CBCS SCHEME

USN | | | | | | | | | | |

20MBA23

Second Semester MBA Degree Examination, July/August 2022
Research Methodology

Time: 3 hrs. Max. Marks:100

Note: *1. Answer any FOUR full questions from Q1 to Q7.*
2. Question No.8 is compulsory.

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

1	a.	What is Business Research?	**(03 Marks)**
	b.	Describe the features of a good research study.	**(07 Marks)**
	c.	Explain the steps involved in the process of a research with neat diagram.	**(10 Marks)**
2	a.	Define quota sampling.	**(03 Marks)**
	b.	Discuss the methods of exploratory research design.	**(07 Marks)**
	c.	What is Questionnaire? Explain the process of designing questionnaire.	**(10 Marks)**
3	a.	What are Projective Techniques?	**(03 Marks)**
	b.	Briefly explain the steps involved in data analysis.	**(07 Marks)**
	c.	Discuss the different types of experimental designs.	**(10 Marks)**
4	a.	What is Pivot table?	**(03 Marks)**
	b.	Explain the different types of scaling techniques.	**(07 Marks)**
	c.	Explain the types of probability sampling method with examples.	**(10 Marks)**
5	a.	Define Hypothesis.	**(03 Marks)**
	b.	Describe the errors in sampling.	**(07 Marks)**
	c.	What is primary data? Briefly explain the methods used for collection of primary data.	**(10 Marks)**
6	a.	What are Extraneous Variables?	**(03 Marks)**
	b.	Describe the various research applications in business decisions.	**(07 Marks)**
	c.	Explain the types of search reports.	**(10 Marks)**
7	a.	Define conditional formatting.	**(03 Marks)**
	b.	What is Secondary Data? Briefly explain the advantages and disadvantages.	**(07 Marks)**
	c.	What is Research Design? Briefly explain the types of Research Designs.	**(10 Marks)**

8 CASE STUDY :

SLR company is a leading manufacture of Leather consumer products. The products are shoes, leather hand bags, purses and belts. The company accounted for about 10% of the market share in shoes, which is its main product. Since last year, the SLR company has been facing stiff competition from another firm which has come up recently in the city. This is reflecting in the declining monthly sales. The company is concerned over this development and would like to regain its hold over the shoe market.

At a recent meeting of the Board of directors, a decision was taken in favour of a systematic study by an outside expert agency. As a marketing consultant for the expert agency, how would you answer the following questions?

	a.	What is the main research problem involved in given case? Explain briefly.	**(05 Marks)**
	b.	What kind of research approach would you adopt and why?	**(05 Marks)**
	c.	Which method of data collection would you select and why?	**(05 Marks)**
	d.	Briefly explain the search methodology design you would adopt in the study and how?	**(05 Marks)**

* * * * *

SOLUTIONS – RESEARCH METHODOLOGY – AUG 2022

QUESTION NO.	QUESITON AND SOLUTIONS
1A	What is Business Research
	Business research is a process of acquiring detailed information of all the areas of business and using such information in maximizing the sales and profit of the business. Such a study helps companies determine which product/service is most profitable or in demand. In simple words, it can be stated as the acquisition of information or knowledge for professional or commercial purpose to determine opportunities and goals for a business.
1B	Describe the features of a good research study
	1. Good research is anchored on a sound research question. A sound **research question** is one of the most important characteristics of good research. In fact, formulating one is embedded in the curricula of research-heavy programs like engineering and **physics degrees and careers**. In 2010, Farrugia et al. proposed that developing a research question is the most important step in doing a research project. **2. Good research follows a systematic, appropriate research methodology.** The overall quality and success of a research study are largely determined by the research methodology it uses **3. Good research acknowledges previous research on the topic.** While good research leads to the discovery of new knowledge, it also means studying previous research on the topic. By studying scholarly articles and other works related to your subject of interest, you get an idea of what has already been studied and how your study fits into existing research. You can easily find related studies by going through your institution's **library management system** or other publicly available ones. **4. Good research uses relevant, empirical data and proper data analysis methods.** One of the most important qualities of a good research study is that it deals with empirical data. Empirical data is data that has been collected by researchers themselves through observation, experience, or experimentation (Bradford, 2017). This is crucial in doing good research because empirical data is considered objective, unbiased evidence. **4. Good research uses relevant, empirical data and proper data analysis methods.** One of the most important qualities of a good research study is that it deals with empirical data. Empirical data is data that has been collected by researchers themselves through observation, experience, or experimentation (Bradford, 2017). This is crucial in doing good research because empirical data is considered objective, unbiased evidence.

1C	Explain the steps involved in the process of research with a diagram
	Step 1: Identify the Problem The first step in the process is to identify a problem or develop a research question. The research problem may be something the agency identifies as a problem, some knowledge or information that is needed by the agency, or the desire to identify a recreation trend nationally. In the example in table 2.4, the problem that the agency has identified is childhood obesity, which is a local problem and concern within the community. This serves as the focus of the study. **Step 2: Review the Literature** Now that the problem has been identified, the researcher must learn more about the topic under investigation. To do this, the researcher must review the literature related to the research problem. This step provides foundational knowledge about the problem area. The review of literature also educates the researcher about what studies have been conducted in the past, how these studies were conducted, and the conclusions in the problem area. In the obesity study, the review of literature enables the programmer to discover horrifying statistics related to the long-term effects of childhood obesity in terms of health issues, death rates, and projected medical costs. In addition, the programmer finds several articles and information from the Centers for Disease Control and Prevention that describe the benefits of walking 10,000 steps a day. The information discovered during this step helps the programmer fully understand the magnitude of the problem, recognize the future consequences of obesity, and identify a strategy to combat obesity (i.e., walking). **Step 3: Clarify the Problem** Many times the initial problem identified in the first step of the process is too large or broad in scope. In step 3 of the process, the researcher clarifies the problem and narrows the scope of the study. This can only be done after the literature has been reviewed. The knowledge gained through the review of literature guides the researcher in clarifying and narrowing the research project. In the example, the programmer has identified childhood obesity as the problem and the purpose of the study. This topic is very broad and could be studied based on genetics, family environment, diet, exercise, self-confidence, leisure activities, or health issues. All of these areas cannot be investigated in a single study; therefore, the problem and purpose of the study must be more clearly defined. The programmer has decided that the purpose of the study is to determine if walking 10,000 steps a day for three days a week will improve the individual's health. This purpose is more narrowly focused and researchable than the original problem. **Step 4: Clearly Define Terms and Concepts** Terms and concepts are words or phrases used in the purpose statement of the study or the description of the study. These items need to be specifically defined as they apply to the study. Terms or concepts often have different definitions depending on who is reading the study. To minimize confusion about what the terms and phrases mean, the researcher must specifically define them for the study. In the obesity study, the concept of “individual's health” can be defined in hundreds of ways, such as physical, mental, emotional, or spiritual health. For this study, the individual's health is defined as

physical health. The concept of physical health may also be defined and measured in many ways. In this case, the programmer decides to more narrowly define "individual health" to refer to the areas of weight, percentage of body fat, and cholesterol. By defining the terms or concepts more narrowly, the scope of the study is more manageable for the programmer, making it easier to collect the necessary data for the study. This also makes the concepts more understandable to the reader.

Step 5: Define the Population

Research projects can focus on a specific group of people, facilities, park development, employee evaluations, programs, financial status, marketing efforts, or the integration of technology into the operations. For example, if a researcher wants to examine a specific group of people in the community, the study could examine a specific age group, males or females, people living in a specific geographic area, or a specific ethnic group. Literally thousands of options are available to the researcher to specifically identify the group to study. The research problem and the purpose of the study assist the researcher in identifying the group to involve in the study. In research terms, the group to involve in the study is always called the population. Defining the population assists the researcher in several ways. First, it narrows the scope of the study from a very large population to one that is manageable. Second, the population identifies the group that the researcher's efforts will be focused on within the study. This helps ensure that the researcher stays on the right path during the study. Finally, by defining the population, the researcher identifies the group that the results will apply to at the conclusion of the study. In the example in table 2.4, the programmer has identified the population of the study as children ages 10 to 12 years. This narrower population makes the study more manageable in terms of time and resources.

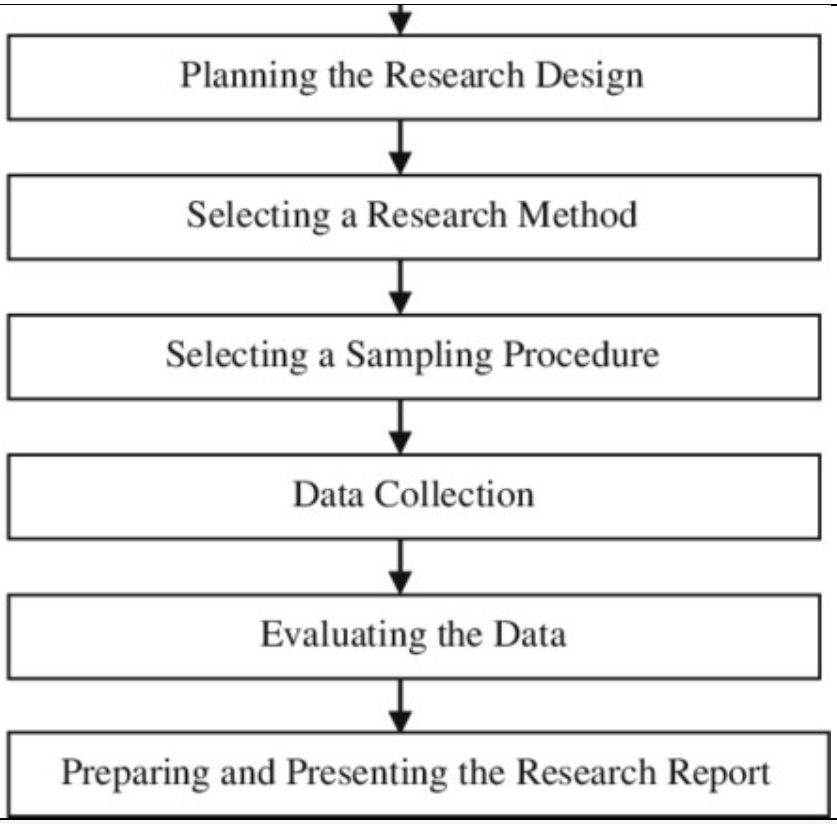
Step 6: Develop the Instrumentation Plan

The plan for the study is referred to as the instrumentation plan. The instrumentation plan serves as the road map for the entire study, specifying who will participate in the study; how, when, and where data will be collected; and the content of the program. This plan is composed of numerous decisions and considerations that are addressed in chapter 8 of this text. In the obesity study, the researcher has decided to have the children participate in a walking program for six months. The group of participants is called the sample, which is a smaller group selected from the population specified for the study. The study cannot possibly include every 10- to 12-year-old child in the community, so a smaller group is used to represent the population. The researcher develops the plan for the walking program, indicating what data will be collected, when and how the data will be collected, who will collect the data, and how the data will be analyzed. The instrumentation plan specifies all the steps that must be completed for the study. This ensures that the programmer has carefully thought through all these decisions and that she provides a step-by-step plan to be followed in the study.

Step 7: Collect Data

Once the instrumentation plan is completed, the actual study begins with the collection of data. The collection of data is a critical step in providing the information needed to answer the research question. Every study includes the collection of some type of data—whether it is from the literature or from subjects—to answer the research question. Data

	can be collected in the form of words on a survey, with a questionnaire, through observations, or from the literature. In the obesity study, the programmers will be collecting data on the defined variables: weight, percentage of body fat, cholesterol levels, and the number of days the person walked a total of 10,000 steps during the class. The researcher collects these data at the first session and at the last session of the program. These two sets of data are necessary to determine the effect of the walking program on weight, body fat, and cholesterol level. Once the data are collected on the variables, the researcher is ready to move to the final step of the process, which is the data analysis. **Step 8: Analyze the Data** All the time, effort, and resources dedicated to steps 1 through 7 of the research process culminate in this final step. The researcher finally has data to analyze so that the research question can be answered. In the instrumentation plan, the researcher specified how the data will be analyzed. The researcher now analyzes the data according to the plan. The results of this analysis are then reviewed and summarized in a manner directly related to the research questions. In the obesity study, the researcher compares the measurements of weight, percentage of body fat, and cholesterol that were taken at the first meeting of the subjects to the measurements of the same variables at the final program session. These two sets of data will be analyzed to determine if there was a difference between the first measurement and the second measurement for each individual in the program. Then, the data will be analyzed to determine if the differences are statistically significant. If the differences are statistically significant, the study validates the theory that was the focus of the study. The results of the study also provide valuable information about one strategy to combat childhood obesity in the community. As you have probably concluded, conducting studies using the eight steps of the scientific research process requires you to dedicate time and effort to the planning process. You cannot conduct a study using the scientific research process when time is limited or the study is done at the last minute. Researchers who do this conduct studies that result in either false conclusions or conclusions that are not of any value to the organization.

	
2A	**Define quota sampling**
	uota sampling is defined as a non-probability sampling method in which researchers create a sample involving individuals that represent a population. Researchers choose these individuals according to specific traits or qualities. They decide and create quotas so that the market research samples can be useful in collecting data. These samples can be generalized to the entire population. The final subset will be decided only according to the interviewer's or researcher's knowledge of the population.
2B	**Discuss the methods of exploratory research**
	Primary research In primary research, your data is collected directly from primary sources: your participants. There is a variety of ways to collect primary data. Some examples include: • **Survey methodology:** Sending a survey out to the student body asking them if they would eat vegan meals • **Focus groups:** Compiling groups of 8–10 students and discussing what they think of vegan options for dining hall food • **Interviews:** Interviewing students entering and exiting the dining hall, asking if they would eat vegan meals **Secondary research** In secondary research, your data is collected from preexisting primary research, such as experiments or surveys.

	Some other examples include: • **Case studies:** Health of an all-vegan diet • **Literature reviews:** Preexisting research about students' eating habits and how they have changed over time • **Online polls, surveys, blog posts, or interviews; social media:** Have other schools done something similar?
2C	**What is questionnaire and explain the process of designing a questionnaire**
	Questionnaire is a systematic, data collection technique consists of a series of questions required to be answered by the respondents to identify their attitude, experience, and behavior towards the subject of research. Questionnaire Design Process The following steps are involved in the questionnaire design process: **Specify the Information Needed:** The first and the foremost step in designing the questionnaire is to specify the information needed from the respondents such that the objective of the survey is fulfilled. The researcher must completely review the components of the problem, particularly the hypothesis, research questions, and the information needed. **Define the Target Respondent:** At the very outset, the researcher must identify the target respondent from whom the information is to be collected. The questions must be designed keeping in mind the type of respondents under study. Such as, the questions that are appropriate for serviceman might not be appropriate for a businessman. The less diversified respondent group shall be selected because the more diversified the group is, the more difficult it will be to design a single questionnaire that is appropriate for the entire group. **Specify the type of Interviewing Method:** The next step is to identify the **way in which the respondents are reached**. In personal interviews, the respondent is presented with a questionnaire and interacts face-to-face with the interviewer. Thus, lengthy, complex and varied questions can be asked using the personal interview method. In telephone interviews, the respondent is required to give answers to the questions over the telephone. Here the respondent cannot see the questionnaire and hence this method restricts the use of small, simple and precise questions. The questionnaire can be sent through mail or post. It should be self-explanatory and contain all the important information such that the respondent is able to understand every question and gives a complete response. The electronic questionnaires are sent directly to the mail ids of the respondents and are required to give answers online. **Determine the Content of Individual Questions:** Once the information needed is specified and the interviewing methods are determined, the next step is to decide the content of the question. The researcher must decide on what should be included in the question such that it contribute to the information needed or serve some specific

purpose.

In some situations, the indirect questions which are not directly related to the information needed may be asked. It is useful to ask neutral questions at the beginning of a questionnaire with intent to establish respondent's involvement and rapport. This is mainly done when the subject of a questionnaire is sensitive or controversial. The researcher must try to avoid the use of **double-barreled questions**. A question that talks about two issues simultaneously, such as Is the Real juice tasty and a refreshing health drink?

Overcome Respondent's Inability and Unwillingness to Answer: The researcher should not presume that the respondent can provide accurate responses to all the questions. He must attempt to overcome the respondent's inability to answer. The questions must be designed in a simple and easy language such that it is easily understood by each respondent. In situations, where the respondent is not at all informed about the topic of interest, then the researcher may ask the **filter questions**, an initial question asked in the questionnaire to identify the prospective respondents to ensure that they fulfil the requirements of the sample.

Despite being able to answer the question, the respondent is unwilling to devote time in providing information. The researcher must attempt to understand the reason behind such unwillingness and design the questionnaire in such a way that it helps in retaining the respondent's attention.

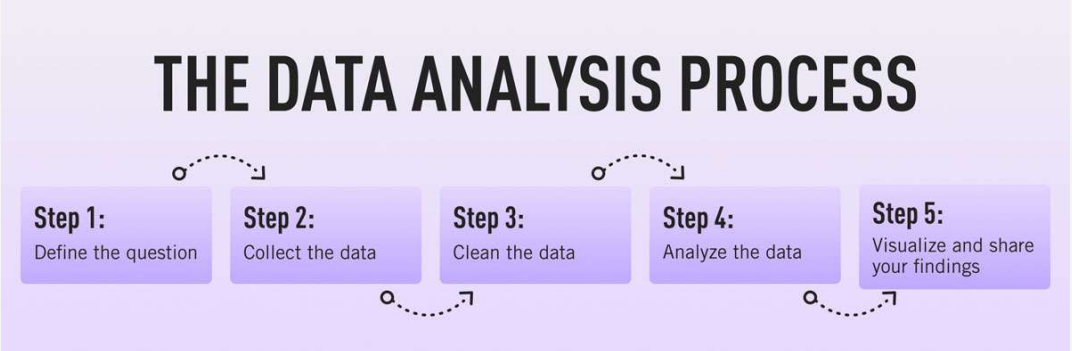
Decide on the Question Structure: The researcher must decide on the structure of questions to be included in the questionnaire. The question can be structured or unstructured. The **unstructured questions are the open-ended questions** which are answered by the respondents in their own words. These questions are also called as a **free-response** or **free-answer question**s.

While, the **structured questions are called as closed-ended questions** that pre-specify the response alternatives. These questions could be a multiple choice question, dichotomous (yes or no) or a scale.

Determine the Question Wording: The desired question content and structure must be translated into **words which are easily understood** by the respondents. At this step, the researcher must translate the questions in easy words such that the information received from the respondents is similar to what was intended.

In case the question is written poorly, then the respondent might refuse to answer it or might give a wrong answer. In case, the respondent is reluctant to give answers, then "**nonresponse"** arises which increases the complexity of data analysis. On the other hand, if the wrong information is given, then **" response error"** arises due to which the result is biassed.

Determine the Order of Questions: At this step, the researcher must decide the **sequence in which the questions are to be asked**. The opening questions are crucial in establishing respondent's involvement and rapport, and therefore, these questions must be interesting, non-threatening and easy. Usually, the **open-ended questions** which ask respondents for their opinions are considered as good opening

	questions, because people like to express their opinions. **Identify the Form and Layout:** The **format, positioning and spacing** of questions has a significant effect on the results. The layout of a questionnaire is specifically important for the self-administered questionnaires. The questionnaires must be divided into several parts, and each part shall be numbered accurately to clearly define the branches of a question. . **Reproduction of Questionnaire:** Here, we talk about the **appearance of the questionnaire,** i.e. the quality of paper on which the questionnaire is either written or printed. In case, the questionnaire is reproduced on a poor-quality paper; then the respondent might feel the research is unimportant due to which the quality of response gets adversely affected. Thus, it is recommended to reproduce the questionnaire on a good-quality paper having a professional appearance. In case, the questionnaire has several pages, then it should be presented in the form of a booklet rather than the sheets clipped or stapled together. . **Pretesting:** Pretesting means **testing the questionnaires on a few selected respondents** or a small sample of actual respondents with a purpose of improving the questionnaire by identifying and eliminating the potential problems. All the aspects of the questionnaire must be tested such as question content, structure, wording, sequence, form and layout, instructions, and question difficulty. The researcher must ensure that the respondents in the pretest should be similar to those who are to be finally surveyed.
3A	**What are projective techniques**
	Projective techniques are normally used during individual or small group interviews. They incorporate a number of different research methods. Among the most commonly used are: • Word association test • Sentence completion test • Thematic apperception test (TAT) • Third-person techniques
3B	**Briefly explain the steps involved in data analysis**
	
3C	**Describe different types of experimental design**
	The classic experimental design definition is, “The methods used to collect data in experimental studies.”

	There are three primary types of experimental design: • Pre-experimental research design • True experimental research design • Quasi-experimental research design The way you classify research subjects, based on conditions or groups, determines the type of research design you should use. **1. Pre-experimental research design:** A group, or various groups, are kept under observation after implementing factors of cause and effect. You'll conduct this research to understand whether further investigation is necessary for these particular groups. You can break down pre-experimental research further in three types: • One-shot Case Study Research Design • One-group Pretest-posttest Research Design • Static-group Comparison **2. True experimental research design:** True experimental research relies on statistical analysis to prove or disprove a hypothesis, making it the most accurate form of research. Of the types of experimental design, only true design can establish a cause-effect relationship within a group. In a true experiment, three factors need to be satisfied: • There is a Control Group, which won't be subject to changes, and an Experimental Group, which will experience the changed variables. • A variable which can be manipulated by the researcher • Random distribution This experimental research method commonly occurs in the physical sciences. **3. Quasi-experimental research design:** The word "Quasi" indicates similarity. A quasi-experimental design is similar to experimental, but it is not the same. The difference between the two is the assignment of a control group. In this research, an independent variable is manipulated, but the participants of a group are not randomly assigned. Quasi-research is used in field settings where random assignment is either irrelevant or not required.
4A	**WHAT IS PIVOT TABLE**
	A PivotTable is **an interactive way to quickly summarize large amounts of data**. You can use a PivotTable to analyze numerical data in detail, and answer unanticipated questions about your data. A PivotTable is especially designed for: Querying large amounts of data in many user-friendly ways.
4B	**Explain different types of scaling techniques**
	Scaling technique is a method of placing respondents in continuation of gradual change in the pre-assigned values, symbols or numbers based on the features of a particular object as per the defined rules. All the scaling techniques are based on four pillars, i.e., order, description, distance and origin

Types of Scaling Techniques

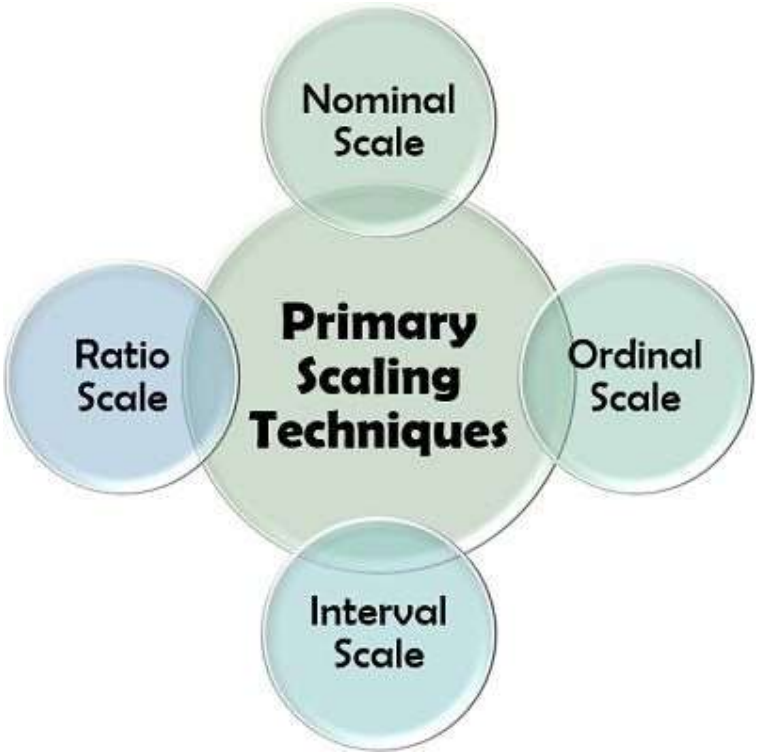
The researchers have identified many scaling techniques; today, we will discuss some of the most common scales used by business organizations, researchers, economists, experts, etc.

These techniques can be classified as primary scaling techniques and other scaling techniques.

Let us now study each of these methods in-depth below:

Primary Scaling Techniques

The major four scales used in statistics for market research consist of the following:



Nominal Scale

Nominal scales are adopted for non-quantitative (containing no numerical implication) labelling variables which are unique and different from one another.

Types of Nominal Scales:

1. **Dichotomous**: A nominal scale that has only two labels is called 'dichotomous'; *for example*, Yes/No.
2. **Nominal with Order**: The labels on a nominal scale arranged in an ascending or descending order is termed as 'nominal with order'; *for example*, Excellent, Good, Average, Poor, Worst.

3. **Nominal without Order**: Such nominal scale which has no sequence, is called 'nominal without order'; *for example*, Black, White.

Ordinal Scale

The ordinal scale functions on the concept of the relative position of the objects or labels based on the individual's choice or preference.

For example, At Amazon.in, every product has a customer review section where the buyers rate the listed product according to their buying experience, product features, quality, usage, etc.

The ratings so provided are as follows:

- 5 Star – Excellent
- 4 Star – Good
- 3 Star – Average
- 2 Star – Poor
- 1 Star – Worst

Interval Scale

An interval scale is also called a cardinal scale which is the numerical labelling with the same difference among the consecutive measurement units. With the help of this scaling technique, researchers can obtain a better comparison between the objects.

For example; A survey conducted by an automobile company to know the number of vehicles owned by the people living in a particular area who can be its prospective customers in future. It adopted the interval scaling technique for the purpose and provided the units as 1, 2, 3, 4, 5, 6 to select from.

In the scale mentioned above, every unit has the same difference, i.e., 1, whether it is between 2 and 3 or between 4 and 5.

Ratio Scale

One of the most superior measurement technique is the ratio scale. Similar to an interval scale, a ratio scale is an abstract number system. It allows measurement at proper intervals, order, categorization and distance, with an added property of originating from a fixed zero point. Here, the comparison can be made in terms of the acquired ratio.

For example, A health product manufacturing company surveyed to identify the level of obesity in a particular locality. It released the following survey questionnaire: Select a category to which your weight belongs to:

Less than 40 kilograms

- 40-59 Kilograms
- 60-79 Kilograms

	• 80-99 Kilograms • 100-119 Kilograms • 120 Kilograms and more
4C	Explain the methods of probable sampling methods with examples
	• **Probability sampling** involves random selection, allowing you to make strong statistical inferences about the whole group. **1. Simple random sampling** In a simple random sample, every member of the population has an equal chance of being selected. Your sampling frame should include the whole population. To conduct this type of sampling, you can use tools like random number generators or other techniques that are based entirely on chance. Example: Simple random samplingYou want to select a simple random sample of 100 employees of Company X. You assign a number to every employee in the company database from 1 to 1000, and use a random number generator to select 100 numbers. **2. Systematic sampling** Systematic sampling is similar to simple random sampling, but it is usually slightly easier to conduct. Every member of the population is listed with a number, but instead of randomly generating numbers, individuals are chosen at regular intervals. Example: Systematic samplingAll employees of the company are listed in alphabetical order. From the first 10 numbers, you randomly select a starting point: number 6. From number 6 onwards, every 10th person on the list is selected (6, 16, 26, 36, and so on), and you end up with a sample of 100 people. If you use this technique, it is important to make sure that there is no hidden pattern in the list that might skew the sample. For example, if the HR database groups employees by team, and team members are listed in order of seniority, there is a risk that your interval might skip over people in junior roles, resulting in a sample that is skewed towards senior employees. **3. Stratified sampling** Stratified sampling involves dividing the population into subpopulations that may differ in important ways. It allows you draw more precise conclusions by ensuring that every subgroup is properly represented in the sample. To use this sampling method, you divide the population into subgroups (called strata) based on the relevant characteristic (e.g. gender, age range, income bracket, job role). Based on the overall proportions of the population, you calculate how many people should be sampled from each subgroup. Then you use random or systematic sampling to select a sample from each subgroup. Example: Stratified samplingThe company has 800 female employees and 200 male employees. You want to ensure that the sample reflects the gender balance of the

	company, so you sort the population into two strata based on gender. Then you use random sampling on each group, selecting 80 women and 20 men, which gives you a representative sample of 100 people. **4. Cluster sampling** Cluster sampling also involves dividing the population into subgroups, but each subgroup should have similar characteristics to the whole sample. Instead of sampling individuals from each subgroup, you randomly select entire subgroups. If it is practically possible, you might include every individual from each sampled cluster. If the clusters themselves are large, you can also sample individuals from within each cluster using one of the techniques above. This is called multistage sampling. This method is good for dealing with large and dispersed populations, but there is more risk of error in the sample, as there could be substantial differences between clusters. It's difficult to guarantee that the sampled clusters are really representative of the whole population.
5A	**Define Hypothesis**
	A hypothesis **states your predictions about what your research will find**. It is a tentative answer to your research question that has not yet been tested. For some research projects, you might have to write several hypotheses that address different aspects of your research question.
5B	Describe the errors in sampling
	A sampling error is a statistical error that occurs when an analyst does not select a sample that represents the entire population of data. As a result, the results found in the sample do not represent the results that would be obtained from the entire population. Sampling is an analysis performed by selecting a number of observations from a larger population. The method of selection can produce both sampling errors and non-sampling errors. Types of Sampling Errors There are different categories of sampling errors. Population-Specific Error A population-specific error occurs when a researcher doesn't understand who to survey. Selection Error Selection error occurs when the survey is self-selected, or when only those participants who are interested in the survey respond to the questions. Researchers can attempt to overcome selection error by finding ways to encourage participation. Sample Frame Error A sample frame error occurs when a sample is selected from the

	wrong population data. Non-response Error A non-response error occurs when a useful response is not obtained from the surveys because researchers were unable to contact potential respondents (or potential respondents refused to respond).
5C	What is primary data? Briefly explain the methods of collecting primary data.
	Primary data collection is the process of gathering data directly from a first-hand source. In other words, it's data that's collected by the organization that expects to use it. Methods include surveys, interviews, observation, and focus groups. **For example,** The World Bank tracked the impact of COVID-19 in Afghanistan through 14,000 phone surveys. The data collected through these surveys is primary data. he best way to understand primary data is to see specific examples of research or evaluation scenarios. Here are some examples from different fields. **Household composition surveys:** Researchers often undergo household surveys to track the composition of a household over time. For example, IDinsight carries out large-scale household survey projects in India to inform social impact projects. **Phone interviews:** A researcher, often called an enumerator, communicates with respondents over the phone and asks questions based on a predetermined questionnaire. Some projects use computers or tablets to record responses, a process known as computer-assisted telephone interviews (CATI). **Inspections and program evaluations:** International development projects often use primary data collection to answer questions like: • Is this program effective? • Can the impact be quantified? • What is the most impactful element of this development program?
6A	**What are extraneous variables**
	extraneous variable is **any variable that you're not investigating that can potentially affect the dependent variable of your research study**. A confounding variable is a type of extraneous variable that not only affects the dependent variable, but is also related to the independent variable.
6B	Describe the various research applications in business decisions
	It is an established fact that research assists in business decisions and further in different functional areas of management. Business managers in human resources, production, marketing or finance regularly face situations that require effective and actionable decision making. Most of these decisions require addition information which can best be

addressed by research.

Marketing

Marketing is one of the areas of business where research is the lifeline. It is carried out on a wide variety of topics and is conducted by the organization as well as outsourced to research agencies. Broader industry or product-category specific studies are also carried out by market research agencies which assist in business decisions. There are various issues which require attention for research including market potential analysis, market segmentation, demand estimation, market structure analysis and business trend analysis. An organization also carries out researches related to product, pricing, promotion and place. These days with the increase in competition and the need to retain customers, customer relationship management, satisfaction, and loyalty have been added to the areas in which significant research is being carried out.

Human Resource Management

Human resource management and organizational behavior involve basic research as a lot of academic and macro level research may be adapted and implemented by organizations into their programs and policies. Applied HR research is more predictive and solution oriented. There are a number of academic and organizational areas which attract more research. Such areas include performance management, organizational climate, talent and aptitude analysis, organizational change management, employee selection and staffing, organizational planning and development, job analysis, performance appraisal, recognition and reward studies, compensation analysis, training and development, employee relationship analysis, negotiation and wage settlement, turnover and attrition and work life balance studies. Critical success factor analysis and employer branding are some emerging areas in which HR research is being carried out

Marketing

Financial and accounting research

The area of financial and accounting research is so vast that it is difficult to provide a framework of the research areas. However, there are some prevalent research issues including asses pricing, corporate finance, capital markets, takeovers and mergers, financial reporting, the impact of factors on returns, financial derivatives, credit risk modeling, corporate decision-making analysis, investment risk appraisal, analysis of corporate financial reporting behavior, accounting based values, evaluation and usage of accounting information by investors and evaluation of management compensation schemes, analysis of audit regulations, analysis of audit methodologies, corporate governance, accountability of audit committees, risk estimation and analysis, business policy and merchant banking.

Production and operation management

Production and operation management is the area of research which quantifies implementation of the research results on huge cost and process implications. Research in this area is highly focused and problem analysis, specific. The decision areas in which research studies are carried out include product/service design and development, resource allocation and capacity planning, demand forecasting and decision analysis, production scheduling and material requirement management, work design planning and

	monitoring, project management and maintenance management studies, logistics and supply chain and inventory management analysis, quality estimation and assurance studies including total quality management and quality certification analysis, just in time technology and economic order quantity are topics adapted by organizations for optimizing operations. Cross functional research Since business management is an integrated amalgamation of all these and other areas sometimes requires a unified thought and approach to research. These studies require an open orientation where experts from across the disciplines contribute to and gain from the study. For example, an area such as new product development requires the commitment of the marketing, production and consumer insights team to exploit new opportunities. Other areas requiring cross function efforts are corporate governance and ethics, technical support systems, enterprise resource planning systems, knowledge management, data minding and warehousing are integrated areas requiring research on managing coordinated efforts across divisions
6C	Explain the types of research reports
	different types of Research Reports writing are as follows:- **1. Journal Articles** It is helpful to make acquainted yourself with the diverse types of articles published by journals. Although it may emerge that there are a great number of types of articles published due to the broad assortment of names they are published under, most articles published are one of the following types- creative Research, evaluation Articles, Short Reports, or Letters, Case Studies, Methodologies. **2. Technical Research Reports** One of the major forms of communication in engineering is the scientific report. In the place of work, the report is a real working document written by engineers for clients, executives, and other engineers. This means every testimony has a rationale beyond the simple presentation of information. Some common purposes are to: • persuade a government agency of the consequence of a particular course of action • sway a client that your clarification will fulfill their needs • induce the public that a proposed venture will bring remuneration • persuade a government or council to approve a particular course of action • influence a client to prefer one design over another • plead your case before an organization to partner with your company on a plan **3. Monographs or Books**

Research monographs can be reformatted editions of dissertations, theses, or other noteworthy research reports. Monographs are published by academia presses and profitable scholarly publishers.

A summit of distinction is that authors may get a royalty reimbursement for monographs, whereas, for a good number of other research broadcasting, such as journal articles and conference papers, authors do not accept direct payment.

As a profitable work, a monograph will characteristically be edited to be decipherable to a more universal or specific audience, depending on to whom the publisher will be marketing the book.

The distribution of a research monograph will likely be individuals with anecdotal levels of proficiency in the field, ranging from students to academics, practitioners to arrange people. When writing, you can presuppose the reader will have some curiosity about the topic, but he or she may not have many milieus in the field.

The required complexity or quality of research of a Monograph can fluctuate by country, university, or program, and the required lowest study period. The word "Monograph" can at times be used to describe a discourse without relation to obtaining an academic extent. The term "Monograph" is also used to pass on to the general state of an essay or analogous work.

4. Professional Meetings

A meeting needs a clear purpose declaration. The exact goal for the specific meeting will evidently relate to the whole goal of the group or committee. Formative your purpose is central to a successful meeting and getting.

A meeting should not be scheduled just because it was held at the same time last month or because it is a standing committee. Members will show antipathy towards the intrusion into their schedules and hastily perceive the short of purpose.

Similarly, if the need for a meeting crops up, one should not dash into it without planning. An inadequately planned meeting announced at the last minute is in no doubt to be less than useful.

People may be powerless to change their schedules, may fall short to concentrate, or may hinder the advancement and debate of the group because of their nonappearance. Those who concentrate may feel stalled because they needed more time to organize and present all-inclusive results to the assemblage or committee.

5. Seminars

A seminar may be defined as an assembly of people for the intention of discussing a stated topic. Such gatherings are typically interactive sessions where the participants fit into place in discussions about the demarcated topic. The sessions are frequently headed or led by one or two presenters who dole out to maneuver the discussion along the preferred conduit.

	A seminar may have numerous purposes or just one purpose. For a case in point, a seminar may be for the rationale of education, such as a lecture, where the contributor engages in the discussion of an academic subject for the intention of gaining a superior approach to the subject. Other forms of instructive seminars might be held to notify some skills or acquaintance to the participants. **6. Symposia** A symposium is a public meeting concerning a theme in which people give presentations. If your knitting club holds a symposium, assorted knitters will give presentations about no matter what has to do with knitting. A symposium can be a one-time consultation or a regular meeting, but it will most likely include some quantity of discussion or public speeches on a picky subject. Many people who will be present at symposiums will be an ingredient of the audience for numerous of the presentations, but throughout the route of the event, give their own arrangement or be part of a board conversation. The main dissimilarity between a symposium and a discussion is that a symposium has a propensity to be alike to a conference, but lesser. The definition of a symposium isn't totally noticeable. However, similarly to a workshop, a symposium tends to core on a meticulous matter rather than a more general premise. Usually, a number of experts will come together in order to present their ideas and papers to one another. A symposium is typically completed in a solo day. Symposiums may be more impressive than a conference, with prominence on authority presenting their work and occasionally discussing it afterward (though not to the degree of a seminar). To conclude, symposiums will normally be smaller than a convention or a seminar. **7. Workshops** This is an inventory of our most popular workshop filament. It is suggested that institutions commence with an opening workshop in grave thinking. Any of these strands can be united to focus on the ambition and needs of your institution. The presenters can converse workshop possibilities with you, and formulate recommendations pedestal to your needs. This is strappingly recommended for those who have not beforehand taken a foundational workshop in significant thinking.
7A	Define conditional formatting
	Conditional formatting can help make patterns and trends in your data more apparent. To use it, you **create rules that determine the format of cells based on their values**, such as the following monthly temperature data with cell colors tied to cell values

7B	What is secondary data? Briefly explain its advantages and disadvantages.
	Secondary data is the data that have been already collected for another purpose but has some relevance to your current research needs. In other words, it has already been collected in the past by someone else, not you. And now, you can use the data. Secondary data is second-hand information. It is not used for the first time. That is why it is called secondary. **Advantages of Secondary Data:** **Ease of access** The secondary data sources are very easy to access. The Internet has changed the way secondary research works. Nowadays, you have so much information available just by clicking with the mouse. **Low cost or free** The majority of secondary sources are absolutely free for use or at very low costs. It saves not only your money but your efforts. In comparison with primary research where you have to design and conduct a whole primary study process from the beginning, secondary research allows you to gather data without having to put any money on the table. (see more on our post: primary vs secondary data) **Time-saving** As the above advantage suggests, you can perform secondary research in no time. Sometimes it is a matter of a few Google searches to find a source of data. **Allow you to generate new insights from previous analysis** Reanalyzing old data can bring unexpected new understandings and points of view or even new relevant conclusions. **Longitudinal analysis** Secondary data allows you to perform a longitudinal analysis which means the studies are performed spanning over a large period of time. This can help you to determine different trends. In addition, you can find secondary data from many years back up to a couple of hours ago. It allows you to compare data over time. **Anyone can collect the data** Secondary data research can be performed by people that aren't familiar with the different data collection methods. Practically, anyone can collect it. **A huge amount of secondary data with a wide variety of sources** It is the richest type of data available to you in a wide variety of sources and topics. **Disadvantages:** **Might be not specific to your needs** Secondary data is not specific to the researcher's needs due to the fact that it was collected in the past for another reason. That is why the secondary data might be unreliable for your current needs. Secondary data sources can give you a huge amount of information, but quantity does not always mean appropriateness. **You have no control over data quality** The secondary data might lack quality. The source of the information may be questionable, especially when you gather the data via the Internet. As you relying on secondary data for your data-driven decision-making, you must evaluate the reliability of the information by finding out how the information was collected and analyzed. **Biasness**

	As the secondary data is collected by someone else than you, typically the data is biased in favor of the person who gathered it. This might not cover your requirements as a researcher or marketer. **Not timely** Secondary data is collected in the past which means it might be out-of-date. This issue can be crucial in many different situations. **You are not the owner of the information** Generally, secondary data is not collected specifically for your company. Instead, it is available to many companies and people either for free or for a little fee. So, this is not exactly a "competitive advantage" for you. Your current and potential competitors also have access to the data
7C	What is research design? Briefly explain types of research designs.
	research design is to ensure that the evidence obtained enables you to effectively address the research problem as unambiguously as possible. In social sciences research, obtaining evidence relevant to the research problem generally entails specifying the type of evidence needed to test a theory, to evaluate a program, or to accurately describe a phenomenon. However, researchers can often begin their investigations far too early, before they have thought critically about about what information is required to answer the study's research questions. Without attending to these design issues beforehand, the conclusions drawn risk being weak and unconvincing and, consequently, will fail to adequate address the overall research problem. 2 Major Types of Research Design Keeping its dynamics into consideration, the research design is categorised into two different perspectives, i.e. Quantitative Research Design and Qualitative Research Design. Further, there are four main characteristics of research design which include Reliability, Neutrality, Validity as well as Generalization. Further, a researcher should have a clear understanding of how their project can be implemented in the research design. **Let's explore what Quantitative and Qualitative Research Designs mean:** **Quantitative Research Design** In Quantitative Research Design, a researcher examines the various variables while including numbers as well as statistics in a project to analyze its findings. The use of graphics, figures, pie charts is the main form of data collection measurement and meta-analysis (it is information about the data by the data). **Qualitative Research Design** This type of research is quite contrary to quantitative research design. It is explanatory in nature and always seeks answers to "What's" and "How's". It mainly focuses on why a specific theory exists and what would be the respondent's answer to it. This allows a researcher to draw a conclusion with proper findings. Case studies are mainly used in Qualitative Research Design in order to understand various social complexities.

8	Case study