UNIT 3: THE FREQUENCY THEORY OF PROBABILITY

UNIT STRUCTURE

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3.1 LEARNING OBJECTIVES

After going through this unit you will be able to –

- Explain the frequency theory of probability
- Describe the historical background of the frequency theory of probability
- Discuss the characteristics of the Frequency Theory
- Explain the importance and applications of the Frequency Theory
- Explain how the frequency theory differs from other theories of probability
- Explain and examine the strengths of the Frequency Theory
- Explain the limitations and criticisms of the Frequency Theory
- Discuss the three basic objectives of the Frequency Theory of Probability

3.2 INTRODUCTION

Probability theory provides a mathematical framework for analyzing uncertainty and randomness. Among the various interpretations of probability, the ***Frequency Theory of Probability***, also known as the Frequentist

Interpretation, occupies a central position in classical and modern statistical thought.**Gupta and Kapoor remarked,** "According to the frequency theory, probability can be defined only when an experiment is repeated a large number of times" (Gupta & Kapoor, 2014: 122). This theory defines probability in terms of the **relative frequency of occurrence of an event in a large number of repeated trials under identical conditions**. It is particularly significant in empirical sciences, where probability is inferred from observed data rather than subjective belief. The frequency theory emerged as a response to limitations in earlier interpretations of probability, especially the classical theory, which relied heavily on equally likely outcomes. In many real-world situations—such as weather forecasting, quality control, genetics, and social sciences—outcomes are not equally likely or cannot be enumerated a priori. The frequency approach provides a more practical and observable basis for assigning probabilities in such cases.

This unit is primarily concerned with the frequency theory of probability, its historical background, characteristics or basic features, how it differs from other theories of probability, its strengths, limitations and criticisms, and its three basic objectives.

3.3 HISTORICAL BACKGROUND

The roots of the frequency theory can be traced back to the 18th and 19th centuries, but it was formally articulated in the early 20th century. John Venn, in his book *The Logic of Chance* (1866), was among the first to systematically advocate a frequency-based definition of probability. However, the theory gained its most influential formulation through Richard von Mises, who introduced the concept of probability as the limiting value of relative frequency in an infinite sequence of trials, which he termed a *collective*. Von Mises' work emphasized that probability statements should be grounded in long-run empirical regularities rather than abstract symmetry or subjective judgment. This view aligned closely with the growing emphasis on experimentation and statistical inference in science and industry during the late 19th and early 20th centuries

According to the frequency theory, the probability of an event is defined as the *limit of its relative frequency* as the number of trials increases indefinitely. Hacking says, "The frequency interpretation makes probability a property of sequences of events rather than of individual events" (Hacking, 1974: 145).Symbolically, if an event AAA occurs nnn times in NNN trials, its relative frequency is n/Nn/Nn/N. As NNN becomes very large, the relative frequency tends to stabilize around a particular value. This stable value is identified as the probability of the event. For example, if a coin is tossed repeatedly; the proportion of heads obtained may fluctuate initially but tends to approach 0.5 as the number of tosses becomes very large. According to the frequency theory, the probability of getting a head is therefore 0.5, not because of symmetry alone, but because of observed long-run behavior. Thus, probability is viewed not as a measure of belief or logical expectation, but as an *objective property of a sequence of events*.

ACTIVITY 3.1

- What is the definition of the frequency theory of probability?

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- Write a note on the historical background of the frequency theory of probability.

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CHECK YOUR PROGRESS

Q. 1: Who is the author of the book *The Logic of Chance*?

Q. 2: The Frequency Theory of Probability is also known as the Frequentist Interpretation. (True/False)

Q. 3: "The frequency interpretation makes probability a property of sequences of events rather than of individual events" – Who said this?

Q. 4: Probability is viewed as a measure of belief or logical expectation. (True/False)

Q. 5: According to the Frequency Theory, probability is viewed as an objective property of a sequence of events. (True/False)

3.4 KEY CHARACTERISTICS OF THE FREQUENCY THEORY

One of the defining features of the frequency theory is its *empirical orientation*. Probabilities are derived from actual observations rather than theoretical assumptions. This makes the theory especially useful in experimental and applied contexts.

Another important characteristic is its emphasis on *repetition*. Probability statements are meaningful only when an experiment can be repeated under identical conditions a large number of times. Single, non-repeatable events—such as the probability of a specific historical event—cannot be assigned probabilities under strict frequentis interpretation.

The theory also insists on *long-run stability*. Short-run fluctuations are acknowledged, but they are considered irrelevant for defining probability. What matters is the behavior of frequencies over a very large number of trials.

The frequency theory rests on several important assumptions:

1. **Repeatability of Experiments**: The experiment or process must be repeatable under identical or nearly identical conditions.
2. **Large Number of Trials**: Probability emerges only when the number of trials is sufficiently large.
3. **Stability of Relative Frequencies**: Relative frequencies must converge toward a stable limit.
4. **Randomness**: The sequence of trials must be random, meaning that no systematic pattern biases the outcomes.

These assumptions are crucial, but they also expose some of the limitations of the theory, particularly in cases where repetition is impossible or impractical.

3. 5 IMPORTANCE AND APPLICATIONS

The frequency theory has played a foundational role in the development of **statistical inference**, especially classical (frequentist) statistics. Concepts such as confidence intervals, hypothesis testing, sampling distributions, and significance testing are deeply rooted in frequentist probability.

In fields such as physics, biology, economics, psychology, and social sciences, probabilities are often estimated using observed data collected from repeated experiments or surveys. For example:

- In quality control, defect rates are estimated from production samples.
- In epidemiology, disease incidence rates are calculated from population data.
- In insurance, probabilities of accidents or death are derived from historical records.

In all these cases, probability is interpreted as a long-run frequency based on empirical evidence.

3.6 COMPARISON WITH OTHER THEORIES OF PROBABILITY

The frequency theory differs significantly from other interpretations of probability. Unlike the *classical theory*, it does not require equally likely outcomes. Unlike the *subjective or Bayesian theory,* it does not interpret probability as a degree of belief. Instead, it treats probability as an objective feature of observable phenomena.

This objectivity has been both a strength and a point of criticism. While it lends scientific rigor, it also restricts the scope of probability to repeatable events, excluding many meaningful real-life situations.

3.7 STRENGTHS OF THE FREQUENCY THEORY

The frequency theory offers several advantages:

- It provides an objective and measurable definition of probability.
- It aligns closely with experimental science and data-based reasoning.
- It avoids reliance on subjective judgment or prior beliefs.
- It forms the theoretical basis of most traditional statistical methods.

Because of these strengths, the frequency interpretation has dominated statistical practice for much of the 20th century.

3.8 LIMITATIONS AND CRITICISMS OF THE FREQUENCY THEORY

Despite its importance, the frequency theory has notable limitations. The requirement of infinite or very large repetitions is often unrealistic in practice. Additionally, the theory cannot assign probabilities to unique events, such as the probability of a particular political decision or a specific natural disaster occurring once.

Critics also argue that defining probability as a limit involves a circular problem, as the existence of the limit itself cannot always be empirically verified. Furthermore, in many modern applications—such as decision-making under uncertainty—subjective probabilities may be more appropriate.

3.9 THREE BASIC OBJECTIVES OF FREQUENCY THEORY OF PROBABILITY

The Frequency Theory of Probability, also known as the frequentist interpretation, defines probability as the long-run relative frequency of occurrence of an event in a large number of repeated trials conducted under identical conditions. Williams says, “Probability theory rests on the observation that relative frequencies tend to stabilize in repeated trials” (Feller, 1968: 54). Developed and refined by scholars such as John Venn and Richard von Mises, this theory aims to provide an objective and empirically verifiable foundation for probability. The objectives of the frequency theory reflect its scientific orientation and its emphasis on observation, experimentation, and regularity in random phenomena. Broadly, the theory is guided by *three fundamental objectives*, each of which contributes to its significance in probability and statistics.

(i) To Provide an Objective and Empirical Definition of Probability

The first and most fundamental objective of the Frequency Theory of Probability is to *establish probability as an objective and empirically measurable* concept rather than a subjective degree of belief or a purely logical construct. Prior to the development of the frequency approach, probability was often defined either in classical terms—based on equally likely outcomes—or in

subjective terms, depending on personal belief or judgment. These approaches were found inadequate in many practical and scientific contexts.

The frequency theory seeks to remove subjectivity from probability by grounding it in **observable data**. According to this objective, probability is not something that exists in the mind of an individual; instead, it is a property of a real-world process that can be observed, measured, and verified through repeated experimentation. For example, the probability of a defective item in a factory is determined by examining the proportion of defective items produced over a long period, rather than by speculation or belief.

By defining probability as the limit of relative frequency, the theory ensures that probability statements are **verifiable in principle**. Although infinite trials are not possible in practice, the stabilization of frequencies over a large number of trials provides a practical approximation. This objectivity makes the frequency theory particularly suitable for natural sciences, social sciences, and industrial applications where data collection and experimentation play a central role.

Thus, the first objective strengthens the scientific credibility of probability by transforming it into a concept that is independent of individual opinion and firmly rooted in empirical reality.

(ii) To Explain and Quantify Long-Run Regularities in Random Phenomena

The second major objective of the Frequency Theory of Probability is to *explain the apparent regularity that emerges from random processes when observed over a long period*. At first glance, random events appear unpredictable and chaotic. However, when such events are repeated a large number of times, stable patterns often emerge. The frequency theory aims to capture and quantify this long-run regularity. For instance, individual tosses of a coin produce unpredictable outcomes, but when the coin is tossed thousands of times, the proportion of heads tends to approach a stable value close to one-half. Similarly, while individual accidents, deaths, or equipment failures may seem irregular, large datasets reveal consistent rates and patterns. The frequency theory interprets these stable proportions as probabilities. By

focusing on long-run behavior, the theory helps distinguish between *short-term fluctuations and genuine probabilistic laws.* Random variation in small samples is acknowledged as natural, but it is considered irrelevant for defining probability. What matters is the tendency of relative frequencies to converge as the number of trials increases. This objective aligns closely with the Law of Large Numbers, which provides mathematical support for the idea that observed frequencies stabilize in large samples. Through this objective, the frequency theory offers a rational explanation of how order and predictability can arise from randomness. It enables scientists and statisticians to model uncertainty in a systematic way and to make reliable generalizations based on large-scale observations.

(iii) To Provide a Practical Foundation for Statistical Inference and Scientific Research

The third basic objective of the Frequency Theory of Probability is to *serve as a foundational framework for statistical methods and scientific investigation.* Modern statistics, particularly classical or frequents statistics, relies heavily on the frequency interpretation of probability.

In statistical inference, conclusions about populations are drawn from sample data. Concepts such as hypothesis testing, confidence intervals, estimation, and significance levels are all based on probabilities interpreted as long-run frequencies. For example, when a researcher states that a result is significant at the 5 percent level, it means that in the long run, such results would occur by chance only 5 times out of 100 if the null hypothesis were true.

This objective emphasizes the *practical utility* of the frequency theory. By linking probability to repeatable experiments and sampling processes, the theory provides a consistent basis for evaluating evidence, testing theories, and validating scientific claims. In fields such as medicine, engineering, economics, psychology, and education, decisions are often based on data collected from repeated observations. The frequency theory supplies the conceptual foundation for interpreting such data reliably.

Moreover, this objective ensures that probability theory remains closely connected to real-world applications. Rather than being an abstract mathematical concept, probability becomes a powerful tool for decision-making,

quality control, risk assessment, and policy formulation. By emphasizing repeatability and empirical testing, the frequency theory reinforces the core principles of the scientific method.

3.10 CRITICAL ANALYSIS OF THE FREQUENCY THEORY OF PROBABILITY

The Frequency Theory of Probability, often associated with the works of John Venn and Richard von Mises, represents a significant shift in the understanding of probability from abstract reasoning to empirical observation. It interprets probability as the long-run relative frequency of an event in a large number of repeated trials conducted under identical conditions. This interpretation has had a profound influence on the development of modern statistics and scientific methodology. A critical discussion of the frequency theory involves examining its conceptual foundations, methodological implications, practical usefulness, and inherent limitations.

One of the most important aspects of the frequency theory is its **objective nature**. Unlike subjective interpretations that define probability in terms of personal belief or degree of confidence, the frequency approach seeks to make probability independent of the observer. Probability is treated as a property of a real-world process rather than a mental construct. This objectivity strengthens the scientific credibility of probability and makes it suitable for disciplines that rely on experimentation and observation. In fields such as physics, biology, economics, and sociology, probabilities are frequently derived from repeated observations and large datasets, reflecting the core principles of the frequency theory.

Another major point of discussion concerns the theory's reliance on *repeatability and long-run behavior.* The frequency interpretation assumes that an experiment can be repeated indefinitely under identical or nearly identical conditions. While this assumption is reasonable in controlled experiments such as coin tossing, dice rolling, or manufacturing processes, it becomes problematic in many real-life situations. Social, economic, and natural

phenomena often involve changing conditions that make strict repetition impossible. Nevertheless, the theory addresses this issue by allowing for approximate repeatability and by focusing on statistical regularities observed over large samples rather than perfect experimental duplication.

The concept of *long-run stability of relative frequencies* is central to the frequency theory. According to this view, short-term fluctuations are inevitable and should not be mistaken for true probabilities. Only when the number of trials becomes sufficiently large do relative frequencies stabilize and reveal the underlying probability. This idea is closely related to the Law of Large Numbers, which provides mathematical justification for the convergence of observed frequencies toward expected values. The emphasis on long-run behavior has influenced the design of experiments and surveys, encouraging researchers to rely on large sample sizes to obtain reliable results.

A further point of discussion is the role of *randomness* in the frequency theory. Richard von Mises introduced the concept of a “collective,” a sequence of observations that is both random and exhibits stable relative frequencies. He argued that probability can be meaningfully defined only for such sequences. However, defining randomness itself has been a subject of debate. Critics argue that randomness cannot be defined independently of probability, leading to a circular reasoning problem. Despite this criticism, the frequency theory has motivated the development of formal criteria for randomness in statistics and probability theory.

The frequency interpretation has also played a crucial role in shaping *frequentist statistical methods.* Techniques such as hypothesis testing, estimation, confidence intervals, and significance testing are all grounded in the idea of long-run frequencies. For instance, when a hypothesis test yields a p-value of 0.05, it is interpreted as the probability of obtaining results as extreme as those observed in repeated samples, assuming the null hypothesis is true. This interpretation is meaningful only within the framework of frequency theory, which views probability as a long-run proportion of outcomes.

Despite its strengths, the frequency theory faces several important criticisms. One major limitation is its inability to assign probabilities to *unique or non-repeatable events.* Events such as a particular election outcome, a specific historical event, or the occurrence of a singular natural disaster cannot be repeated under identical conditions. From a strict frequentist perspective, assigning probabilities to such events is problematic. This limitation has led to the development of alternative interpretations, such as subjective and Bayesian probability, which allow probabilities to represent degrees of belief.

Another criticism concerns the *practical impossibility of infinite trials*. The frequency theory defines probability as the limit of relative frequency as the number of trials approaches infinity. In reality, only a finite number of observations is possible. While large samples can approximate probabilities, critics argue that the definition itself relies on an idealized concept that cannot be fully realized. This raises philosophical questions about whether probability is truly defined or merely approximated in practice.

Furthermore, the theory has been criticized for its *historical dependence*. Probabilities estimated from past data may not remain valid in the future if underlying conditions change. For example, probabilities derived from past accident rates may become inaccurate if safety regulations improve or technology advances. This limitation highlights the need for caution when applying frequency-based probabilities to dynamic systems.

3.11 FINDINGS OF THE FREQUENCY THEORY OF ROBABILITY

The discussion of the frequency theory of probability leads to several important findings that clarify its role and significance in probability and statistics.

First, it is found that the frequency theory provides a powerful and objective framework for understanding probability in contexts involving repeated experiments and large datasets. By linking probability to observable frequencies, the theory ensures that probability statements are grounded in empirical

evidence. This finding explains why the frequency interpretation has been widely adopted in scientific research and industrial applications.

Second, the theory successfully explains how order emerges from randomness**.** Although individual outcomes may appear unpredictable, the stabilization of relative frequencies in the long run reveals consistent patterns. This finding reinforces the idea that randomness and regularity are not contradictory but complementary aspects of probabilistic phenomena. The frequency theory thus offers a rational explanation for the predictability observed in large-scale random processes.

Third, the frequency interpretation has been found to be indispensable for classical statistical inference**.** Most traditional statistical tools rely on the concept of probability as long-run frequency. Without the frequency interpretation, the logical foundation of hypothesis testing, confidence intervals, and sampling theory would be weakened. This finding highlights the central role of the frequency theory in the development of modern statistics.

Fourth, it is observed that while the frequency theory is highly effective in experimental and repeatable contexts, it has limited applicability to unique events**.** This finding does not invalidate the theory but rather defines its scope. It suggests that no single interpretation of probability can address all forms of uncertainty, and that different interpretations may be appropriate in different contexts.

Fifth, the theory has contributed significantly to the standardization of scientific methodology**.** By emphasizing repeatability, large samples, and empirical verification, the frequency theory reinforces key principles of the scientific method. This finding explains its enduring influence in disciplines that prioritize experimental validation and data-driven conclusions. Thus, it can be said that the frequency theory has revealed the importance of sample size and data quality in probability estimation. Reliable probabilities require sufficiently large and representative samples. This finding has practical implications for research design, encouraging careful data collection and rigorous experimental planning.

In view of the above, it becomes clear that the Frequency Theory of Probability represents one of the most influential and scientifically grounded interpretations of probability. By defining probability as the long-run relative frequency of occurrence of an event in a large number of repeated trials conducted under identical conditions, the theory provides an objective and empirically verifiable foundation for understanding uncertainty. This approach marked a significant departure from earlier classical interpretations that relied on assumptions of equally likely outcomes and from subjective interpretations based on personal belief.

One of the most important contributions of the frequency theory lies in its emphasis on observation and experimentation. By grounding probability in empirical data, the theory aligns closely with the principles of the scientific method. It enables researchers to derive probabilities from actual experience rather than speculation, making it especially valuable in natural sciences, social sciences, and industrial applications. The theory successfully explains how apparent randomness at the individual level can produce stable and predictable patterns when observed over a large number of trials.

The frequency theory has also played a foundational role in the development of modern statistical methods. Classical statistical inference—including hypothesis testing, estimation, confidence intervals, and sampling theory—is deeply rooted in the frequentist interpretation of probability. Without the frequency concept, these widely used tools would lack a coherent theoretical basis. As a result, the theory continues to influence empirical research, decision-making, and policy formulation across a wide range of disciplines.

However, the theory is not without limitations. Its reliance on repeatability and long-run behavior restricts its applicability to situations involving unique or non-repeatable events. Moreover, the requirement of an infinite or very large number of trials is an idealization that cannot be fully achieved in practice. These limitations have prompted the development of alternative interpretations, such as the subjective and Bayesian approaches, which complement rather than replace the frequency theory. Thus, nobody can deny that the frequency theory of probability remains a cornerstone of probability and statistics despite its limitations. Its objective, data-driven perspective has provided a rigorous framework for analyzing random phenomena and has profoundly shaped scientific inquiry. While no single theory of probability can address all forms of uncertainty, the frequency theory continues to be indispensable for

understanding probability in repeatable and empirical contexts. Its enduring relevance reflects its fundamental contribution to the philosophy and practice of probability.

ACTIVITY 3.2

- The frequency theory provides a powerful and objective framework for understanding probability in contexts involving repeated experiments and large datasets. Explain.

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- Discuss the frequency theory of probability critically.

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CHECK YOUR PROGRESS

Q.6: One of the most important aspects of the frequency theory is its objective nature. (True/False)

Q. 7: Who introduced the concept of a “collective”?

Q. 8: The frequency theory has played a foundational role in the development of modern statistical methods. (True/False)

Q. 9: The frequency theory defines probability as the limit of relative frequency as the number of trials approaches infinity. (True/False)

Q.10: One major limitation of the frequency theory of probability is its inability to assign probabilities to unique or non-repeatable events. (True/False)

3.12 LET US SUM UP

- The Frequency Theory of Probability is also known as the Frequentist Interpretation.

- According to the frequency theory, probability can be defined only when an experiment is repeated a large number of times.
- Richard von Mises introduced the concept of probability as the limiting value of relative frequency in an infinite sequence of trials, which he termed a collective.
- Hacking says, “The frequency interpretation makes probability a property of sequences of events rather than of individual events.”
- Probabilities are derived from actual observations rather than theoretical assumptions.
- Probability statements are meaningful only when an experiment can be repeated under identical conditions a large number of times.
- The Frequency Theory of Probability, also known as the frequentist interpretation, defines probability as the long-run relative frequency of occurrence of an event in a large number of repeated trials conducted under identical conditions.
- According to Williams, “Probability theory rests on the observation that relative frequencies tend to stabilize in repeated trials.”
- The frequency theory has also played a foundational role in the development of modern statistical methods.
- The theory is not without limitations. Its reliance on repeatability and long-run behaviour restricts its applicability to situations involving unique or non-repeatable events. Moreover, the requirement of an infinite or very large number of trials is an idealization that cannot be fully achieved in practice.

3.13 FURTHER READINGS

1. Feller, W. (1968). *An Introduction to Probability Theory and Its Applications* (Vol. 1, 3rd ed.). New York: John Wiley & Sons.

2. Freund, J. E. (2003). *Mathematical Statistics with Applications* (7th ed.). New Delhi: Pearson Education.

3. Gupta, S. C., & Kapoor, V. K. (2014). *Fundamentals of Mathematical Statistics* (11th ed.). New Delhi: Sultan Chand & Sons.

4. Hacking, I. (1975). *The Emergence of Probability: A Philosophical Study of Early Ideas about Probability, Induction and Statistical Inference*. Cambridge: Cambridge University Press.

5. Mood, A. M., Graybill, F. A., & Boes, D. C. (1974). *Introduction to the Theory of Statistics* (3rd ed.). New York: McGraw-Hill.

6. Reichenbach, H. (1949). *The Theory of Probability: An Inquiry into the Logical and Mathematical Foundations of the Calculus of Probability*. Berkeley: University of California Press.
7. Salmon, W. C. (1967). *The Foundations of Scientific Inference*. Pittsburgh: University of Pittsburgh Press.
8. Spiegel, M. R., Schiller, J., & Srinivasan, R. A. (2012). *Probability and Statistics* (4th ed.). New York: McGraw-Hill.
9. Venn, J. (1866). *The Logic of Chance: An Essay on the Foundations and Province of the Theory of Probability*. London: Macmillan and Co.
10. Von Mises, R. (1957*). Probability, Statistics and Truth*. New York: Dover Publications.

✓ 3.14 ANSWERS TO CHECK YOUR PROGRESS

Answer to Q. No. 1: John Venn
Answer to Q. No. 2: True
Answer to Q. No. 3: Hacking
Answer to Q. No. 4: False
Answer to Q. No. 5: True
Answer to Q. No. 6: True
Answer to Q. No. 7: Richard von Mises
Answer to Q. No. 8: True
Answer to q. No. 9: True
Answer to Q. No. 10: True

? 3.15 MODEL QUESTIONS

A) Very Short Questions

Q.1: Define the frequency theory of probability.

Q. 2: Is the frequency theory of probability significant in empirical sciences?

Q. 3: What is the probability of an event according to the frequency theory of probability?

Q. 4: State two important assumptions on which the frequency theory of probability rests.

Q. 5: State one important contribution of the frequency theory.

B) Short questions (Answer each question in about 100-150 words)

Q. 1: What are the basic characteristics of the frequency theory of probability?

Q. 2: State several important assumptions on which the frequency theory rests.

Q. 3: Are probability statements verifiable in principle? Explain.

Q. 4: How does the frequency theory differ significantly from other interpretations of probability? Discuss.

Q. 5: Do you think the frequency theory of probability has contributed significantly to the standardization of scientific methodology? Give reasons in support of your answer.

C) Long Questions (Answer in about 300-500 words)

Q. 1: What do you mean by the frequency theory of probability? Explain the historical background of the frequency theory of probability.

Q. 2: Is the frequency theory of probability significant in empirical sciences? Explain and examine the frequency theory of probability.

Q. 3: Define the frequency theory of probability. Discuss the characteristics of the frequency theory of probability.

Q. 4: Define the frequency theory of probability. Explain the importance and applications of the frequency theory.

Q. 5: What do you mean by the frequency theory of probability? Explain how the frequency theory differs from other theories of probability.

Q. 6: What is the probability of an event according to the frequency theory of probability? Explain and examine the strengths of the frequency theory.

Q. 7: Explain the limitations, criticisms and key findings of the frequency theory of probability.

Q. 8: Discuss the three main objectives of the frequency theory of probability.

Q. 9: Critically analyze the frequency theory of probability.

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