, credit worthiness of the borrowers, monetary and credit policy of RBI, etc.
3. **Purchasing Power Risk:** Purchasing Power Risk is the erosion in the value of money due to the effects of inflation.

**B. Unsystematic Risk**

These are risks that emanate from known and controllable factors, which are unique and / or related to a particular security or industry. These risks can be eliminated by diversification of portfolio.

1. **Business Risk:** It is the volatility in revenues and profits of particular Company due to its market conditions, product mix, competition, etc. It may arise due to external reasons or (Government policies specific to that kind of industry) internal reasons (labour efficiency, management, etc.)
2. **Financial Risk:** These are risks that are associated with the Capital Structure of a Company. A Company with no Debt Financing, has no financial risk. Higher the Financial Leverage, higher the Financial Risk. These may also arise due to short term liquidity problems, shortage in working capital due to funds tied in working capital and receivables, etc.
3. **Default Risk:** These arise due to default in meeting the financial obligations on time. Non-payment of financial dues on time increases the insolvency and bankruptcy costs.



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**Question. 4**

List any four Alternative Investment Funds (AIF) and four Credit Rating Agencies in India. List any six Money Market Instruments Traded. List any four features of Treasury bills. How is Yield on Treasury Bills calculated?

**Answer. 4**

**Alternative Investment Funds (AIF):**

- Angel Fund
- Venture Capital Fund
- Private Equity Fund, and
- Hedge Funds
- Credit Rating Agencies in India:

**Money market Instruments Traded:**

- Call/Notice Money
- Treasury Bills
- Commercial Bills
- Certificate of Deposits
- Commercial Papers
- Inter-Bank Participation Certificates
- Inter Corporate Deposits
- Swaps

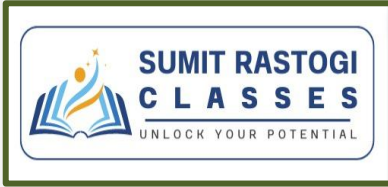
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- Care Ratings Limited
- India Ratings and Research Pvt. Ltd. (Formerly Fitch Ratings India Pvt. Ltd.)

**Features of Treasury Bills:**

- (1) They are negotiable securities.
- (2) They are highly liquid as they are of shorter tenure and there is the possibility of inter-bank repo among them.
- (3) There is an absence of default risk.
- (4) They have an assured yield, low transaction cost and are eligible for inclusion in the securities for SLR purposes.

$$\text{Yield on Treasury Bills} = \text{Yield} = \frac{100 - \text{Purchase Price}}{\text{Purchase Price}} \times \frac{365 \text{ Days}}{\text{Days to Maturity}} \times 100$$



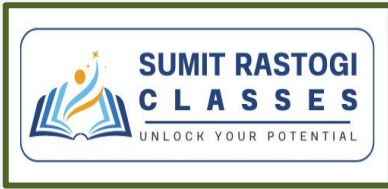
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**Question. 5**

**Examine the difference between Primary Market and Secondary Market.**

**Answer. 5**

Primary Market	Secondary Market
It deals with new securities, i.e., securities which were not previously available, and are offered for the first time to the investors.	It is a market for old securities which have been issued already and granted stock exchange quotation.
Securities are acquired from issuing companies themselves.	Securities are purchased and sold by the investors without any involvement of the companies.
It provides funds to new enterprises & also for expansion and diversification of the existing one and its contribution to company financing is direct.	It does not supply additional funds to company since the company is not involved in transactions.
It does not lend any liquidity to the securities.	The secondary market provides facilities for the continuous purchase and sale of securities, thus lending liquidity and marketability to the securities.
It is not rooted in any spot and has no geographical existence. It has neither any tangible form nor any administrative organizational set up.	Secondary markets have physical existence in the form of stock exchange and are in a particular geographical area having an administrative organization.
Helps in creating new capital.	Helps in maintenance of existing capital.
Volume of transactions is low compared to secondary market.	Volume of transactions is high compared to primary market.



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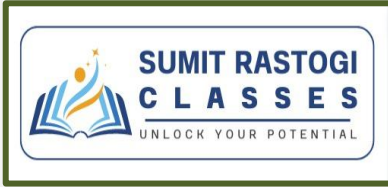
### **Question. 6**

**List the different types of Money Market Instruments.**

### **Answer. 6**

**Different types of Money Market Instruments:**

- **Call Money:** Call/Notice money is an amount borrowed or lent on demand for a very short period. If the period is more than one day and up to 14 days, it is called notice money and if the period is more than 14 days, it is called call money.
- **Treasury Bills:** Treasury bills are short-term instruments issued by the Reserve Bank on behalf of the government to tide over short-term liquidity shortfalls. This instrument is used by the government to raise short term funds to bridge seasonal or temporary gaps between its receipts (revenue and capital) and expenditure. They form the most important segment of the money market not only in India but all over the world as well.
- **Commercial Bills:** The working capital requirement of business firms is provided by banks through cash-credits / overdraft and purchase/discounting of commercial bills. Commercial bill is a short term, negotiable, and self-liquidating instrument with low risk. It enhances the liability of making payments at a fixed date when goods are bought on credit.
- **Commercial Paper:** Commercial paper (CP) is an unsecured short-term promissory note, negotiable and transferable by endorsement and delivery with a fixed maturity period. It is issued only by large, well-known, creditworthy companies and is typically unsecured, issued at a discount on face value, and redeemable at its face value. The aim of its issuance is to provide liquidity or finance company's investments, e.g., in inventory and accounts receivable.
- **Certificate of Deposits (CD):** CD is a negotiable money market instrument and issued in dematerialized form or as a usance promissory note, for funds deposited at a Bank or other eligible Financial Institution for a specified period.
- **Repo, Reverse Repo:** Repo or ready forward contract is an instrument for borrowing funds by selling securities with an agreement to repurchase the said securities on a mutually agreed future date at an agreed price which includes interest in the borrowed funds. Repo rate is the return earned on a repo transaction expressed as an annual interest rate.  
The Reverse of the Repo Transaction is called 'reverse repo' which is lending funds against buying of securities with an agreement to resell the said securities on a mutually agreed future date at an agreed price which includes interest in the funds lent.
- **Promissory Notes and Government Securities:** Promissory Note is a written, dated and signed two-party instrument containing an unconditional promise by the maker to pay a definite sum of money on demand or at a specified future date.  
Government security is a tradable instrument issued by the central government or the state governments. It acknowledges the Government's debt obligation. Such securities are short-term (usually called treasury bills, with original maturities of less than one year) or long-term (usually called Government bonds or dated securities with original maturity of one year or more).



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**Question. 7**

**Briefly describe the Primary Functions of Commercial Banks in India.**

**Answer. 7**

**The primary functions (also known as banking functions) of commercial banks in India are:**

**(a) Acceptance of Deposits from Public:** Bank accepts following deposits from publics:

(i) Demand deposits can be in the form of current account or savings account. These deposits are withdrawable any time by depositors by cheques. Current deposits have no interest or nominal interest.

Such accounts are maintained by commercial firms and businessman. Interest rate of saving deposits varies with time. Savings accounts are maintained for encouraging savings of households.

(ii) Fixed deposits are those deposits which are withdrawable only after a specific period. It earns a higher rate of interest.

(iii) In recurring deposits, people deposit a fixed sum every month for a fixed period.

**(b) Advancing Loans:** It extends loans and advances out of money deposited by public to various business units and to consumers against some approved. Usually, banks grant short-term or medium-term loans to meet requirements of working capital of industrial units and trading units. Banks discourage loans for consumption purposes. Loans may be secured or unsecured. Banks do not give loans in form of cash. They make the customer open account and transfer loan amount into the customer's account.

Banks grant loan in following ways: –

(i) Overdraft

(ii) Cash Credit

(iii) Discounting Trade Bills

(iv) Term Loan

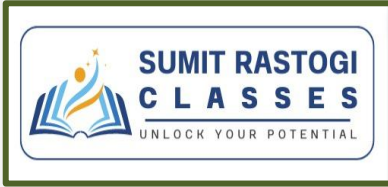
(v) Consumer Credit

(vi) Money at Call or Short-term Advances

**(c) Credit Creation:** Credit creation is another banking function of commercial bank. i.e., it manufactures money.

**(d) Use of Cheque System:** Banks have introduced the cheque system for withdrawal of deposits. There are two types of cheques – bearer & cross cheque.

**(e) Remittance of Funds:** Banks provide facilities to remit funds from one place to another for their customers by issuing bank drafts, mail transfer etc.



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**Question. 8**

**What are the Principal Features of a Commercial Paper? Discuss the Advantages offered by Commercial Paper to its issuers.**

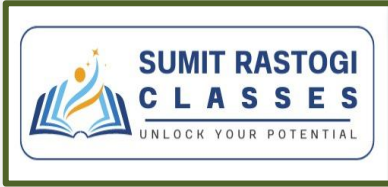
**Answer. 8**

**The principal features of commercial papers are:**

- (i)** Commercial paper (CP) is an unsecured short-term promissory note, negotiable and transferable by endorsement and delivery with a fixed maturity period.
- (ii)** It is issued only by large, well-known, creditworthy companies and is typically unsecured, issued at a discount on face value, and redeemable at its face value.
- (iii)** The aim of its issuance is to provide liquidity or finance company's investments, e.g., in inventory and accounts receivable.

**The Advantages of Commercial Papers are:**

- 1. Simplicity:** Documentation involved in issue of Commercial Paper is simple and minimum.
- 2. Cash Flow Management:** The issuer company can issue Commercial Paper with suitable maturity periods (not exceeding one year), tailored to match the cash flows of the Company.
- 3. Alternative for Bank Finance:** A well-rated company can diversify its sources of finance from Banks to short-term money markets, at relatively cheaper cost.
- 4. Returns to Investors:** CP's provide investors with higher returns than the banking system.
- 5. Incentive for Financial Strength:** Companies which raise funds through CP become well-known in the financial world for their strengths. They are placed in a more favorable position for raising long-term capital also. So, there is an inbuilt incentive for Companies to remain financially strong.



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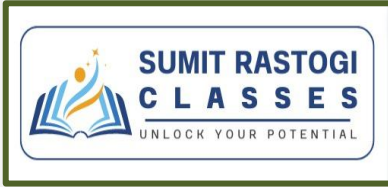
**Question. 9**

**Interpret the Different Categories of NBFC registered with RBI.**

**Answer. 9**

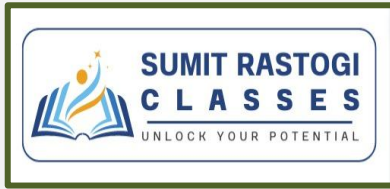
**Within this broad categorization the different types of NBFCs are as follows:**

- (i) **Asset Finance Company (AFC):** An AFC is a company which is a financial institution carrying on as its principal business the financing of physical assets supporting productive/economic activity, such as auto-mobiles, tractors, lathe machines, generator sets, earth moving and material handling equipment, moving on own power and general-purpose industrial machines.
- (ii) **Investment Company (IC):** IC means any company which is a financial institution carrying on as its principal business the acquisition of securities,
- (iii) **Loan Company (LC):** LC means any company which is a financial institution carrying on as its principal business the providing of finance whether by making loans or advances or otherwise for any activity other than its own but does not include an Asset Finance Company.
- (iv) **Infrastructure Finance Company (IFC):** IFC is a non-banking finance company (a) which deploys at least 75% of its total assets in infrastructure loans, (b) has a minimum Net Owned Funds of ₹300 crores, (c) has a minimum credit rating of 'A' or equivalent (d) and a CRAR of 15%.
- (v) **Systemically Important Core Investment Company (CIC-ND-SI):** CIC-ND-SI is an NBFC carrying on the business of acquisition of shares and securities which satisfies the following conditions: -
  - (a) it holds not less than 90% of its Total Assets in the form of investment in equity shares, preference shares, debt or loans in group companies.
  - (b) its investments in the equity shares (including instruments compulsorily convertible into equity shares within a period not exceeding 10 years from the date of issue) in group companies constitutes not less than 60% of its Total Assets.
  - (c) it does not trade in its investments in shares, debt or loans in group companies except through block sale for the purpose of dilution or disinvestment.
  - (d) it does not carry on any other financial activity referred to in Section 45I(c) and 45I(f) of the RBI act, 1934 except investment in bank deposits, money market instruments, government securities, loans to and investments in debt issuances of group companies or guarantees issued on behalf of group companies.
  - (e) Its asset size is ₹100 crores or above and
  - (f) It accepts public funds



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- (vi) **Infrastructure Debt Fund: Non- Banking Financial Company (IDF-NBFC):** IDF NBFC is a company registered as NBFC to facilitate the flow of long-term debt into infrastructure projects. IDF-NBFC raises resources through issue of Rupee or Dollar denominated bonds of minimum 5-year maturity. Only Infra-structure Finance Companies (IFC) can sponsor IDF-NBFCs.
- (vii) **Non-Banking Financial Company - Micro Finance Institution (NBFC-MFI):** NBFC MFI is a non-deposit taking NBFC having not less than 85% of its assets in qualifying assets which satisfy the following criteria:
- (a) Loan disbursed by an NBFC-MFI to a borrower with a rural household annual income not exceeding ₹1,00,000 or urban and semi-urban household income not exceeding ₹1,60,000.
  - (b) Loan amount does not exceed ₹50,000 in the first cycle and ₹1, 00,000 in subsequent cycles.
  - (c) Total indebtedness of the borrower does not exceed ₹1,00,000.
  - (d) Tenure of the loan is not to be less than 24 months for loan amount in excess of ₹ 15,000 with prepayment without penalty.
  - (e) Loan to be extended without collateral.
  - (f) Aggregate amount of loans, given for income generation, is not less than 50 per cent of the total loans given by the MFIs.
  - (g) Loan is repayable on weekly, fortnightly or monthly instalments at the choice of borrower.
- (viii) **Non-Banking Financial Company – Factors (NBFC-Factors):** NBFC-Factor is a non-deposit taking NBFC engaged in the principal business of factoring. The financial assets in the factoring business should constitute at least 50 % of its total assets and its income derived from factoring business should not be less than 50 percent of its gross income.
- (ix) **Mortgage Guarantee Companies (MGC):** MGC are financial institutions for which at least 90% of the business turnover is mortgage guarantee business or at least 90% of the gross income is from mortgage guarantee business and net owned fund is ₹100 crore.
- (x) **NBFC- Non-Operative Financial Holding Company (NOFHC):** It is the financial institution through which promoter / promoter groups will be permitted to set up a new bank. It's a wholly-owned Non-Operative Financial Holding Company (NOFHC) which will hold the bank as well as all other financial services companies regulated by RBI or other financial sector regulators, to the extent permissible under the applicable regulatory prescriptions.



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**Question. 10**

**Explain the Registration requirement of NBFCs'. Describe what residuary is for Non-Banking Company (RNBC).**

**Answer. 10**

**Registration requirement of NBFCs:**

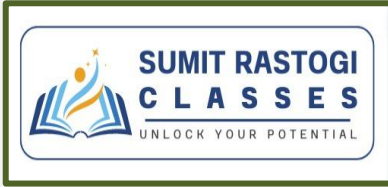
In terms of Section 45-IA of the RBI Act, 1934, no Non-banking Financial Company can commence or carry-on business of a non-banking financial institution without obtaining a certificate of registration from the Bank and without having a Net Owned Funds of ₹25 lakhs (rupees two crores since April 1999). However, in terms of the powers given to the Bank, to obviate dual regulation, certain categories of NBFCs which are regulated by other regulators are exempted from the requirement of registration with RBI viz. Venture Capital Fund/Merchant Banking companies/Stock broking companies registered with SEBI, Insurance Company holding a valid Certificate of Registration issued by IRDA, Nidhi companies as notified under Section 620A of the Companies Act, 1956, Chit companies as defined in clause (b) of Section 2 of the Chit Funds Act, 1982, Housing Finance Companies regulated by National Housing Bank, Stock Exchange or a Mutual Benefit company.

**NBFCs- Exempted from Registration:**

Housing Finance Companies, Merchant Banking Companies, Stock Exchanges, Companies engaged in the business of stock-broking/sub-broking, Venture Capital Fund Companies, Nidhi Companies, Insurance companies and Chit Fund Companies are NBFCs but they have been exempted from the requirement of registration under Section 45-IA of the RBI Act, 1934 subject to certain conditions. Housing Finance Companies are regulated by National Housing Bank, Merchant Banker/Venture Capital Fund Company/stock-exchanges/stockbrokers/sub brokers are regulated by Securities and Exchange Board of India, and Insurance companies are regulated by Insurance Regulatory and Development Authority. Similarly, Chit Fund Companies are regulated by the respective State Governments and Nidhi Companies are regulated by Ministry of Corporate Affairs, Government of India. It may also be mentioned that Mortgage Guarantee Companies have been notified as Non-Banking Financial Companies under Section 45 I(f)(iii) of the RBI Act, 1934.

**Residuary Non-Banking Company (RNBC):**

Residuary Non-Banking Company is a class of NBFC which is a company and has as its principal business, the receiving of deposits, under any scheme or arrangement or in any other manner and not being Investment, Asset Financing, Loan Company. These companies are required to maintain investments as per directions of RBI, in addition to liquid assets. The functioning of these companies is different from those of NBFCs in terms of method of mobilization of deposits and requirement of deployment of depositors' funds as per Directions. Besides, Prudential Norms Directions are applicable to these companies also.



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**Question. 11**

**Describe the Functions of Commercial Banks.**

**Answer. 11**

Functions of commercial banks can be divided in two groups—banking functions (primary functions) and non-banking functions (secondary functions).

**1. Banking Functions (primary functions):** Most of banking functions are: –

**(A) Acceptance of Deposits from Public:** - Bank accepts following deposits from publics: -

**(i)** Demand deposits can be in the form of current account or savings account. These deposits are withdrawable any time by depositors by cheques. Current deposits have no interest or nominal interest. Such accounts are maintained by commercial firms and businessman. Interest rate of saving deposits varies with time period. Savings accounts are maintained for encouraging savings of households.

**(ii)** Fixed deposits are those deposits which are withdrawable only after a specific period. It earns a higher rate of interest.

**(iii)** In recurring deposits, people deposit a fixed sum every month for a fixed period.

**(B) Advancing Loans:** It extends loans and advances out of money deposited by public to various business units and to consumers against some approved. Usually, banks grant short term or medium-term loans to meet requirements of working capital of industrial units and trading units. Banks discourage loans for consumption purposes. Loans may be secured or unsecured. Banks do not give loans in form of cash. They make the customer open account and transfer loan amount in the customer's account. Banks grant loan in following ways: –

**(i) Overdraft:** - Banks grant overdraft facilities to current account holders to draw amount more than balance held.

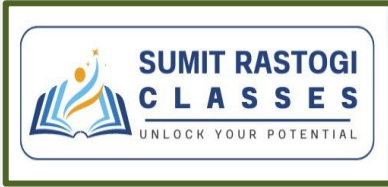
**(ii) Cash Credit:** - Banks grant credit in cash to current account holders against hypothecation of goods.

**(iii) Discounting Trade Bills:** - The banks facilitate trade and commerce by discounting bills of exchange.

**(iv) Term Loan:** - Banks grant term loans to traders and to agriculturists against some collateral securities.

**(v) Consumer Credit:** - Banks grant credit to households in a limited amount to buy durable goods.

**(vi) Money at Call or Short-term Advances:** - Banks grant loans for a very short period not exceeding 7 days to dealers / brokers in stock exchange against collateral securities.

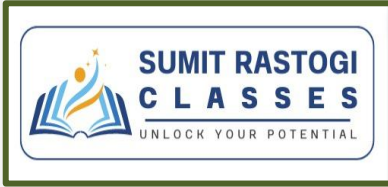


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- (C) **Credit Creation:** - Credit creation is another banking function of commercial bank. i.e., it manufactures money.
- (D) **Use of Cheque System:** - Banks have introduced the cheque system for withdrawal of deposits. There are two types of cheques – bearer & cross cheque. A bearer cheque is cashable immediately at the bank by its owner. A crossed cheque is not cashable immediately. It must be deposited only in the payee's account. It is not negotiable.
- (E) **Remittance of Funds:** - Banks provide facilities to remit funds from one place to another for their customers by issuing bank drafts, mail transfer etc.

**2. Non-Banking functions (secondary functions):** Non-banking functions are (A) Agency services (B) General utility services

- (A) **Agency Services:** - Banks perform following functions on behalf of their customers: -
- (i) It makes periodic payments of subscription, rent, insurance premium etc. as per standing orders from customers.
  - (ii) It collects bills, cheques, demand drafts, etc., on behalf of their customers.
  - (iii) It acts as a trustee for property of its customers.
  - (iv) It acts as attorney. It can help in clearing and forwarding goods of its customers.
  - (v) It acts as correspondents, agents of their clients.
- (B) **General Utility Services:** - General utility services of commercial banks are as follows:
- (i) Lockers are provided by bank to its customers at nominal rate.
  - (ii) Shares, wills, other valuables documents are kept in safe custody. Banks return them when demanded by their customers.
  - (iii) It provides travelers cheque and ATM facilities.
  - (iv) Banks maintain foreign exchange departments and deal in foreign exchange.
  - (v) Banks underwrite issue of shares and debentures of concerns.
  - (vi) It compiles statistics and business information relating to trade and commerce.
  - (vii) It accepts public provident fund deposits.



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### **Question. 12**

**Discuss the concept of Hedge Fund with its benefits. Also explain the Hedging strategies adopted in case of Hedge Funds.**

### **Answer. 12**

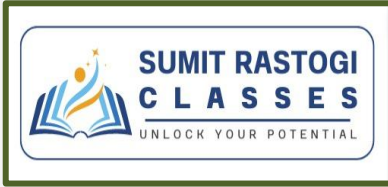
Hedge funds are private investment vehicles that do not open to the general investment public. Hedge funds face less regulation than publicly traded mutual funds, allowing them to hold substantial short positions to preserve capital during market downturns. Typically, hedge fund managers generate profit from both long as well as short positions. The private nature of hedge funds often suits both the needs of investors and managers.

#### **Benefits of Hedge Funds**

- **Seek higher returns:** Hedge fund strategies generate positive returns in both rising and falling equity and bond markets.
- **Investment styles:** Huge variety of hedge fund investment styles – many uncorrelated with each other provides investors with a wide choice of hedge fund strategies to meet their investment objectives.
- **Long term Solution:** Hedge funds provide an ideal long-term investment solution, eliminating the need to correctly enter and exit from markets.
- **Diversification:**
  - (i) Inclusion of hedge funds in a balanced portfolio reduces overall portfolio risk and volatility and increases returns.
  - (ii) Adding hedge funds to an investment portfolio provides diversification not otherwise available in traditional investments.

#### **Hedging strategies adopted in case of Hedge Funds**

- **Selling short:** Selling shares without owning them, to buy them back at a future date at a lower price in the expectation that their price will drop.
- **Using arbitrage:** Seeking to exploit pricing inefficiencies between related securities.
- **Trading options or Derivatives:** Contracts whose values are based on the performance of any underlying financial asset, index or other investment.
- **Investing in anticipation of a specific event:** Merger transaction, hostile takeover, spin-off, exiting of bankruptcy proceedings, etc.
- **Investing in deeply discounted securities:** Of companies about to enter or exit financial distress or bankruptcy, often below liquidation value.



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**Question. 13**

**Explain the regulatory role of RBI.**

**Answer. 13**

**(1) Regulator of the Banking System:**

The Reserve Bank regulates and supervises the nation's financial system. Different departments of the Reserve Bank oversee the various entities that comprise India's financial infrastructure. RBI oversees:

**(A) Commercial Banks and All-India Development Financial Institutions:**

Regulated by the Department of Banking Operations and Development, supervised by the Department of Banking Supervision.

**(B) Urban Co-operative Banks:**

Regulated and supervised by the Urban Banks Department.

**(C) Regional Rural Banks (RRB), District Central Cooperative Banks and State Co-operative Banks:**

Regulated by the Rural Planning and Credit Department and supervised by NABARD.

**(D) Non-Banking Financial Companies (NBFC):**

Regulated and supervised by the Department of Non-Banking Supervision.

The Board for Financial Supervision oversees the Reserve Bank's regulatory and supervisory responsibilities. Consumer confidence and trust are fundamental to the proper functioning of the banking system. RBI's supervision and regulations help ensure that banks are stable and that the system functions smoothly.

**As the nation's financial regulator, the Reserve Bank handles a range of activities, including:**

**(A)** Licensing

**(B)** Prescribing capital requirements

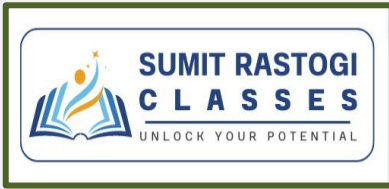
**(C)** Monitoring governance

**(D)** Setting prudential regulations to ensure solvency and liquidity of the banks

**(E)** Prescribing lending to certain priority sectors of the economy

**(F)** Regulating interest rates in specific areas

**(G)** Setting appropriate regulatory norms related to income recognition, asset classification, provisioning, investment valuation, exposure limits and the like initiating new regulation.



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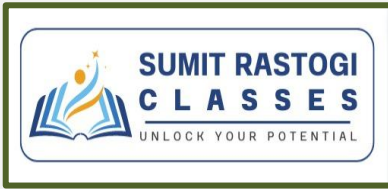
**(2) Regulator and Supervisor of Payment and Settlement Systems:** The Payment and Settlement Systems Act of 2007 (PSS Act) gives the Reserve Bank oversight authority, including regulation and supervision, for the payment and settlement systems in the country. In this role, RBI focuses on the development and functioning of safe, secure and efficient payment and settlement mechanisms.

The Reserve Bank has a two-tiered structure. The first tier provides the basic framework for our payment systems. The second-tier focusses on supervision of this framework. As part of the basic framework, the Reserve Bank's network of security systems handles various types of payment and settlement activities. Most operate on the security platform of the Indian Financial Network (INFINET), using digital signatures for further security of transactions. **The various systems used are as follows:**

- A. Retail payment systems:** Facilitating cheque clearing, electronic funds transfer, through National Electronic Funds Transfer (NEFT), settlement of card payments and bulk payments, such as electronic clearing services. Operated through local clearing houses throughout the country.
- B. Large Value Systems:** Facilitating settlement of inter-bank transactions from financial markets.

**These include:**

- (A) Real Time Gross Settlement System (RTGS):** For funds transfers
- (B) Securities Settlement System:** For the government securities market.
- (C) Foreign Exchange Clearing:** For transactions involving foreign currency.
- (D) Department of Payment and Settlement Systems:** The Reserve Bank's payment and settlement systems regulatory arm.
- (E) Department of Information Technology:** Technology support for the payment systems and for the Reserve Bank's internal IT systems.



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### **Question. 14**

**Describe the Various Functions of RBI.**

### **Answer. 14**

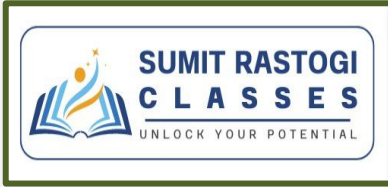
The Reserve Bank is the umbrella network for numerous activities, all related to the nation's financial sector, encompassing and extending beyond the functions of a typical central bank. Main activities or functions of Reserve Bank are:

- (i) **Monetary Authority:** The Reserve Bank of India controls the credit and formulates monetary policy. Monetary policy refers to the use of instruments under the control of the central bank to regulate the availability, cost and use of money and credit.
- (ii) **Issuer of Currency:** The Reserve Bank is the nation's sole note issuing authority. Along with the Government of India, RBI is responsible for the design and production and overall management of the nation's currency, with the goal of ensuring an adequate supply of clean and genuine notes. The Department of Currency Management at Central Office, Mumbai, in cooperation with the Issue Departments of the Reserve Bank's Regional Offices across India oversees currency management. The function includes supplying and distributing adequate quantity of currency throughout the country and ensuring the quality of banknotes in circulation by continuous supply of clean notes and timely withdrawal of soiled notes. Indirect Instrument.
- (iii) **Banker and Debt Manager to Government:** The role as banker and debt manager to government includes several distinct functions:
  - Undertaking banking transactions for the central and state governments to facilitate receipts and payments and maintaining their accounts.
  - Managing the government's domestic debt with the objective of raising the required amount of public debt in a cost-effective and timely manner.
  - Developing the market for government securities to enable the government to raise debt at a reasonable cost, provide benchmarks for raising resources by other entities and facilitate transmission of monetary policy actions.
- (iv) **Banker to Banks:** As Banker to banks, the Reserve Bank provides short-term loans and advances to select banks, when necessary, to facilitate lending to specific sectors and for specific purposes.

**As the banker to banks, RBI focuses on:**

  - Enabling smooth, swift and seamless clearing and settlement of inter-bank obligations.
  - Providing an efficient means of funds transfer for banks.
  - Enabling banks to maintain their accounts with us for purpose of statutory reserve requirements and maintain transaction balances.
  - Acting as lender of the last resort.

The Reserve Bank provides products and services for the nation's banks similar to what banks offer their own customers.
- (v) **Maintaining Financial Stability:** Pursuit of financial stability has emerged as a key critical policy objective for the central banks in the wake of the recent global financial crisis. Central banks have a critical role to play in achieving this objective. Though financial stability is not an explicit objective of the Reserve Bank in terms of the Reserve Bank of India Act, 1935, it has been an explicit objective of the Reserve Bank since the early 2000s.



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**Question. 15**

**Distinguish between Hedge Funds and Mutual Funds.**

**Answer. 15**

**Hedge funds are like mutual funds in two respects:**

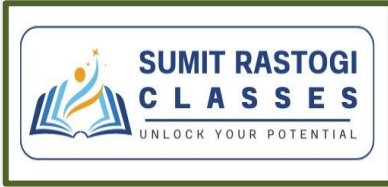
- (a) they are pooled investment vehicles i.e, several investors entrust their money to a manager).
- (b) they invest in publicly traded securities. But there are important differences between a hedge fund and a mutual fund.

These stem from and are best understood considering the hedge fund's charter: investors give hedge funds the freedom to pursue absolute return strategies.

**Mutual Funds Seek Relative Returns:**

Most mutual funds invest in a predefined style, such as "small cap value", or into a particular sector, such as the Internet sector. To measure performance, the mutual fund's returns are compared to a style-specific index or benchmark. For example, if you buy into a "small cap value" fund, the managers of that fund may try to outperform the Nifty Small Cap Index. Less active managers might construct the portfolio by following the index and then applying stock-picking skills to increase (over-weight) favored stocks and decrease (under-weight) fewer appealing stocks.

A mutual fund's goal is to beat the index or "beat the bogey", even if only modestly. If the index is down 10% while the mutual fund is down only 7%, the fund's performance would be called a success. On the passive-active spectrum, on which pure index investing is the passive extreme, mutual funds lie somewhere in the middle as they semi-actively aim to generate returns that are favorable compared to a benchmark.



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## BDA Important Questions

### MODULE-8

#### Question. 1

What do you mean by Data Ethics? Discuss the five basic principles of Data Ethics that a business organization should follow.

**OR**

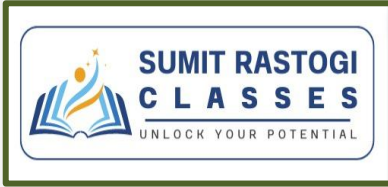
Explain briefly the Five Basic Principles of Data Ethics that a business organization should follow.

#### Answer. 1

*Data analytics can help in decision making process and make an impact. However, this empowerment for business also comes with challenges. The question is how the business organizations can ethically collect, store and use data? And what rights need to be upheld? Data ethics addresses the moral obligations of gathering, protecting and using personally identifiable information.*

**The five basic principles of data ethics that a business organization should follow:**

- (1) Regarding Ownership:** The first principle is that ownership of any personal information belongs to the person. It is unlawful and unethical to collect someone's personal data without their consent. The consent may be obtained through digital privacy policies or signed agreements or by asking the users to agree to terms and conditions. It is always advisable to ask for permission beforehand to avoid future legal and ethical complications. In case of financial data, some data may be sensitive in nature. Prior permission must be obtained before using the financial data for further analysis.
- (2) Regarding Transparency:** Maintaining transparency is important when gathering data. The objective with which the company is collecting user's data should be known to the user. For example, if the company is using cookies to track the online behavior of the user, it should be mentioned to the user through a written policy that cookies would be used for tracking user's online behavior and the collected data will be stored in a secure database to train an algorithm to enhance user experience. After reading the policy, the user may decide whether to accept or not to accept the policy. Similarly, while collecting the financial data from clients, it should be clearly mentioned that for which purpose the data should be used.



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- (3) **Regarding Privacy:** As the user may allow us to collect, store and analyze personally identifiable information (PII), that does not imply it should be made publicly available. For companies, it is mandatory to publish some financial information to the public e.g. through annual reports. However, there may be many confidential information, which if fallen into the wrong hand may create problems and financial loss. To protect the privacy of data, a data security process should be in place. This may include file encryption and dual authentication password etc. The possibility of breach of data privacy may also be done through identifying datasets.
- (4) **Regarding Intention:** The intention of data analysis should never be to make profits out of others' weaknesses or for hurting others. Collecting data which is unnecessary for analysis should avoid audits unethical.
- (5) **Regarding Outcomes:** In some cases, even if the intentions are good, the result of data analysis may inadvertently hurt the clients and data providers. This is called disparate impact, which is unethical.

### **Question. 2**

**Interpret the various types of Data used in Finance and Costing.**

**OR**

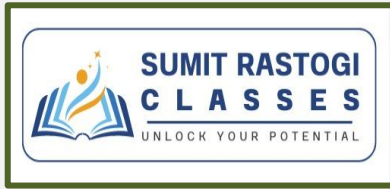
**Data plays a very important role in the study of Finance and Cost Accounting. Explain the various ways of classifying the types of data.**

**OR**

**Describe Quantitative Financial Data and Qualitative Financial Data. Explain Nominal Scale and Ratio Scale in the context of types of data.**

### **Answer. 2**

Data plays a very important role in the study of finance and cost accounting. From the inception of the study of finance, accounting and cost accounting, data always played an important role. Be it in the form of financial statements, or cost statements etc. the finance and accounting professionals played a significant role in helping the management to make prudent decisions.



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**The kinds of data used in Finance and Costing may be quantitative as well as qualitative in nature.**

- **Quantitative Financial Data:** By the term ‘quantitative data’, we mean the data expressed in numbers. The quantitative data availability in finance is significant. The stock price data, financial statements etc. are examples of quantitative data. As most of the financial records are maintained in the form of organized numerical data.
- **Qualitative Financial Data:** However, some data in financial studies may appear in a qualitative format e.g. text, videos, audio etc. These types of data may be very useful for financial analysis. For example, the ‘management discussion and analysis’ presented as part of annual report of a company is mostly presented in the form of text. This information is useful for getting an insight into the performance of the business. Similarly, key executives often appear for an interview in business channels. These interactions are often goldmines for data and information.

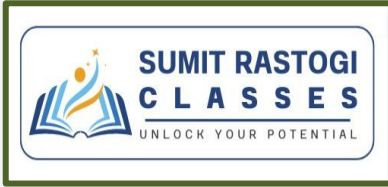
**Each gives a distinct set of traits that influences the sort of analysis that may be conducted.**

**The differentiation between the four scale types is based on three basic characteristics:**

- (A) Whether the sequence of answers matters or not
- (B) Whether the gap between observations is significant or interpretable, and
- (C) The existence or presence of a genuine zero.

**There is another way of classifying the types of data. The data may be classified also as:**

1. **Nominal Scale:** Nominal scale is being used for categorizing data. Under this scale, observations are classified based on certain characteristics. The category labels may contain numbers but have no numerical value. Examples could be, classifying equities into small-cap, mid-cap, and large-cap categories or classifying funds as equity funds, debt funds, and balanced funds etc.
2. **Ordinal Scale:** Ordinal scale is being used for classifying and put it in order. The numbers just indicate an order. They do not specify how much better or worse a stock is at a specific price compared to one with a lower price. For example, the top 10 stocks by P/E ratio.
3. **Interval scale:** Interval scale is used for categorizing and ranking using an equal interval scale. Equal intervals separate neighboring scale values. As a result of scale’s arbitrary zero point, ratios cannot be calculated. For example, temperature scales. The temperature of 40 degrees is 5 degrees higher than that of 35 degrees. The issue is that a temperature of 0 degrees Celsius does not indicate the absence of temperature. A temperature of 20 degrees is thus not always twice as hot as a temperature of 10 degrees.
4. **Ratio scale:** The ratio scale possesses all characteristics of the nominal, ordinal, and interval scales. The acquired data can not only be classified and rated on a ratio scale but also have equal intervals. A ratio scale has a true zero, meaning that zero has a significant value. The genuine zero value on a ratio scale allows for the magnitude to be described. For example, length, time, mass, money, age, etc. are typical examples of ratio scales. For data analysis, a ratio scale may be utilized to measure sales, pricing, market share, and client count.



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**Question. 3**

"Transformation of Data to Decision Relevant Information requires to go through certain core steps." — In the light of the statement given, explain the steps to transform data into information.

**OR**

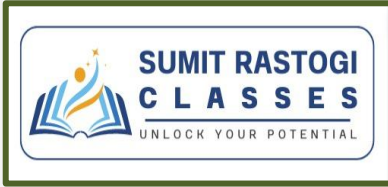
"To make the data turn into user friendly information, it should go through six core steps" – discuss.

**Answer. 3**

The emergence of big data has changed the world of business like never before. The most important shift has happened in information generation and the decision-making process. There is a strong emergence of analytics that supports a more intensive data-centric and data-driven information generation and decision-making process. The data that encompasses the organization is being harnessed into information.

**To make the data turn into user-friendly information, it should go through six core steps:**

- 1. Collection of data:** The collection of data may be done with standardized systems in place. Appropriate software and hardware may be used for this purpose. Appointment of trained staff also plays an important role in collecting accurate and relevant data.
- 2. Organizing the data:** The raw data needs to be organized in an appropriate manner to generate relevant information. The data may be grouped, arranged in a manner that create useful information for the target user groups.
- 3. Data processing:** At this step, data needs to be cleaned to remove the unnecessary elements. If any data point is missing or not available, that also needs to be addressed. The options available for presentation format for the data also need to be decided.
- 4. Integration of data:** Data integration is the process of combining data from various sources into a single, unified form. This step includes creation of data network sources, a master server and users accessing the data from master server. Data integration eventually enables the analytics tools to produce effective, actionable business intelligence.
- 5. Data reporting:** Data reporting stage involves translating the data into a consumable format to make it accessible by the users. For example, for a business firm, they should be able to provide summarized financial information e.g. revenue, net profit etc. The objective is, a user, who wants to understand the financial position of the company should get the relevant and accurate information.
- 6. Data utilization:** At this ultimate step, data is being utilized to back corporate activities and enhance operational efficiencies and productivity for the growth of business. This makes corporate decision making really 'data driven'.



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**Question. 4**

**Describe the various phases of Digitization Process in an organization.**

**Answer. 4 Phases of Digitization Process in an organization**

**Phase 1: Justification of the proposed digitization project:**

At the very initiation of the digitization project, the actual benefit of the project needs to be identified. Also, one needs to compute the cost aspect of the project and the assessment of availability of resources. Risk assessment is an important part of project assessment.

Most importantly, the expected value generation through digitization should be expressed in clear terms.

**Phase 2: Assessment:**

In any institution, all records are never digitized. The data that requires digitization is to be decided based on content and context. Some data may be digitized in a consolidated format, and some in detailed format. The files, tables, documents, expected future use etc. are to be accessed and evaluated for the assessment.

The hardware and software requirements for digitization is also assessed at this stage.

**Phase 3: Planning:**

Successful execution of digitization project needs meticulous planning. There are several stages for planning e.g. selection of digitization approach, Project documentation, Resources management, technical specifications and Risk management

**Phase 4: Digitization activities:**

Upon the completion of assessment and planning phase, the digitization activities start. The Wisconsin Historical Society developed a six-phase process viz. Planning, Capture, Primary quality control, Editing, Secondary quality control, and storage and management.

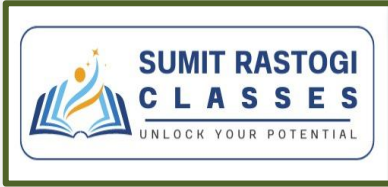
The planning schedule is prepared at the first stage, calibration of hardware/software and scanning etc. is done next. A primary quality check is done on the output to check the reliability. Cropping, color correction, assigning Metadata etc. is done at the editing stage.

**Phase 5: Processes in the case of records:**

Once the digitization of records is complete, there are few additional requirements which may be linked to administration of records. The permission for accession of data, intellectual control (over data), classification (if necessary), and keeping and maintenance of data are few additional requirements for data management.

**Phase 6: Evaluation:**

Once the digitization project is updated and implemented, the final phase should be a systematic determination of the project's merit, worth and significant using objective criteria. The primary purpose is to enable reflection and assist identify changes that would improve future digitization processes.



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## **MODULE-9**

### **Question. 1**

**Discuss the Data Classification Process and Steps Involved in it.**

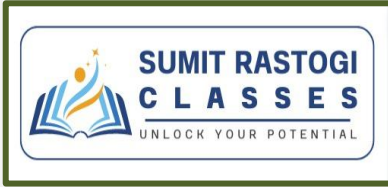
### **Answer. 1**

Classifying data may be a difficult and laborious procedure. Automated systems can assist in streamlining the process, but an organization must determine the categories and criteria that will be used to classify data, understand and define its objectives, outline the roles and responsibilities of employees in maintaining proper data classification protocols, and implement security standards that correspond with data categories and tags. This procedure will give an operational framework to workers and third parties engaged in the storage, transfer, or retrieval of data, if carried out appropriately.

Policies and procedures should be well-defined, respectful of security needs and the confidentiality of data kinds, and simple enough for staff encouraging compliance to comprehend. For example, each category should include information about the types of data included in the categorization, security concerns including rules for accessing, transferring, and keeping data, and the potential risks associated with a security policy breach.

### **Steps for Effective Data Classification:**

- **Understanding the current setup:** Taking a comprehensive look at the location of the organization's current data and any applicable legislation is likely the best beginning points for successfully classifying data. Before one classifies data, one must know what data he is having.
- **Creation of a data classification policy:** Without adequate policy, maintaining compliance with data protection standards in an organization is practically difficult. Priority number one should be the creation of a policy.
- **Prioritize and organize data:** Now that a data classification policy is in place, it is time to categorize the data. Based on the sensitivity and privacy of the data, the optimal method to be chosen for tagging it.



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**Question. 2**

**What is Data Cleaning? What are the Steps for Data Cleaning? What are the benefits?**

**Answer. 2**

**Meaning of Data Cleaning:**

Data Cleaning is the process of correcting or deleting inaccurate, corrupt, improperly formatted, duplicate, or insufficient data from a dataset.

**Steps for Data Cleaning:**

**Step 1:** Removal of duplicate and irrelevant information

**Step 2:** Fix structural errors:

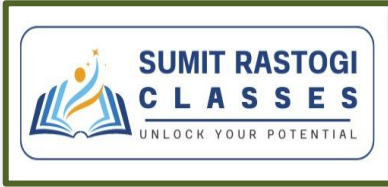
**Step 3:** Filter unwanted outliers:

**Step 4:** Handle missing data

**Step 5:** Validation and QA

**Benefits of Data Cleaning:**

- (i) Error correction when numerous data sources are involved.
- (ii) Fewer mistakes result in happier customers and less irritated workers
- (iii) Capability to map the many functions and planned uses of your data.
- (iv) Monitoring mistakes and improving reporting to determine where errors are originating can make it easier to repair inaccurate or damaged data in future applications.
- (v) Using data cleaning technologies will result in more effective corporate procedures and speedier decision-making.



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### **Question. 3**

**In the context of data processing, briefly explain, following steps:**

- (i) Validation**
- (ii) Aggregation**
- (iii) Analysis**

### **Answer. 3**

**The steps are explained below:**

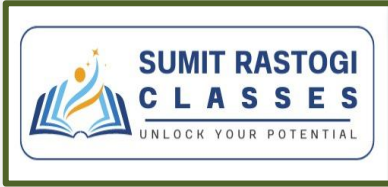
**(i) Validation:** Data validation may be defined as ‘An activity aimed at verifying whether the value of a data item comes from the given (finite or infinite) set of acceptable values. data validation leads to the acceptance or rejection of data as acceptable. Data is subjected to rules. Data are deemed legitimate for the intended final use if they comply with the rules, which means that the combination stated by the rules is not broken. The objective of data validation is to ensure a particular degree of data quality. In official statistics, however, quality has multiple dimensions: relevance, correctness, timeliness and punctuality, accessibility and clarity, comparability, coherence, and comprehensiveness. Therefore, it is essential to determine which components data validation addresses.

**(ii) Aggregation:** Data aggregation refers to any process in which data is collected and summarized. When data is aggregated, individual data rows, which are often compiled from several sources, are replaced with summaries or totals. Groups of observed aggregates are replaced with statistical summaries based on these observations. A data warehouse of ten contains aggregate data since it may offer answers to analytical inquiries and drastically cut the time required to query massive data sets.

A common application of data aggregation is to offer statistical analysis for groups of individuals and to provide relevant summary data for business analysis. Utilizing software tools known as data aggregators, large-scale data aggregation is commonplace. Typically, data aggregators comprise functions for gathering, processing, and displaying aggregated data.

**(iii) Analysis:** Data analysis is described as the process of cleaning, converting, and modelling data to obtain actionable business intelligence. The objective of data analysis is to extract relevant information from data and make decisions based on this knowledge.

Every time we decide in our day-to-day life, we consider what occurred previously or what would occur if we chose a specific option. This is a simple example of data analysis. This is nothing more than studying the past or the future and basing judgments on that analysis. We do so by recalling our history or by imagining our future. That consists solely of data analysis. Now, the same task that an analyst does for commercial goals is known as Data Analysis.



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#### **Question. 4**

**Explain the Steps of Data Cleaning.**

#### **Answer. 4**

**Steps for Data Cleaning:**

**(i) Step 1: Removal of duplicate and irrelevant information**

Eliminate unnecessary observations from your dataset, such as duplicate or irrelevant observations. Most duplicate observations will occur during data collecting. When you merge data sets from numerous sites, scrape data, or get data from customers or several departments, there are potential to produce duplicate data. De-duplication is one of the most important considerations for this procedure. Observations are deemed irrelevant when they do not pertain to the specific topic you are attempting to study. For instance, if you wish to study data pertaining to millennial clients but your dataset contains observations pertaining to earlier generations, you might exclude these useless observations. This may make analysis more effective and reduce distractions from your core objective, in addition to producing a more manageable and effective dataset.

**(ii) Step 2: Fix structural errors:**

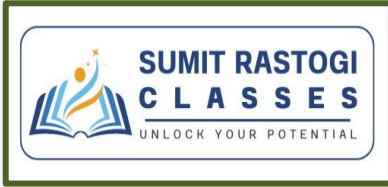
When measuring or transferring data, you may detect unusual naming standards, typos, or wrong capitalization. These contradictions may lead to mislabeled classes or groups. For instance, “N/A” and “Not Applicable” may both be present, but they should be examined as a single category.

**(iii) Step 3: Filter unwanted outliers:**

Occasionally, you will encounter observations that, at first look, do not appear to fit inside the data you are evaluating. If you have a valid cause to eliminate an outlier, such as erroneous data input, doing so will improve the performance of the data you are analyzing. Occasionally, though, the arrival of an outlier will prove a notion you’re working on. Remember that the existence of an outlier does not imply that it is erroneous. This step is required to validate the number. Consider deleting an outlier if it appears to be unrelated to the analysis or an error.

**(iv) Step 4: Handle missing data**

Many algorithms do not accept missing values; hence missing data cannot be ignored. There are several approaches to handle missing data. Although neither is desirable, both should be explored. As a first alternative, the observations with missing values may be dropped, but doing so may result in the loss of information. This should be kept in mind before doing so. As a second alternative, the missing numbers may be entered based on other observations. Again, there is a chance that the data’s integrity may be compromised, as action may be based on assumptions rather than real observations.

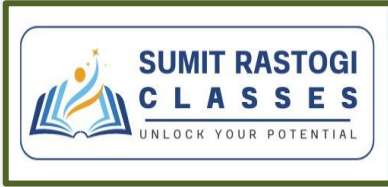


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**(v) Step 5: Validation and QA**

As part of basic validation, one should be able to answer the following questions at the conclusion of the data cleansing process:

- (a) Does the data make sense?
- (b) Does the data adhere to the regulations applicable to its field?
- (c) Does it verify or contradict your working hypothesis, or does it shed any light on it?
- (d) Can data patterns assist you in formulating your next theory?
- (e) If not, is this due to an issue with data quality?



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## **MODULE-10**

### **Question. 1**

List the following:

- (i) Objectives of Data Visualization
- (ii) Steps involved in using Data Visualization in report design
- (iii) Important four issues which the presenter should keep in mind for effective Data Visualization
- (iv) List any four Tools for visualizing and presenting the data.

### **Answer. 1**

#### **(i) OBJECTIVES OF DATA VISUALIZATION:**

1. Making better data analysis:
2. Faster decision making
3. Analyzing complicated data

#### **(ii) STEPS INVOLVED IN USING DATA VISUALIZATION IN REPORT DESIGN**

1. Find a story in the Data
2. Create a narrative
3. Choose the most suitable Data Visualization
4. Follow the visual language
5. Publicize the report

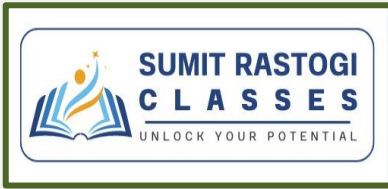
#### **(iii) IMPORTANT ISSUES WHICH THE PRESENTER SHOULD KEEP IN MIND FOR EFFECTIVE DATA VISUALIZATION.**

1. Know the objective
2. Always keep the audience in mind
3. Invest in the best technology
4. Improve the team's ability to visualize data
5. Tools for visualizing and presenting the data

#### **(iv) ANY FOUR TOOLS FOR VISUALIZING AND PRESENTING THE DATA.**

Data visualization is the visual depiction of data and information. Using visual elements like dashboards, charts, graphs, maps etc., data visualization tools facilitate the identification and comprehension of trends, outliers, and patterns in data.

1. Dashboards
2. Bar charts
3. Histogram
4. Pie chart
5. Line chart
6. Maps
7. Gantt chart
8. Bubble Chart etc.



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### **Question. 2**

**State the Meaning, Objectives and Scope of Data Presentation Architecture (DPA).**

### **Answer. 2**

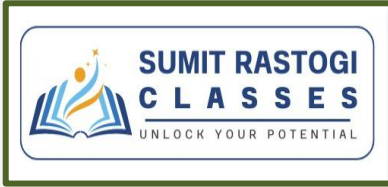
**Meaning: Data Presentation Architecture (DPA)** is a set of skills that aims to identify, find, modify, format, and present data in a manner that ideally conveys meaning and provides insight. According to Kelly Lauth, “Data Presentation Architecture (DPA) is a rarely applied skill set critical for the success and value of Business Intelligence. Data presentation architecture weds the science of numbers, data and statistics in discovering valuable information from data and making it usable, relevant and actionable with the arts of data Visualization, communications, organizational psychology and change management in order to provide business intelligence solutions with the data scope, delivery timing, format and Visualizations that will most effectively support and drive operational, tactical and strategic behavior toward understood business (or organizational) goals. DPA is neither an IT nor a business skill set but exists as a separate field of expertise. Often confusing with data Visualization, data presentation architecture is a much broader skill set that includes determining what data on what schedule and in what exact format is to be presented, not just the best way to present data that has already been chosen (which is data Visualization). Data Visualization skills are one element of DPA.”

**Objectives of DPA** There are the following objectives of DPA:

- (a) Utilize data to impart information in the most efficient method feasible (provide pertinent, timely and comprehensive data to each audience participant in a clear and reasonable manner that conveys important meaning, is actionable and can affect understanding, behavior and decisions).
- (b) To utilize data to deliver information as effectively as feasible (minimize noise, complexity, and unneeded data or detail based on the demands and tasks of each audience).

**Scope of DPA** In the light of abovementioned objectives, the scope of DPA may be defined as:

1. Defining significant meaning (relevant information) required by each audience member in every scenario.
2. Obtaining the proper data (focus area, historic reach, extensiveness, level of detail, etc.)
3. Determining the needed frequency of data refreshes (the currency of the data)
4. Determining the optimal presentation moment (the frequency of the user needs to view the data)
5. Using suitable analysis, categorization, visualization, and other display styles
6. Developing appropriate delivery techniques for each audience member based on their job, duties, locations, and technological access.



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### **Question. 3**

**Describe the Steps to include Data Visualization in Report Design.**

### **Answer. 3**

There are few Strategic Steps to include Data Visualization in Report Design, as mentioned below:

- **Find a story in the data**

Data-driven storytelling is a powerful tool. Finding a story that connects with the reader can help to create an effective report. It's also not that hard as it looks. In order to locate the story, one must arrange the data, identify any missing numbers, and then check for outliers. One may then view the data and examine the link between factors.

- **Create a narrative**

When some individuals hear the term "data storytelling," they believe that it consists of a few statistics and that the task is complete. This is a frequent misconception that is false. Strong data storytelling comprises an engaging narrative that takes the audience through the facts and aids in their comprehension. Moreover, an explanation of the significance of these ideas is essential. To compose an excellent story, one must.

- (i) Engage the viewer with a catchy title and subheadings.
- (ii) Incorporate context into the data.
- (iii) Create a consistent and logical flow.
- (iv) Highlight significant discoveries and insights from the data.

- **Choose the most suitable data Visualization**

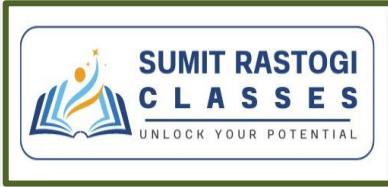
Data Visualization is not limited to the creation of charts and graphs. It involves presenting the facts in the most comprehensible chart possible. Applying basic design principles and utilizing features like form, size, color, and labelling may have a significant impact on how people comprehend the data. For instance, deciding the optimal number of slices for a pie chart or the space between bars in a bar graph. Knowing these tips may greatly improve the data visualizations.

- **Follow the visual language**

The report design may be for internal or external consumption. Despite this, one should develop material consistently with the company's style guide. It is essential to adhere to data visualization principles in order to achieve both uniformity and comprehension. A strategic methodology assists in implementation.

- **Publicize the report**

Some reports are not intended for public consumption. However, since they include so much essential information, they may contain knowledge that is of interest to individuals or media outside of the business.



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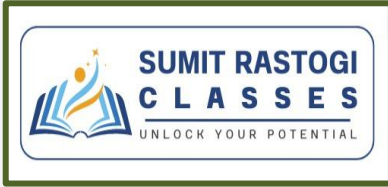
#### **Question. 4**

Describe how we can do Data Visualization in the right way.

#### **Answer. 4**

*Finance professionals who are investigating how data visualization might help their analytics efforts and communication should keep the following in mind:*

- **Know the objective:** Before the development of great images, one must first grasp the objectives. HBR's Berinato suggests, first establishment of information if it's conceptual or data-driven (i.e. does it relieve qualitative or quantitative data) is required. Then specify if the objective is exploratory or declarative. For instance, if the objective is to display the income from the prior quarter, the goal is declarative. If, on the other hand, one is curious as to whether the income increase correlates with the social media spending, the objective is exploration. According to Berinato, determining the answers would assist in determining the tools and formats required.
- **Always keep the audience in mind:** Who views the data visualizations will determine the degree of detail required. For instance, finance data presentations for the C-suite require high-level, highly relevant information to aid in strategic decision-making. However, if one is delivering a presentation to 'line of business' executives, delving into the deeper details might offer them with knowledge that influences their daily operations.
- **Invest in the best technology:** There are a multitude of technological tools that make it simple to produce engaging visualizations in the current digital age. The firm should first implement an ERP that removes data silos and develops a centralized information repository. Then, look for tools that allow us to instantly display data by dragging and dropping assets, charts, and graphs; offer search options and guided navigation to assist in answering queries; and enable any member of the financial team to generate graphics.
- **Improve the team's ability to visualize data:** Most of the agile finance directors rank their team's data visualization abilities as good, compared to only twenty four percent of their counterparts, according to an AICPA survey. While everyone on the finance team can understand the fundamentals of data visualization, training and a shift in hiring priorities may advance the team's data visualization skills. Find ways to incorporate user training on data visualization tools, so that the staff is aware of the options that technology affords. Additionally, when making new recruits, look out for individuals with proficiency in data analytics and extensive data visualization experience.



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## **MODULE-11**

### **Question. 1**

**“Data Analytics is the science of evaluating unprocessed data sets to get some conclusions.”  
In the context of the given statement, briefly explain the steps of Data Analytics.**

**OR**

**Describe Data Analytics and the Steps Involved in Data Analytics.**

### **Answer. 1**

**Data analytics is the science of evaluating unprocessed datasets to draw conclusions about the information they contain. It helps us to identify patterns in the raw data and extract useful information from them.**

Applications containing machine learning algorithms, simulation, and automated systems may be utilized by data analytics procedures and methodologies. For human usage, the systems and algorithms process unstructured data.

These data are evaluated and used to assist firms in gaining a deeper understanding of their customers, analyzing their promotional activities, customizing their content, developing content strategies, and creating new products.

Data analytics enables businesses to boost market efficiency and increase profits.

**Following are the steps for data analytics:**

**Step 1: Criteria for grouping data:** Data may be segmented by a variety of parameters, including age, population, income, and sex. The data values might be either numeric or category.

**Step 2: Collecting the data:** Data may be gathered from several sources, including internet sources, computers, personnel, and community sources.

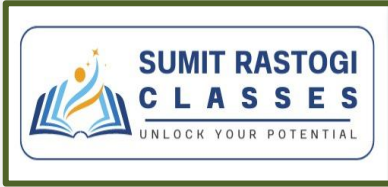
**Step 3: Organizing the data:** After collecting the data, it must be arranged so that it can be analyzed. Statistical data can be organized on a spreadsheet or other program capable of handling statistical data.

**Step 4: Cleaning the data:** The data is initially cleansed to verify that there are no duplicates or errors. The document is then examined to ensure that it is comprehensive. Before data is sent to a data analyst for analysis, it is beneficial to rectify or eliminate any errors by cleaning the data.

**Step 5: Adopt the right type of data analytics process:**

**There are four types of data analytics process:**

- (i) Descriptive analytics
- (ii) Diagnostics analytics
- (iii) Predictive analytics
- (iv) Prescriptive analytics



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### **Question. 2**

**Define Prescriptive Analytics and explain how it works.**

### **Answer. 2**

#### **Definition of Prescriptive Analytics:**

Descriptive analytics describe what has occurred, diagnostic analytics explore why it occurred, predictive analytics describe what could occur, and prescriptive analytics describe what should be done. This approach is the fourth, final, and most sophisticated step of the business analysis process, and it is the one that urges firms to action by assisting executives, managers, and operational personnel in making the most informed decisions possible based on the available data.

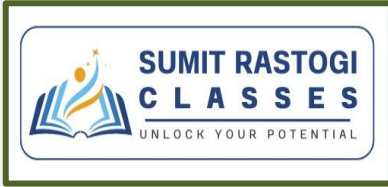
#### **How does prescriptive analytics work?**

Prescriptive analytics goes one step farther than descriptive and predictive analysis by advising the best potential business actions. This is the most sophisticated step of the business analytics process, needing significantly more specialized analytics expertise to execute; as a result, it is rarely utilized in daily company operations.

A multitude of approaches and tools - such as rules, statistics, and machine learning algorithms - may be used to accessible data, including internal data (from within the business) and external data, to produce predictions and recommendations (such as data derived from social media). The capabilities of machine learning dwarf those of a human attempting to attain the same outcomes. The widespread misconception is that predictive analytics and machine learning are same. While predictive analytics uses historical data and statistical techniques to make predictions about the future, machine learning, a subset of artificial intelligence, refers to a computer system's ability to understand large and often enormous amounts of data without explicit instructions, and to adapt and become increasingly intelligent as a result.

Predictive analytics predicts what, when, and, most importantly, why something may occur. After analyzing the potential repercussions of each choice alternative, suggestions may be made regarding which options would best capitalize on future opportunities or reduce future hazards.

Effectively conducted prescriptive analytics may have a significant impact on corporate strategy and decision making to enhance production, customer experience, and business success.



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**Question. 3**

**Enumerate the Benefits of Data Analytics.**

**Answer. 3**

**Benefits of Data Analytics:**

**(i) Improve decision making process**

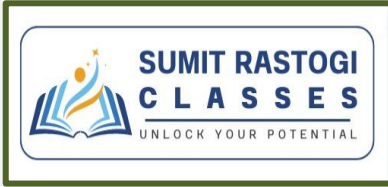
Companies can use the information gained from data analytics to base their decisions, resulting in enhanced outcomes. Using data analytics significantly reduces the amount of guesswork involved in preparing marketing plans, deciding what materials to produce, and more. Using advanced data analytics technologies, you can continuously collect and analyze new data to gain a deeper understanding of changing circumstances.

**(ii) Increase in efficiency of operations**

Data analytics assists firms in streamlining their processes, conserving resources, and increasing their profitability. When firms have a better understanding of their audience's demands, they spend less time creating advertising that does not fulfil those needs.

**(iii) Improved service to stakeholders**

Data analytics gives organizations a more in-depth understanding of their customers, employees and other stakeholders. This enables the company to tailor stakeholders' experiences to their needs, provide more personalization, and build stronger relationships with them.



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**Question. 4**

**‘The implementation of Data Mining in Finance and Management is one of the important segments of Business Data Analytics’.** In this context, briefly illustrate the data mining applications.

**Answer. 4**

The widespread use of data mining techniques by business intelligence and data analytics teams enables them to harvest insights into their organizations and industries.

Utilizing data mining techniques, hidden patterns and future trends and behaviors in financial markets may be predicted. Typically, sophisticated statistical, mathematical, and artificial intelligence approaches are necessary for data mining, particularly for high-frequency financial data.

**Among the Data Mining Applications are:**

**(i) Detecting money laundering and other financial crimes:**

Money laundering is the illegal conversion of black money to white money. In today’s society, data mining techniques have advanced to the point where they are deemed suitable for detecting money laundering. The data mining methodology provides a mechanism for bank customers to detect or verify the detection of the anti-money laundering impact.

**(ii) Prediction of loan repayment and customer credit policy analysis:**

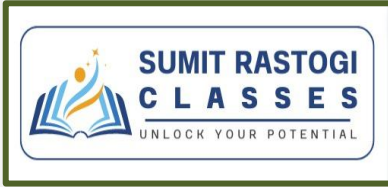
Loan Distribution is the core business function of every bank. The loan Prediction system automatically computes the size of the characteristics it employs and examines data pertaining to its size. Consequently, data mining aids in the management of all critical data and massive databases by utilizing its models.

**(iii) Target marketing:**

Together, data mining and marketing work to target a certain market, and they also assist and determine market decisions. With data mining, it is possible to keep earnings, margins, etc. and determine which product is optimal for various types of customers.

**(iv) Design and construction of data warehouses:**

The business can retrieve or move the data into several huge data warehouses, allowing a vast volume of data to be correctly and reliably evaluated with the aid of various data mining methodologies and techniques. It also examines a vast number of transactions.



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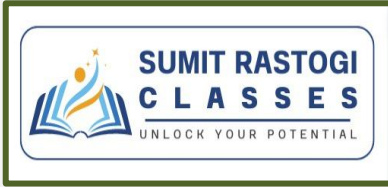
**Question. 5**

**Explain Various Techniques of Data Mining used in Finance and Accounting.**

**Answer. 5**

**Various Techniques of Data Mining used in Finance and Accounting:**

- (i) **Association Rules:** An association rule is a rule-based technique for discovering associations between variables inside a given dataset. These methodologies are commonly employed for market basket analysis, enabling businesses to better comprehend the linkages between various items. Understanding client consumption patterns helps organizations to create more effective cross-selling tactics and recommendation engines.
- (ii) **Neural Networks:** Primarily utilized for deep learning algorithms, neural networks replicate the interconnection of the human brain through layers of nodes to process training data. Every node has input, weights, a bias (or threshold), as well as an output. If the output value exceeds a predetermined threshold, the node “fires” and passes data to the subsequent network layer. Neural networks acquire this mapping function by supervising learning and gradient descent, changing based on the loss function. When the cost function is zero or close to it, we may have confidence in the model’s ability to produce the correct answer.
- (iii) **Decision tree:** Using classification or regression algorithms, this data mining methodology classifies or predicts likely outcomes based on a collection of decisions. As its name implies, it employs a tree-like representation to depict the potential results of these actions.
- (iv) **K-nearest neighbor:** K-nearest neighbor, often known as the KNN algorithm, classifies data points depending on their closeness to and correlation with other accessible data. This technique assumes that comparable data points exist near one another. Consequently, it attempts to measure the distance between data points, often by Euclidean distance, and then assigns some on the most common category or average.



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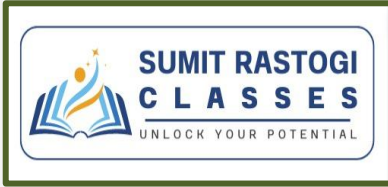
**Question. 6**

**Describe the Process of Data Mining.**

**Answer. 6**

*Data mining typically involves four steps: establishing objectives, acquiring and preparing data, implementing data mining techniques, and assessing outcomes.*

- (i) Setting the business objective:** This might be the most difficult element in the data mining process, yet many organizations spend inadequate effort on it. Together, data scientists and business stakeholders must identify the business challenge, which informs the data queries and parameters for a specific project. Analysts may also need to conduct further study to adequately comprehend the company environment.
- (ii) Preparation of data:** Once the scale of the problem has been established, it is simpler for data scientists to determine which collection of data will assist the company in answering crucial questions. Once the pertinent data has been collected, it will be cleansed by eliminating any noise, such as repetitions, missing numbers, and outliers. Based on the dataset, an extra step may be taken to minimize the number of dimensions, as an excessive number of features might slow down any further calculation. Data scientists seek to maintain the most essential predictors to guarantee optimal model accuracy.
- (iii) Model building and pattern mining:** Data scientists may study any intriguing relationship between the data, such as frequent patterns, clustering algorithms, or correlations, depending on the sort of research. While high frequency patterns have larger applicability, data variations can often be more fascinating, exposing possible fraud areas. Depending on the available data, deep learning algorithms may also be utilized to categorize or cluster a data collection.
- (iv) Result evaluation and implementation of knowledge:** After aggregating the data, the findings must be analyzed and understood. When completing results, they must be valid, original, practical, and comprehensible. When this criterion is satisfied, companies can execute new strategies based on this understanding, therefore attaining their intended goals.



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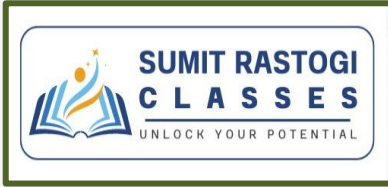
**Question. 7**

**Describe the Data Mining.**

**Answer. 7**

Data mining, also known as knowledge discovery in data (KDD), is the extraction of patterns and other useful information from massive data sets. Given the advancement of data warehousing technologies and the expansion of big data, the use of data mining techniques has advanced dramatically over the past two decades, supporting businesses in translating their raw data into meaningful information. Nevertheless, even though technology is always evolving to manage massive amounts of data, leaders continue to struggle with scalability and automation.

Through smart data analytics, data mining has enhanced corporate decision making. The data mining techniques behind these investigations may be categorized into two primary purposes: describing the target dataset or predicting results using machine learning algorithms. These strategies are used to organize and filter data, bringing to the surface the most relevant information, including fraud detection, user habits, bottlenecks, and even security breaches.



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### **Question. 8**

**Explain how does Descriptive Analytics work.**

### **Answer. 8**

To identify historical data, descriptive analytics employs two fundamental techniques: data aggregation and data mining (also known as data discovery). The process of gathering and organizing data into digestible data sets is called data aggregation. The extracted patterns, trends, and significance are then presented in an intelligible format.

**According to Dan Vasset, the process of descriptive analytics may be broken into five broad steps:**

#### **Step 1: Decide The Business Metrics:**

First, measurements are developed to evaluate performance against corporate objectives, such as increasing operational efficiency or revenue. According to **Dan Vasset**, the effectiveness of descriptive analytics is strongly dependent on KPI governance. ‘Without governance,’ he says, ‘there may be no consensus on the meaning of the data, assuring analytics a minor role in decision-making.’

#### **Step 2: Identification of Data Requirement:**

The data is gathered from sources such as reports and databases, **Dan Vasset** states that to correctly measure against KPIs, businesses must catalogue and arrange the appropriate data sources to extract the necessary data and generate metrics depending on the present status of the business.

#### **Step 3: Preparation and Collection of Data:**

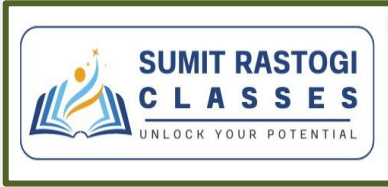
Data preparation, which includes publication, transformation, and cleaning, occurs prior to analysis and is a crucial step for ensuring correctness; it is also one of the most time-consuming tasks for the analyst.

#### **Step 4: Analysis of Data:**

Utilizing summary statistics, clustering, pattern tracking, and regression analysis, we discover data trends and evaluate performance.

#### **Step 5: Presentation of Data:**

Lastly, charts and graphs are utilized to portray findings in a manner that non experts in analytics may comprehend.



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**Question. 9**

What is Business Intelligence (BI)? List the procedures to which the use of BI has expanded.

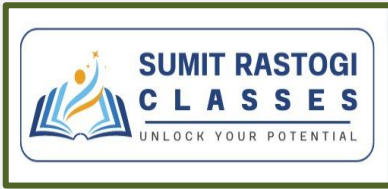
**Answer. 9**

*Business Intelligence* includes business analytics, data mining, data visualization, data tools and infrastructure, and best practices to assist businesses in making choices that are more data driven. When you have a complete picture of your organization's data and utilize it to drive change, remove inefficiencies, and swiftly adjust to market or supply changes, you have contemporary business intelligence. Modern BI systems promote adaptable self- service analysis, controlled data on dependable platforms, empowered business users, and rapid insight delivery.

In recent years, business intelligence has expanded to incorporate more procedures and activities designed to enhance performance.

*These procedures consist of:*

1. **Data mining:** Large datasets may be mined for patterns using databases, analytics, and machine learning (ML).
2. **Reporting:** The dissemination of data analysis to stakeholders in order for them to form conclusions and make decisions.
3. **Performance metrics and benchmarking:** Comparing current performance data to previous performance data in order to measure performance versus objectives, generally utilizing customized dashboards.
4. **Descriptive analytics:** Utilizing basic data analysis to determine what transpired
5. **Querying:** BI extracts responses from data sets in response to data-specific queries.
6. **Statistical analysis:** Taking the results of descriptive analytics and using statistics to further explore the data, such as how and why this pattern occurred.
7. **Data Visualization:** Data consumption is facilitated by transforming data analysis into visual representations such as charts, graphs, and histograms.
8. **Visual Analysis:** Exploring data using visual storytelling to share findings in real-time and maintain the flow of analysis.
9. **Data Preparation:** Multiple data source compilation, dimension and measurement identification, and data analysis preparation.



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**Question. 10**

**Explain the concept of Predictive Analytics. How does Predictive Analytics work? Give two examples of application of Predictive Analytics in specific industries.**

**Answer. 10**

Predictive analytics, as implied by its name, focuses on forecasting and understanding what might occur in the future, whereas descriptive analytics focuses on previous data. By analyzing past data patterns and trends by examining historical data and customer insights, it is possible to predict what may occur in the future and, as a result, many aspects of a business can be informed, such as setting realistic goals, executing effective planning, managing performance goals, and avoiding risks.

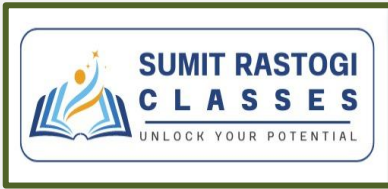
The foundation of predictive analytics is probability. Using techniques such as data mining, statistical modelling (mathematical relationships between variables to predict outcomes), and machine learning algorithms (classification, regression, and clustering techniques), predictive analytics attempts to predict possible future outcomes and the probability of those events. To create predictions, machine learning algorithms, for instance, utilize current data and make the best feasible assumptions to fill in missing data.

Deep learning is a more recent subfield of machine learning that imitates the building of “human brain networks as layers of nodes that understand a specific process area but are networked together to provide an overall forecast.” Credit scoring utilizing social and environmental data and the sorting of digital medical pictures such as X-rays to automated predictions for doctors to use in diagnosing patients are instances of deep learning.

This methodology enables executives and managers to take a more proactive, data-driven approach to corporate planning and decision-making, given that predictive analytics may provide insight into what may occur in the future. Utilizing predictive analytics, businesses may foresee customer behavior and purchase patterns, as well as discover sales trends. Predictions can also assist in forecasting supply chain, operations, and inventory demand.

**Following are the Applications of Predictive Analytics:**

- **E-commerce** – anticipating client preferences and proposing items based on previous purchases and search histories
- **Sales** – estimating the possibility that a buyer will buy another item or depart the shop.
- **Human resources** – identifying employees who are contemplating resigning and urging them to remain.
- **IT security** – detecting potential security vulnerabilities requiring more investigation
- **Healthcare** – anticipating staffing and resource requirements



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**Question. 11**

**Identify the Role of Modern Business Intelligence systems in organizations.**

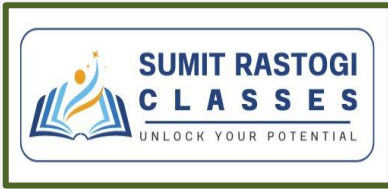
**Answer. 11**

Business intelligence includes business analytics, data mining, data visualization, data tools and infrastructure, and best practices to assist businesses in making choices that are more data driven. When you have a complete picture of your organization's data and utilize it to drive change, remove inefficiencies, and swiftly adjust to market or supply changes, you have contemporary business intelligence. Modern BI systems promote adaptable self- service analysis, controlled data on dependable platforms, empowered business users, and rapid insight delivery.

Company intelligence is a broad word that encompasses the procedures and methods of gathering, storing, and evaluating data from business operations or activities to maximise performance. All these factors combine to provide a full perspective of a firm, enabling individuals to make better, proactive decisions. In recent years, business intelligence has expanded to incorporate more procedures and activities designed to enhance performance.

**These procedures consist of:**

- 1. Data mining:** Large datasets may be mined for patterns using databases, analytics, and machine learning (ML).
- 2. Reporting:** The dissemination of data analysis to stakeholders in order for them to form conclusions and make decisions.
- 3. Performance metrics and benchmarking:** Comparing current performance data to previous performance data in order to measure performance versus objectives, generally utilizing customized dashboards.
- 4. Descriptive analytics:** Utilizing basic data analysis to determine what transpired. (v)  
Querying: BI extracts responses from data sets in response to data-specific queries.
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### **Question. 12**

**What do you mean by Descriptive Analytics? Explain the information revealed by Descriptive Analytics.**

### **Answer. 12**

**Descriptive Analytics** is a frequently employed style of data analysis in which historical data is collected, organized, and presented in a readily digestible format. Descriptive analytics focus exclusively on what has already occurred in an organization and, unlike other types of analysis, do not utilize its results to draw inferences or make forecasts. Rather, descriptive analytics serves as a basic starting point to inform or prepare data for subsequent analysis.

In general, descriptive analytics is the simplest kind of data analytics, since it employs simple mathematical and statistical methods, such as arithmetic, averages, and percentage changes, rather than the complicated computations required for predictive and prescriptive analytics. With the use of visual tools such as line graphs, pie charts, and bar charts to communicate data, descriptive analytics can and should be readily understood by a broad corporate audience.

#### **Information Revealed by Descriptive Analytics**

An organization uses descriptive analytics regularly in its day-to-day operations. Examples of descriptive analytics that give a historical overview of an organization's activities include company reports on inventory, workflow, sales, and revenue. These types of reports collect data that can be readily aggregated and utilized to provide snapshots of an organization's activities.

Social analytics are virtually always a type of descriptive analytics. The number of followers, likes, and posts may be utilized to calculate, for example, the average number of replies per post, page visits, and response time. Facebook and Instagram comments are additional instances of descriptive analytics that may be utilized to better comprehend user sentiments.

However, descriptive analytics do not seek to go beyond the surface data and analysis; extra inquiry falls outside the scope of descriptive analytics, and conclusions and predictions are not derived from descriptive analysis. Nevertheless, this research can show patterns and significance by comparing historical data. An annual income report, for instance, may look financially encouraging until it is compared against the same report from past years, which reveals a declining trend.