

History of Psychology
Test on Chapters 1, 2, and 3

1. What are the academic disciplines that psychology was built upon? The academic disciplines were built on studying the history of psychology as an independent discipline. There is no single form, approach, or definition of psychology on which all psychologists agree. We have learned from other psychology courses that there is diversity, divisiveness and fragmentation in the professional and scientific specialization of this field. The ability to explore the people, events and experiences of the past help us to be part of the evolution from which psychology was built on.
2. Define the term *Zeitgeist* **and** name three factors that are part of it. *Zeitgeist* is the intellectual and cultural climate or spirit of the times as well as current social, economic, and political forces. The ability of psychologists to apply their knowledge and techniques to solve real world problems increased their opportunities in the field and opened new doors for them. They proved to be useful in solving social, educational, and industrial problems and applied their skills in areas such as public education as the US population was changing with the influx of immigrants. The personal impact of wars such as WW1 and WW2 provided opportunities for psychologists too. The acceleration and growth of applied psychology influenced areas such as psychological testing and clinical psychology. Race, religion and gender also provided areas where psychologists could become involved and apply their expertise.
3. Define *determinism* and *empiricism*. Determinism is the doctrine that acts are determined by past events. Empiricism is the pursuit of knowledge through the observation of nature and the attribution of all knowledge to experience. Knowledge handed down from the past became suspect.
4. What are the differences between John Locke and Rene Descartes in terms of how they believed humans gained knowledge? John Locke was concerned with the ways the mind acquired its knowledge. He argued that humans are born without any knowledge at birth, the mind is a blank slate which humans fill with ideas as they experience the world. Locke explained the apparent inherent nature of some ideas in terms of learning and habit. He also recognized the two kinds of experiences: sensation and reflection. The mental or cognitive function of reflection as a source of ideas depends on sensory experience because the ideas produced by the mind's reflection are based on impressions already experienced through the senses. Sensations appear first. In reflecting we recall past sensory impressions and combine them to form abstractions and other higher level ideas. All ideas arise from sensation and reflection, but the ultimate source remains in our sensory experiences. Rene Descartes believed human beings are born with innate concepts, such as God and that something cannot come from nothing. He also believed there was an interaction between the mind and body. The mind influences the body but the body has a greater influence on the mind. Their relationship is a mutual interaction.
5. Define the *Spirit of Mechanism* **and** explain why it was important. The thought at the time was the image of the universe as a great machine. The doctrine held that natural

processes are mechanically determined and capable of explanation by the laws of physics and chemistry. Human beings are seen similar to clocks and machines composed of parts lacking any intrinsic relationship to each other. Observation and experimentation was followed by the science of measurement. Measuring devices such as thermometers and pendulum clocks became perfected. The precise measurement of time had scientific consequences. As technology advanced, so did the refinement of clockwork mechanisms. Clocks became available to everyone, and punctuality was seen as a way of life. Life became more orderly and predictable.

6. What was unique about the way that James Mill viewed the human mind **and** what was his goal? He believed the mind was a machine and that it functioned the same predictable and mechanical way a clock does. He felt the mind is a totally passive entity that is acted on by external stimuli which we react to automatically. He also believed the mind was studied by the method of analysis, reducing it to its elementary components. All knowledge begins with sensations from which are derived, through the process of association, higher level complex ideas. The mind he felt has no creative function because association is a totally automatic, passive process. His goal was to destroy the illusion of all subjective or mental activities and to demonstrate that the mind was nothing more than a machine.
7. What was the significance of David Kinnebrook's mistake? There were systemic differences between astronomers in their measures of stars across grid lines in telescopes. These slight differences, a mere half-second with Kinnebrook and Maskelyne depended on whether the astronomer first focused his attention on the star or the timing device. This incident, or mistake which caused him to get fired, led to the founding of the "personal equation", the margin of error from person to person.
8. Why were the early developments in physiology important to the field of psychology? The science of physiology built the pathway for psychology to emerge as a scientific discipline. The use of experimental methods and research on specific energy of nerves and brain functions helped us to understand the brain's specialized areas. The early contributions introduced us to determining the specific parts of the brain that controlled different cognitive functions.
9. What was extirpation and of what value was it to psychology at that time? Extirpation is a technique used to determine the function of a given part of an animal's brain by removing or destroying it and observing the resulting behavior changes. Marshall Hall a Scottish physician observed decapitated animals continued to move for some time when various nerve endings were stimulated. His investigation concluded different levels of behavior arise from different parts of the brain and nervous system. Per his study, voluntary movements depend on the cerebrum, reflex movement on the spinal cord, involuntary movement on direct stimulation of the muscles, and respiratory movement on the medulla. Pierre Flourens a professor at the College de France in Paris studied pigeons in his study. He systematically destroyed parts of the brain and spinal cord in pigeons and observed the outcomes. He concluded the cerebrum controls higher mental processes:

parts of the midbrain control visual and auditory reflexes, the cerebellum controls coordination, and the medulla governs heartbeat, respiration, and other vital functions.

10. Why did so many of the early developments in psychology happen in Germany?
Germany welcomed biology to the family of sciences unlike the slower acceptance of communities in England and France. The Germans also defined science broadly. France and England defined science limited to physics and chemistry and approached it quantitatively. Germany included linguistics, history, archaeology, esthetics, logic and literary critic in their early developments of psychology. The French and English scholars were skeptical applying science to the complex human mind but the Germans thought differently and used the tools of science to explore and measure all facets of mental life. German universities were devoted to the principles of academic freedom. Professors were encouraged to teach topics of their choice and students were free to take the courses of their choice, unrestricted by a fixed curriculum. Their style provided the environment for scientific inquiry to take place. Students in Germany were directed in experimental research in well equipped laboratories unlike other countries. Germany provided more opportunities to learn and practice new scientific techniques. Germany had well financed universities with highly paid faculties and state-of-the-art laboratory equipment. England at the time had only two universities and neither supported scientific research as a discipline. The United States had no university devoted to research until 1876.
11. What was Hermann Helmholtz's major contribution to psychology? Helmholtz's major contribution was in the investigation of the speed of the neural impulse and his research on vision and hearing. He provided the first empirical measurement of the rate of conduction by stimulating a motor nerve and attached muscle in the leg of a frog and recording the precise moment of stimulation. He worked with nerves of different lengths recording the time delay between stimulation of the nerve near the muscle and the muscle's response and the same for stimulation farther from the muscle. This yielded the conduction speed of the neural impulse: 90 feet per second occurring at measurable intervals. He also contributed to the new psychology from his studies on vision. He investigated the external eye muscles and the mechanism by which internal eye muscles focus the lens. He revised and extended the theory of color vision and his work came to be known as the Young-Helmholtz theory of color vision. He also contributed to the research on audition, the perception of tones, the nature of harmony and discord and the problem of resonance. He contributed to the study of the ways the human senses work strengthening the use of experimental approach to the study of topics.
12. What is the two-point threshold? The two-point threshold is defined as the threshold at which two points of stimulation can be distinguished as such. Ernst Weber contributed to the new psychology by his experimental determination of the accuracy of the two-point discrimination of the skin. The distance between two points before the subject's report feeling two distinct sensations.
13. What is the just noticeable difference? This is defined as the smallest difference that can be detected between two physical stimuli. Weber's research led to the formulation of

psychology's first quantitative law. He asked subjects to lift two weights, a standard and a comparison weight, and report whether one felt heavier than the other. He found the just noticeable difference between the two weights was a constant ratio of 1:40. He found the subjects' ability to distinguish between the weights more accurately was apparent when they lifted their weights on their own versus when the experimenter placed the weights in their hands. His research showed there is not a direct correspondence between a physical stimulus and how we perceive it.

14. What two ways did Fechner propose for measuring sensation? First he proposed we can determine whether a stimulus is present or absent, sense or not sensed. Second he proposed we can measure the stimulus intensity at which subjects report that the sensation first occurs, called the absolute threshold of sensitivity, a point of intensity below which no sensation is reported and above which subjects do experience a sensation. Although the first proposal was useful, it was limited because only one value of a sensation, its lowest level, can be determined. To relate both sensations, the full range of stimulus values and their resulting sensation values must be measured. He then proposed the least amount of change in a stimulus that gives rise to a change in sensation.
15. According to Fechner what does a change in sensation depend on? He suggested that for each of the human senses, there is a certain relative increase in stimulus intensity that always produces an observable change in the intensity of the sensation. The sensation, mind, or mental quality, as well as the stimulus, body or material quality, can be measured. The relationship between the two can be stated in the form of an equation. The relationship is logarithmic: one series increases arithmetically and the other geometrically.