

Chapter 2

Philosophical Influences on Psychology

In 1739, a new machine was showcased in France that captured the intellectual spirit, or *Zeitgeist*, of the seventeenth to nineteenth centuries. The “defecating duck” was revolutionary in that it could quack, rise up on its legs, stretch out its neck, grab and swallow grain, and defecate just like a live duck. This invention is but one example of the new machines that were created for daily living and amusement. Such machines demonstrate mechanism, which is the idea that all natural processes are mechanically determined and can be understood by insight in chemistry and physics. Galileo and Newton started this doctrine with their conceptualization of the clockwork universe, which suggests that every physical effect is derived from a direct cause. Thus, if the cause could be fully understood, one would be able to make predictions. This intellectual atmosphere directly influenced the direction that psychology would eventually take by incorporating new technology into the methods and practice of science. With technology came increased precision. The scientific focus of the time was on observation, experimentation, and measurement.

Another new invention of the seventeenth century was the mechanical clock, which was referred to as the “mother of machines.” Clocks brought about regularity, order, and predictability to all levels of social class and economic circumstance. They also ushered in the idea that precision and regularity can apply to the universe. It was believed that a clockwork universe, once set in motion by God, would function with order, regularity, and predictability. This set the tone for determinism, “the doctrine that acts are determined by past events,” as well as reductionism, attempting to reduce complex phenomena into simpler components.

Machines built to imitate humans and other animals were called automata. The “defecating duck” was one such machine, and there were many more, such as a five and a half foot tall automaton that looked like a man and could actually play a flute. Philosophers began to incorporate the idea of mechanism and automata in their approach to understanding human nature. Many believed that mechanical laws govern human behavior, and the methods used to investigate the universe can be used to investigate human behavior. The *Zeitgeist* of the mechanical man that pervaded science and philosophy was echoed in literature, with Mary Shelley’s *Frankenstein* and L. Frank Baum’s *The Wizard of Oz* books.

Charles Babbage exemplified the intellectual spirit of the time when he invented a “difference calculator” that could imitate human mental actions like playing chess and conducting mathematical calculations. It is the direct forerunner of the modern computer and started the idea of “artificial intelligence”. One of Babbage’s supporters was Ada Lovelace, who described Babbage’s machine and how it worked. She identifies a fundamental difference between a thinking machine and a human, that is, a machine cannot create something new, it can only do what it is programmed to do.

Until the seventeenth century, when empiricism introduced new ideas to be formed through observation, prevailing thought was dictated by the dogmatism of the church. Although many scholars contributed to the introduction of psychology, Rene Descartes is credited as having inaugurated modern psychology. Descartes’ approach to philosophy was to discard all that he knew and to build his knowledge from scratch. One of the issues he tackled was the mind-body problem: “the question of the distinction between mental and physical qualities.” If the mind and body are different, then how do they interact with each other?

Descartes agreed with previous thought that mind and body are different. Unlike his predecessors who thought that mind controlled body, he believed in a mutual interaction, which means that the body also controls the mind to some extent. This placed more importance on the body's functioning and allowed it to become subject of scientific inquiry.

Being influenced by the automata and machines of his day, Descartes believed that the body could be explained mechanically. For example, he thought that some movements are not governed by the conscious experience but by stimulus outside of the body that elicits an involuntary response, which was later termed the *reflex action theory*. If the body can be described mechanically, then human behavior can be predictable; like with other machines, all movements (effects) happen because of causes and as long as one knows the causes one can predict the effects.

Descartes was a dualist, believing that the mind and body were separate entities. This left him with the problem of how they interact. He looked to the brain, and saw that structures were duplicated in each hemisphere, except for the pineal body. For this reason, he saw this structure as the vehicle through which the mind and body interact. Perhaps his biggest influence on psychology comes through Descartes' *doctrine of ideas*. He believed the mind had two types of ideas; derived ideas, which are "produced by the direct application of an external stimulus" and innate ideas, which "arise from the mind or consciousness, independent of sensory experiences."

Auguste Comte was also influential to modern psychology when he founded positivism (an ideal system based exclusively on facts that are objectively observable and not debatable). Comte believed that while the physical sciences had already reached a positivist stage, the social sciences would have to abandon metaphysical questions and explanations in order to do so. Similarly, the doctrine of materialism believes that "the facts of the universe could be described in physical terms and explained by the properties of matter and energy." On the other hand, the doctrine of empiricism proposed that "all knowledge is derived from sensory experience." Positivism, materialism, and empiricism all provided some of the philosophical basis for psychology, yet empiricism played the major role.

One of the main British empiricists was John Locke. His major influence on psychology is his book *An Essay Concerning Human Understanding*, which "marks the formal beginning of British empiricism." He rejects Descartes' innate ideas, and says that at birth the human mind is a *tabula rasa*, or a blank slate, and we acquire knowledge through our experiences. Locke defines two types of experiences: sensation (direct sensory input), and reflection (interpretations of sensations to form higher-level thinking). These experiences combine to form ideas. The first are simple ideas, which come from both sensation and reflection and can't be broken down further. The second are complex ideas, which are combinations of simple ideas. This sets the ground for *association*, which psychologists later call learning. According to Locke, everything begins with the objects in space and our sensations of them. Such objects have two qualities: primary qualities, which exist in the object whether we perceive them or not (such as size and shape), and secondary qualities, which exist not in the object but in our perception of it ("such as color, odor, sound, and taste"). Locke, like Galileo before him, was making the distinction between what is subjective and what is objective and thus highlighting the importance of human perception.

George Berkeley addressed the question of whether any real differences in stimulus existed. Berkeley believed that there were only secondary qualities, and all knowledge is a function of perception (this position later is called mentalism). With this conception, we can never know the real world in an objective way. However, Berkeley believed that stability exists because God constantly perceives the world. For example, when a tree falls in the forest, it still makes a sound even if no one is around to hear it, because God perceives the sound.

David Hartley, with his work on association, proposed that repetition is necessary to form associations. He believed that ideas occurring simultaneously are associated, and the more frequently those ideas occur together, the stronger the association. He applied the theory of association to explain mental activities, such as memory, reasoning, and emotion, and believed that because of repetition, these mental activities are strengthened in adulthood. He also suggested that nerves were solid (not hollow as Descartes thought) and vibrated to transmit messages.

James Mill applied mechanism to the mind with the aim to prove that the mind was a machine (in contrast to the previous philosophers who stated that the mind was *like* a machine). He believed that the mind simply responds to external stimuli, makes associations passively, and can be studied by reducing it down to elements. His son, John Stuart Mill, said that the mind was not passive but active in associating ideas. He said that complex ideas are more than just the combination of simple ones, because they take on new qualities. This idea is known as *creative synthesis*. His approach applies the laws of chemistry to the mind; “mental chemistry” suggests that simple ideas combine to form complex ideas which are more than just the sum of their parts.

The rise of empiricism led to a focus on sensation, conscious experience, mental processes, and association of ideas. The methods used to analyze these principles became atomistic, mechanistic, and positivistic.

Outline

- I. The Defecating Duck and the Glory of France
 - A. In 1739, mechanical duck was a popular marvel, because it:
 1. quacks
 2. rises up on its legs
 3. stretches out its neck
 4. picks up and swallows grain
 5. defecates
 - B. Example of the newfound fascination with machines
- II. The Spirit of Mechanism
 - A. 17th to 19th century Zeitgeist
 1. reflected in the various machines used in daily life
 2. reflected in amusement with mechanical figures that mimicked human action,
 3. fascination with the mechanical clock
 4. considerable advances of technology
 5. reflected in the view of the universe as an enormous machine
 6. reflected in mechanism: all natural processes are mechanically determined and can be explained by the laws of physics and chemistry
 7. originated in physics (then called natural philosophy) with the work of Galileo and Newton (who was trained as a clockmaker)
 - a. Galileo: matter is comprised of atoms that affect one another by direct contact
 - b. Newton: movement was not by actual physical contact but by forces that attract and repel atoms

8. implies every physical effect follows from a direct cause, thus it is measurable, predictable, orderly
9. have distinguishing features of science
 - a. observation
 - b. experimentation
 - c. measurement
 - (1) describing all phenomena with a numerical value
 - (2) measuring devices become more precise
 - (3) precise measurements (taken by timepieces) particularly important for observations, navigation, astronomy

III. The Clockwork Universe

A. Clock as metaphor for mechanism

1. produced in great quantity and variety
2. clocks were
 - a. available to all levels of society (clocks built into public buildings)
 - b. regular
 - c. predictable
 - d. precise
3. a model of the universe
 - a. Robert Boyle, Johannes Keller, and Rene Descartes believed that the harmony and order of the universe was analogous to the reliability or regularity of the clock
 - b. Christian von Wolff: “The universe behaves no differently than a clockwork”
 - c. Johann Christophe Gottsched, von Wolff’s student, elaborated on this premise

B. Determinism and reductionism

1. determinism: acts are caused by past events
2. explanation for the universe using the model of a clock
 - a. its parts function with order and regularity
 - b. we can understand its functions and functioning
 - c. we can predict changes that will occur from its past and present characteristics
3. reductionism: phenomena can be explained by reduction to their basic components
 - a. reduce a clock to its components such as springs and wheels to understand its functioning
 - b. implies that analyzing or reducing the universe to its simplest parts will produce understanding of it
 - c. characteristic of every science, including psychology

C. Automata: mechanical devices built to imitate human and animal movement

1. similar designs were made by ancient Greeks, Arabs, Chinese
2. complex machines simulated human/animal behaviors
 - a. Examples include: defecating duck, animated flute player, monk, harpsichord player
3. clockwork technology led to dreams of creating artificial beings

D. People as machines

1. model of human beings adopted from the creation of automata: the body as a machine made by God
2. suggests that human functioning and behavior are governed by mechanical law
3. implies experimental and quantitative methods of physics can be applied to the study of human nature
4. Julien de La Mettrie: the individual as an enlightened machine, like a watch that winds its own string
5. culturally pervasive: in the general population, in literature, in gardens, in clock towers

E. The calculating engine

1. invented by Charles Babbage: British mathematician
2. called “the difference engine,” the calculator did basic math, had memory, played games
3. first successful attempt to duplicate human cognitive processes
4. after 10 years, Babbage turned to work on a larger “analytical engine,” programmed through punch cards with separate memory and information processing capacity and printed output
5. cost overruns caused the British government to cancel funding
6. Ada Lovelace, age 18 and a math prodigy, published explanations of its functioning, potential uses, philosophical implications, and limitations in terms of originality or creativity.
7. although Babbage thought the significance of his achievements would never be sufficiently acknowledged, the first completely automatic computer was recognized (in 1946) as the realization of Babbage’s dream
8. Babbage developed a form of artificial intelligence that was ahead of his time

IV. The Beginnings of Modern Science

A. Empiricism: the pursuit of knowledge through observation and experimentation

1. replaced dogma and church doctrine as ruling forces of inquiry
2. Descartes: symbol of the transition to free scientific inquiry and forerunner of modern psychology

B. René Descartes (1596-1650)

1. born in France
2. inherited wealth allowed him to travel and pursue intellectual and scientific interests
3. attracted to applied research
4. had life-changing dreams
 - a. “spirit of truth” convinced him that mathematical principles can be applied to all sciences and produce certainty of knowledge made up his mind to accept as true only those things of which he was completely sure
5. lived a life of solitude, moved frequently, always lived near a Catholic church and a university
6. died in Sweden, tutoring Queen Christina in philosophy
7. 16 years later friends shipped a coffin to return his body to France
 - a. coffin too short; head cut off and left in Sweden
 - b. finger cut off by French ambassador for a souvenir
 - c. ceremonious burial in Paris

- d. skull passed among Swedish collectors for 150 years and eventually buried in France

V. The Contributions of Descartes: Mechanism and the Mind-Body Problem

A. The mind-body problem

1. “Are mind and body—the mental world and the material world—distinct from each other?”
2. pre-Descartes direction of influence: mind influences body, but not vice versa; much like how a puppet (body) and puppeteer (mind) are joined
3. Descartes: a mutual interaction
4. functions previously attributed to mind (reproduction, movement) now attributed to body
5. only function of mind is thought
6. diverted attention from the soul to the scientific study of mind Descartes shifted the methods of intellectuals: from subjective metaphysical analysis to objective observation and experimentation

B. The nature of the body

1. body is matter
 - a. has extension and capacity for movement
 - b. laws of physics and mechanics account for and explain its movement
2. body is a machine
 - a. nerves are pipes
 - b. muscles and tendons are engines and springs
 - c. action not voluntary but due to external objects
3. involuntary movements
 - a. undulatio reflexa—movement not determined by conscious will
 - b. reflex action theory: external object can bring about an involuntary response (precursor to S-R psychology)
4. human behavior is predictable if inputs are known
5. support from physiology
 - a. circulation of the blood
 - b. muscles work in opposing pairs
 - c. sensation and movement depend on the nerves
6. support of Christian thought
 - a. animals do not possess souls, feelings, immortality, thought processes, or free will
 - b. animal behavior: explained totally in mechanistic terms

C. The mind-body interaction

1. mind
 - a. is nonmaterial
 - b. is unitary (interacts with body at a single point)
 - c. thinks, perceives, wills
 - d. provides information about the external world
 - e. influences and is influenced by the body
 - f. has the brain as its focal point
2. conarium (pineal gland)
 - a. single and unitary
 - b. material

- c. the site of the mind-body interaction
 - 3. method of interaction
 - a. movement of animal spirits in nerve tubes impress upon the conarium
 - b. from this impression the mind produces a sensation
 - c. the reverse activity produces mental effects on the body, e.g., voluntary movement
- D. The doctrine of ideas
 - 1. derived ideas
 - a. occur from the immediate application of an external stimulus such as the sound of a bell or sight of a tree
 - b. are products of the experiences of the senses (e.g., the tone, the image)
 - 2. innate ideas
 - a. develop from within the mind rather than through the senses
 - b. led eventually to the nativistic theory of perception, i.e., perception is innate
 - c. influenced Gestalt psychology
 - d. inspired opposition by Locke, Helmholtz, Wundt
- E. Authors' summary of Descartes' contributions to the development of psychology
 - 1. the mechanistic conception of the body
 - 2. the theory of reflex action
 - 3. the mind-body interaction
 - 4. the localization of mental functions in the brain
 - 5. the doctrine of innate ideas
- VI. Philosophical Foundations of the New Psychology: Positivism, Materialism, Empiricism
 - A. European philosophy: foundations of the science of psychology
 - 1. Comte (1798-1857): positivism
 - a. "The doctrine that recognizes only natural phenomena or facts that are objectively observable."
 - b. in the attempt to review all human knowledge, limited his work to scientific facts refers to the "objects of sense," rather than "nonsense"
 - 2. materialism: "The doctrine that considers the facts of the universe to be sufficiently explained in physical terms by the existence and nature of matter."
 - a. Consciousness explained in terms of physics and chemistry
 - b. mental processes due to physical properties: brain anatomy and physiology
 - 3. empiricism: "all knowledge is derived from sensory experience."
 - a. knowledge is from sensory experience
 - b. contrasts with Descartes' nativism (innate knowledge)
 - c. empiricists include John Locke, George Berkeley, David Hartley, James Mill, and John Stuart Mill
 - 4. positivism, materialism, and empiricism were the philosophical cornerstones of the emerging science of psychology, with empiricism having the greatest impart

B. John Locke (1632-1704)

1. life
 - a. at first an indifferent student, amusing himself with dabbling
 - b. became serious when exposed to natural philosophy
 - c. taught Greek, writing, and philosophy and practiced medicine in England
 - d. interested in politics, secretary, confidant, and friend of the Earl of Shaftsbury
 - e. fled to Holland when the Earl, but not he, was in a plot to overthrow King Charles II
 - f. upon return to England, resumed politics, wrote education, religion, and economics books
 - g. particularly concerned with religious freedom and self-government
 - h. advocated government liberalism; influenced the authors of the American Declaration of Independence
 - i. An Essay Concerning Human Understanding (1690)
 - (1) represented 20 years of work
 - (2) “marks the formal beginning of British empiricism”
2. How does the mind acquire knowledge?
 - a. rejected existence of innate ideas
 - b. any apparent innateness due to early learning and habit
 - c. all knowledge is empirically derived: mind as a tabula rasa (Aristotle’s concept) or blank slate
3. sensation and reflection: two kinds of experiences
 - a. sensations: input from external physical objects experienced as sense impressions, which operate on the mind
 - b. reflections: mind operates on the sense impressions to produce ideas
 - c. sensations precede reflections
 - d. reflection:
 - (1) recollection of past sensory impressions
 - (2) combinations yield abstractions and other higher-level ideas
4. In Their Own Words: Original Source Material on Empiricism from An Essay Concerning Human Understanding (1690)
 - a. illustrates “how...theorists presented their ideas and acquaint you with the explanatory style previous generations of students were required to study.”
 - b. all knowledge is founded from experience
 - c. external observation (sense qualities) and internal operations of the mind are the “Fountains of Knowledge” from which all ideas flow
 - d. sense qualities (sensations): “Yellow, White, Heat, cold, Soft, Hard, Bitter, Sweet”
 - e. perceiving the operations of the mind (reflections): “Perception, Thinking, Doubting, Believing, Reasoning, Knowing, Willing, and all the different actings of our own minds....”
 - f. sensation and reflection, “are, to me, the only Originals from whence all our Ideas take their beginnings.”
5. simple ideas and complex ideas

- a. simple
 - (1) arise from either sensation or reflection
 - (2) “received passively from the mind”
 - (3) “cannot be analyzed or reduced to even simpler ideas”
 - b. complex
 - (1) creation of new ideas through reflection
 - (2) combinations of simple ideas
 - (3) can be analyzed and/or reduced
- 6. theory of association
 - a. association = learning
 - b. linking of simple ideas/elements into complex ones
 - c. laws of association akin to laws of mechanics; mind = machine
- 7. primary and secondary qualities
 - a. primary qualities: objective, exist independently of being experienced (perceived)
 - (1) object size
 - (2) object shape
 - b. secondary qualities: subjective, exist in the experience of the object
 - (1) color, odor, sound, taste, warmth or coldness
 - (2) a feather tickles because of our reaction to it, not the feather itself
 - c. only primary qualities exist apart from the perceiver
- C. George Berkeley (1685 – 1753)
 - 1. perception is the only reality
 - a. primary qualities do not exist if not perceived
 - b. mentalism: “The doctrine that all knowledge is a function of mental phenomena and dependent on the perceiving or experiencing person.”
 - c. perception as subjective; experience does not mirror external reality
 - d. physical world is the summation of our sensations
 - e. therefore, we never know physical objects exactly
 - f. apparent independence, stability, and consistency in material objects arises from God, the permanent perceiver
 - 2. the association of sensations is mechanical
 - a. knowledge is constructed from simple ideas and held together by associations
 - b. depth perception comes from experience of eyes accommodating and converging as we move toward or away from objects
- D. David Hartley (1705-1757)
 - 1. association by contiguity; (Hartley’s basic law of association)
 - a. ideas or sensations that occur together, simultaneously or successively, become associated
 - b. contiguity explains memory, reasoning, emotion, voluntary and involuntary actions
 - 2. also law of association by repetition

- a. “The notion that the more frequently two ideas occur together, the more readily they will be associated.”
 - b. explains why as we reach adulthood, higher systems of thought are developed
 - 3. empiricist, like Locke
 - a. developmental approach: adult thinking, judging, and reasoning can be reduced to earlier occurring simple ideas
 - b. the first to apply a theory of association to explain all types of mental activity
 - 4. influence of mechanism
 - a. applied mechanical principles to physiological processes that underlie psychological processes
 - b. vibrations in solid nerves transmit impulses throughout the body
 - c. set in motion smaller vibrations in brain which are the physiological counterparts of ideas
- E. James Mill (1773-1836)
- 1. more radical perspective: the mind is a machine
 - a. his goal: to destroy the idea of subjective or psychic activities
 - b. like a clock--passive, acted on by external stimuli and operated by “internal physical forces” no place for free will (see Skinner’s behaviorism) or spontaneity
 - c. mind is to be studied by method of analysis to identify its elements (see Wundt, Titchener)
 - d. mental elements: sensations and ideas
 - e. extremely mechanistic
 - f. complex ideas solely due to contiguity alone; association
 - (1) may be simultaneous or successive
 - (2) is automatic and passive
 - g. the mind has no creative function
 - h. agreed with Locke that the mind is a blank slate at birth, upon which experience builds
- F. John Stuart Mill (1806 – 1873)
- 1. life
 - a. treated by his father, James, as a blank slate; unceasingly drilled with hours and hours of facts
 - b. by age 3 could read Plato in Greek
 - c. was a child prodigy who was clinically depressed by 21
 - d. Harriet Taylor was the love of his life
 - e. championed women’s rights
 - 2. mental chemistry
 - a. complex ideas are more than the sum of simple ideas
 - b. creative synthesis: a combination of mental elements always produces some distinct quality
 - c. his model: research in chemistry rather than physics
 - d. called his approach to the association of ideas “mental chemistry”
 - 3. argued it is possible to study the mind scientifically

4. proposed the field of ethology, “devoted to factors that influence the development of the human personality”
- VII. Contributions of Empiricism to Psychology
- A. Methods of approach: atomistic, mechanistic, positivistic
 - B. Emphases of empiricism
 1. primary role of sensation
 2. analysis of conscious experience into elements
 3. synthesis of elements through association
 4. focus on conscious processes
 - C. Mid-19th century: philosophy augmented by the methods of experimental physiology

Lecture prompts/Discussion topics for chapter two

- Ask the class to debate some of the big questions in philosophy, such as: What is the difference between a plant, and animal, and a human? The distinctions seem obvious until the issue is debated. Much of students’ thinking will likely reflect the debates in philosophy and psychology, and the animal/human difference will reappear with psychologists’ use of animals in research later in the course. Other questions are:
 - Does every event have a cause?
 - Are there types of consciousness?
- How is Babbage’s machine the same as and different from human thinking? Again, students’ thinking may reflect the discussions that later come up in the course with cognitive psychology (Turing test, Searle’s Chinese room).
- Suppose I built a sophisticated automaton that looked very human and could physically replicate human behavior and physiological systems. What could you do (what tests could you perform) to determine if a person you are interacting with is a human being or my automaton? For that matter, what could you do to “prove” that other people have consciousness (what separates people from sophisticated robots)?

Internet Resources for chapter two

The Ancient Philosophy Society

<http://www.ancientphilosophysociety.org/>

For those interested in learning about the ancient philosophers, this society provides a discussion forum for scholars.

Automata: Automata from the 13th to 19th centuries

<http://www.museumstuff.com/learn/topics/automata::sub::Automata From The 13th To 19th Centuries>

Descriptions of automata from the 13th to 19th centuries.

Charles Babbage Institute

<http://www.cbi.umn.edu/>

This “is an archives and research center dedicated to preserving the history of information technology and promoting and conducting research in the field.” It has a very nice page of

extensive information about the life and work of Charles Babbage with links for even more information.

The Internet Encyclopedia of philosophy

<http://www.iep.utm.edu/>

This site provides a number of articles about philosophy. It is an encyclopedia in the truest sense, in that article titles run from A Priori to Slavoj Zizek

The Society for Philosophy and Psychology

<http://www.class.uh.edu/cogsci/spp/spphp.html>

The purpose of this site is “to promote interaction between philosophers, psychologists and other cognitive scientists on issues of common concern.”

Potential answers to chapter two discussion questions

1) Why was the defecating duck such a sensation in Paris in 1739? What did it have to do with the development of the new psychology?

The duck could quack, rise up on its legs, stretch out its neck, grab and swallow grain, and defecate. It was but one example of the advances in technology. Replication of such complex actions performed by machines was unheard of at the time. At the same time, new machines were created to assist in daily living and amusement, including the mechanical clock. Such amazing machines captured the spirit and philosophy of mechanism, which is the idea that all natural processes can be explained in terms of the natural laws of physics and chemistry. This provided a way to study human beings using scientific methods.

2) Explain the concept of mechanism. How did it come to be applied to human beings?

Mechanism is the idea that all natural processes can be explained in terms of the natural laws of physics and chemistry. This provided a way to study human beings using scientific methods, because this means that all things can be explained using natural laws, including human behavior.

3) How did the development of clocks and automata relate to the ideas of determinism and reductionism?

Clocks and automata were sensations during seventeenth century Europe, and were built with amazing variety of size and levels of elaborateness. Their popularity represented the Zeitgeist of the time, which was mechanism. Mechanism led to the belief that the precision and regularity of clockworks must also apply to the universe. If true, a clockwork universe, once set in motion by God, would function continuously and seamlessly without any interference. This set the tone for determinism, “the doctrine that acts are determined by past events,” as well as reductionism, attempting to reduce complex phenomena into simpler components.

4) Why were clocks considered to be models for the physical universe?

Clocks are the prototypical example of mechanism in the seventeenth century. They became the model for the physical universe because of their “regularity, predictability, and precision.” It was believed that the universe operated under the same laws as do clocks, and could be understood, like a clock could, if it was reduced to its basic elements (reductionism). It was also believed that

the universe was predictable, as are clockworks where you can see the cause and effect of all actions (determinism).

5) What were the implications of Babbage's calculating engine for the new psychology? Describe the contributions of Ada Lovelace to Babbage's work.

Charles Babbage, who was influenced by the automata and clockworks of his day, invented a mathematical calculator that could also play chess and other games, and had the capacity for an intermediate memory. It is the direct forerunner of the modern computer and the idea of "artificial intelligence." One of Babbage's supporters was Ada Lovelace, a self-educated mathematician (unusual for her day) who published a description of Babbage's machine and how it worked. In this description she also identifies a fundamental difference between a thinking machine and a human, that is, that a machine cannot create something new, it can only do what it is programmed to do.

6) How did Descartes's views on the mind-body issue differ from earlier views?

One of the issues Descartes tackled was the mind-body problem: "the question of the distinction between mental and physical qualities." If the mind and body are different, then how do they interact with each other? Descartes agreed with previous thought that mind and body are different. Unlike his predecessors who thought that mind controlled body, he believed that the body also controlled the mind to some extent.

7) How did Descartes explain the functioning and interaction of the human body and the human mind? What is the role of the *conarium*?

Descartes was a dualist, believing that the mind and body were separate entities. This left him with the problem of how they interact. He looked to the brain, and saw that structures were duplicated in each hemisphere, except for the *conarium* (pineal body). For this reason, he saw this structure as the vehicle through which the mind and body interact. He believed that nerves were hollow tubes through which flowed animal spirits, which "makes an impression on the *conarium* and from this impression the mind produces a sensation."

8) How did Descartes distinguish between innate ideas and derived ideas?

He believed the mind had two types of ideas; derived ideas, which are "produced by the direct application of an external stimulus" and innate ideas, which "arise from the mind or consciousness, independent of sensory experiences." Descartes identified several ideas that he believed were innate, such as "God, the self, perfection, and infinity." Unlike derived ideas, innate ideas arise without the presence of external stimuli.

9) Define positivism, materialism, and empiricism. What contributions did each viewpoint make to the new psychology?

Positivism is "the doctrine that recognizes only natural phenomena or facts that are objectively observable". Materialism is the belief that "the facts of the universe could be described in physical terms and explained by the properties of matter and energy." Empiricism fit in with prevailing thought in its doctrine that "all knowledge is derived from sensory experience." These three doctrines provided the philosophical basis for psychology. This allows both human behavior and the mind to become the subject of study. With positivism and materialism human behavior becomes observable in an objective way and can be explained using natural science. Empiricism allows the exploration of how the body senses and mind perceives, and how associations are made in the mind.

10) Describe Locke’s definition of empiricism. Discuss his concepts of sensation and reflection, and of simple and complex ideas.

Locke rejects Descartes’ innate ideas, and says that at birth the human mind is a *tabula rasa*, or a blank slate, and we acquire knowledge through our experiences. Locke defines two types of experiences: sensations from sensory input, and reflections where we recall and combine sensations to form higher-level thinking. Locke also distinguishes two types of ideas. The first are simple ideas, which come from both sensation and reflection and can’t be broken down further. The second are complex ideas, which are combinations of simple ideas.

11) What is the mental-chemistry approach to association? How does it relate to the idea that the mind is like a machine?

To John Stuart Mill, the mind was not passive but active in associating ideas. He said that complex ideas are more than just the combination of simple ones, because they take on new qualities. This idea later is known as *creative synthesis* and represents the influence of chemistry. Previous philosophers, including J. S. Mill’s father, were influenced by physics and mechanics and applied those disciplines to the mind.

12) How did Berkeley’s ideas challenge Locke’s distinction between primary and secondary qualities? What did Berkeley mean by the phrase “perception is the only reality”?

George Berkeley believed that there were only secondary qualities, that all knowledge is a function of perception (this position later is called mentalism). Because the world can never be known in an objective way, Berkeley believes that what Locke described as primary qualities (which Locke says exist in the object whether we perceive them or not, such as size or shape) don’t exist. Objects in the world have stability, according to Berkeley, because God constantly perceives the world. There is no reality in the world beyond what is perceived.

13) How did Hartley’s work exceed the aims of the other empiricists and associationists? How did Hartley explain association?

David Hartley’s fundamental law of association is contiguity, and he goes further by contributing the proposition that repetition is necessary to form associations. He is “the first to apply the theory of association to explain all types of mental activity.”

14) Compare the explanations of association offered by Hartley, James Mill, and John Stuart Mill.

David Hartley proposes that repetition is necessary to form associations. With James Mill’s conception that the mind is a machine, association is mechanical and automatic, and resulting ideas are simply the sum of mental elements. John Stuart Mill said that the mind was not passive but active in associating ideas.

15) Contrast and compare the positions of James Mill and John Stuart Mill on the nature of the mind. Which view had the more lasting impact on psychology?

James Mill applied mechanism to the mind with the aim to prove that the mind was a machine (in contrast to the previous philosophers who stated that the mind was *like* a machine). He believed that the mind simply responds to external stimuli and can be studied by reducing it down to elements. This is reflected in later psychology, such as B. F. Skinner’s system. Mill’s son, John Stuart Mill, said that the mind was not passive but active in associating ideas. He said that complex ideas are more than just the combination of simple ones, because they take on new qualities.

This idea later is known as *creative synthesis*. John Stuart Mill had a greater impact on psychology, particularly because of his argument that “it was possible to make a scientific study of the mind.” John Stuart Mill also proposed the new field “ethology”, which would later contribute to the development of personality theory.

Key terms from chapter two

- **Association** The notion that knowledge results from linking or associating simple ideas to form complex ideas. Now commonly known as “learning.”
- **Automata** Mechanical devices that mimicked lifelike motion, the building of which exploded in the seventeenth century and gave rise to questions about how humans are different than automata.
- **Calculating Engine** A machine designed by Charles Babbage that could imitate human mental actions.
- **Clockwork universe** The clock in the seventeenth century was a technological sensation. Because of its regularity, predictability, and precision, scientists and philosophers began to think of them as models for the physical universe.
- **Conarium** Also known as the Pineal Body, the structure in the brain that Descartes believed allowed the mind and body to interact.
- **Creative Synthesis** In John Stuart Mill’s philosophy, the notion that when complex ideas are formed from simple ones, the combination creates something different and distinct.
- **Determinism** The doctrine that acts are determined by past events.
- **Doctrine of ideas** In Descartes’ conception, the mind has two types of ideas
 - Derived: produced by the direct application of an external stimulus (sensory experiences)
 - Innate: arise from consciousness without sensory experience
- **Empiricism** The pursuit of knowledge through the observation of nature and the attribution of all knowledge to experience.
- **Materialism** The doctrine that considers the facts of the universe to be sufficiently explained in physical terms by the existence and nature of matter.
- **Mechanism** The doctrine that natural processes are mechanically determined and capable of explanation by the laws of physics and chemistry.
- **Mentalism** The doctrine that all knowledge is a function of mental phenomena and dependent on the perceiving or experiencing person.
- **Mind-Body problem** The question of the distinction between mental and physical qualities.
- **Positivism** The doctrine that recognizes only natural phenomena or facts that are objectively observable.
- **Primary and Secondary qualities** In Locke’s philosophy, objects have two qualities
 - Primary: characteristics (size, shape) that exist in an object whether or not that object is perceived
 - Secondary: characteristics (sweetness, tone) that exist only when they are perceived.
- **Reductionism** The doctrine that explains phenomena on one level (such as complex ideas) in terms of phenomena on another level (such as simple ideas)

- **Reflex action theory** The idea that an external object (a stimulus) can bring about an involuntary response.
- **Repetition** The more frequently two ideas occur together, the more readily they will be associated.
- **Simple and Complex ideas** In Locke's philosophy, there are two types of ideas:
 - Simple: elemental ideas that arise from sensation and reflection
 - Complex: compounded from simple ideas and therefore can be broken down into simple ideas

TESTBANK

ESSAY

1. Define mechanism and describe how the idea of mechanism affected and was affected by physics, concepts of God, and the methods and findings of science. How was the concept of mechanism applied to human beings?

ANS:

Answer not provided.

PTS: 1

2. Define determinism and reductionism and describe their relationship to the development of clocks and automata. Why was the mechanical clock the ideal metaphor for the spirit of mechanism?

ANS:

Answer not provided.

PTS: 1

3. Describe Descartes' views of the mind-body problem and his major contributions to the beginnings of modern science, particularly psychology.

ANS:

Answer not provided.

PTS: 1

MSC: WWW

4. Define positivism, materialism, and empiricism and discuss the contributions of each to the emerging science of psychology.

ANS:

Answer not provided.

PTS: 1

5. Describe the general contributions of empiricism to psychology, supporting your selection of each contribution with specific examples from the thought of Locke, Hartley, James Mill, and John Stuart Mill.

ANS:

Answer not provided.

PTS: 1

MSC: WWW

MULTIPLE CHOICE

6. The doctrine that natural processes are mechanically determined and capable of explanation by the laws of physics and chemistry is ____.
- reductionism
 - materialism
 - mechanism
 - empiricism
 - positivism

ANS: C PTS: 1 REF: The Spirit of Mechanism
MSC: WWW

7. According to the textbook, the dominant idea of the 17th century was ____.
- Zeitgeist
 - entertainment
 - water
 - mechanism
 - making it to the 18th century

ANS: D PTS: 1 REF: The Spirit of Mechanism

8. The Zeitgeist of 17th- to 19th-century Europe and of the United States was marked by ____.
- scientific revolution
 - political revolution
 - determinism
 - humanism
 - mechanism

ANS: E PTS: 1 REF: The Spirit of Mechanism

9. The theories of mechanism that invoke the movement of atoms to explain the universe were developed by ____.
- Locke and Berkeley
 - La Mettrie and Condillac
 - Newton and Hume
 - Newton and Galileo
 - Galileo and Copernicus

ANS: D PTS: 1 REF: The Spirit of Mechanism

10. Which of the following ideas has psychology borrowed from natural physics?
- effects are predictable and measurable
 - the nature of human beings is basically good, moving toward self-actualization
 - the paradigm of the source or identity of "cause"
 - the laws of association
 - the deductive method of logic

ANS: A PTS: 1 REF: The Spirit of Mechanism
MSC: WWW

11. What invention was considered the perfect metaphor for the "spirit of mechanism"?
- automobile
 - pneumatic pressure
 - metronome
 - clock
 - computer

ANS: D PTS: 1 REF: The Clockwork Universe

12. The doctrine that acts are determined by past events is ____.
- reductionism
 - determinism
 - mechanism
 - materialism
 - positivism

ANS: B PTS: 1 REF: The Clockwork Universe

13. The doctrine that explains phenomena on one level (such as complex ideas) in terms of phenomena on another level (such as simple ideas) is ____.
- reductionism
 - determinism
 - mechanism
 - positivism
 - materialism

ANS: A PTS: 1 REF: The Clockwork Universe

14. Seventeenth century philosophers and scientists argued that like clocks and the universe, ____ are regular, predictable, observable and measurable.
- God and/or other deities
 - nonconscious processes
 - human beings
 - cognitive processes
 - characteristics of self-actualization

ANS: C PTS: 1 REF: The Clockwork Universe

15. ____ are mechanized figures that could almost perfectly duplicate the movements of living things.
- Elements
 - Automata
 - Psychomata
 - Mannequins
 - Robots

ANS: B PTS: 1 REF: The Clockwork Universe

16. Philosophers and scientists joined in agreement that ____.
- a. psychology must be an independent science
 - b. there is both an unconscious and a nonconscious
 - c. human functioning and behavior are governed by mechanical laws
 - d. experimental and quantitative methods could be applied to the study of human nature
 - e. the dictates of religious figures about human behavior had to be countered and/or refuted

ANS: D PTS: 1 REF: The Clockwork Universe
MSC: WWW

17. ____ was the first successful demonstration of artificial intelligence.
- a. Galileo's telescope
 - b. Babbage's calculating machine
 - c. La Mettrie's self-winding watch
 - d. Descartes's automata
 - e. Newton's clocks

ANS: B PTS: 1 REF: The Clockwork Universe

18. Contemporary cognitive psychologists' computer model of artificial intelligence is a direct descendant of ____.
- a. Babbage's calculating machine
 - b. La Mettrie's self-winding watch
 - c. Descartes's automata
 - d. Newton's clocks
 - e. Bessel's personal equations

ANS: A PTS: 1 REF: The Clockwork Universe

19. Who published a clear explanation of how the calculating machine functioned and pointed out its potential use and implications?
- a. Babbage
 - b. La Mettrie
 - c. Lovelace
 - d. Descartes
 - e. Locke

ANS: C PTS: 1 REF: The Clockwork Universe

20. The pursuit of knowledge through the observation of nature and the attribution of all knowledge to experience is ____.
- a. mentalism
 - b. empiricism
 - c. positivism
 - d. materialism
 - e. None of the choices are correct.

ANS: B PTS: 1 REF: The Beginnings of Modern Science

21. Empiricism attributes all knowledge to ____.
- a. experience
 - b. objectivity in methods
 - c. overt behavior
 - d. environmental influences
 - e. reinforcement schedules

ANS: A PTS: 1 REF: The Beginnings of Modern Science
MSC: WWW

22. Descartes was significant to psychology as a science because he helped liberate ____.
- a. science from the stranglehold of theology
 - b. science from the grasp of philosophy
 - c. philosophy from the clutches of theology
 - d. science from the dictates of government
 - e. psychology from the dictates of science

ANS: A PTS: 1 REF: The Beginnings of Modern Science

23. Who can be said to have inaugurated the era of modern psychology?
- a. Babbage
 - b. Descartes
 - c. La Mettrie
 - d. Locke
 - e. Comte

ANS: B PTS: 1 REF: The Beginnings of Modern Science

24. In the 20th century, Carl Jung based important decisions on his dreams. A 17th-century predecessor in this practice was ____.
- a. Newton
 - b. Galileo
 - c. Freud
 - d. Descartes
 - e. Spinoza

ANS: D PTS: 1 REF: The Beginnings of Modern Science

25. For Descartes, the application of mathematical principles to sciences would produce ____.
- a. theorems of human nature
 - b. laws of physics
 - c. principles
 - d. religious conviction
 - e. certainty of knowledge

ANS: E PTS: 1 REF: The Beginnings of Modern Science

26. In the 20th century, Hull described and explained behavior by mathematical formulas, axioms, and postulates. Thus, he illustrated whose notion that certainty of knowledge is accomplished by the application of mathematics to science?
- Kepler's
 - Descartes's
 - Berkeley's
 - Locke's
 - John Stuart Mill's

ANS: B PTS: 1 REF: The Beginnings of Modern Science
MSC: WWW

27. The question of the distinction between mental and physical qualities refers to ____.
- the bipartisan problem
 - the freethinking problem
 - the mind-body problem
 - positivism
 - theology

ANS: C PTS: 1
REF: The Contributions of Descartes: Mechanism and the Mind-Body Problem

28. Before Descartes, the accepted point of view was that the interaction between mind and body was essentially unidirectional, that ____.
- the body influenced the mind
 - the mind influenced the body
 - the soul influenced both the body and mind
 - the mind and body influenced each other
 - the vital force influenced both the mind and the body

ANS: B PTS: 1
REF: The Contributions of Descartes: Mechanism and the Mind-Body Problem

29. Descartes's dualism was novel in its emphasis on the ____.
- interaction between mind and spirit
 - influence of the mind on the body
 - influence of the body on the mind
 - parallel but non-interacting functioning of the mind and body
 - predominance of unconscious mental forces

ANS: C PTS: 1
REF: The Contributions of Descartes: Mechanism and the Mind-Body Problem

30. Descartes argued that all processes are functions of the body except ____.
- a. reflexes
 - b. will
 - c. perception
 - d. sensation
 - e. thought

ANS: E PTS: 1

REF: The Contributions of Descartes: Mechanism and the Mind-Body Problem

MSC: WWW

31. Descartes changed the focus from the study of ____ to the study of ____.
- a. conscious processes; the unconscious
 - b. the unconscious; conscious processes
 - c. the nonconscious; the unconscious
 - d. the soul; the mind
 - e. science; theology

ANS: D PTS: 1

REF: The Contributions of Descartes: Mechanism and the Mind-Body Problem

32. Descartes makes a case that because the body is matter the laws of ____ apply.
- a. materialism
 - b. biology
 - c. mechanics
 - d. reflexes
 - e. mathematics

ANS: C PTS: 1

REF: The Contributions of Descartes: Mechanism and the Mind-Body Problem

33. The body will respond without any internal conscious intent to some external stimulus. This fact illustrates Descartes' principle of ____.
- a. *undulatio reflexa*
 - b. *Einfall*
 - c. *cogito ergo sum*
 - d. *esse est percipi*
 - e. spring action

ANS: A PTS: 1

REF: The Contributions of Descartes: Mechanism and the Mind-Body Problem

34. In modern terminology, Descartes would argue that if the inputs are known, the behavioral outputs can be predicted. Thus, he is an intellectual ancestor of ____.
- a. behaviorism
 - b. functionalism
 - c. structuralism
 - d. the French materialists
 - e. S-R psychology

ANS: E PTS: 1

REF: The Contributions of Descartes: Mechanism and the Mind-Body Problem

35. The response of salivation following the stimulus of food on the tongue is an illustration of Descartes' ____.
- a. reflex action theory
 - b. theory of respondent behavior
 - c. theory of operant behavior
 - d. *cogito ergo sum* theory
 - e. *Einfall* theory

ANS: A PTS: 1

REF: The Contributions of Descartes: Mechanism and the Mind-Body Problem

36. Under Descartes's reflex action theory, an external stimulus can bring about a(n)____ physical response.
- a. theoretical
 - b. involuntary
 - c. intense
 - d. painful
 - e. conscious

ANS: B PTS: 1

REF: The Contributions of Descartes: Mechanism and the Mind-Body Problem

MSC: WWW

37. Which of the following statements best describes Descartes' dualistic theory of human nature?
- a. The mind directs all the activities of the body.
 - b. The body directly controls the activities of the mind.
 - c. The brain contains derived ideas; the mind contains innate ideas.
 - d. The mind and body mutually influence each other's actions.
 - e. None of the choices are correct.

ANS: D PTS: 1

REF: The Contributions of Descartes: Mechanism and the Mind-Body Problem

38. Descartes's term for the site of body-mind interaction was the _____, because it is _____.
- conarium*; duplicated in both brain hemispheres
 - conarium*; not duplicated in both brain hemispheres
 - undulatio reflexa*; duplicated in both brain hemispheres
 - undulatio reflexa*; not duplicated in both brain hemispheres
 - pineal gland; located near the heart

ANS: B PTS: 1

REF: The Contributions of Descartes: Mechanism and the Mind-Body Problem

39. Which of the following is an example of a derived idea?
- Solving an algebra equation.
 - Memorizing a history lesson.
 - Philosophy.
 - Playing the guitar.
 - Seeing a forest.

ANS: E PTS: 1

REF: The Contributions of Descartes: Mechanism and the Mind-Body Problem

40. Descartes posited that the mind-body interaction occurred in the _____.
- heart
 - brain as a whole
 - pineal body
 - frontal lobes
 - corpus callosum

ANS: C PTS: 1

REF: The Contributions of Descartes: Mechanism and the Mind-Body Problem

MSC: WWW

41. According to Descartes, the pineal gland was the part of the brain _____.
- where innate ideas are stored
 - where derived ideas are stored
 - that controlled the activities of the mind
 - where the mind and body interact
 - where all ideas are stored

ANS: D PTS: 1

REF: The Contributions of Descartes: Mechanism and the Mind-Body Problem

42. Descartes proposed that the mind produces two kinds of ideas, _____ and _____.
- derived; innate
 - body; mind
 - reasonable; wacky
 - right; wrong
 - abstract; pseudo-abstract

ANS: A PTS: 1

REF: The Contributions of Descartes: Mechanism and the Mind-Body Problem

43. Derived ideas ____.
- a. come from God
 - b. are part of our genetic makeup when we are born
 - c. arise from the direct application of an external stimulus
 - d. come into being as a consequence of being socialized into society
 - e. are taken from innate ideas

ANS: C PTS: 1

REF: The Contributions of Descartes: Mechanism and the Mind-Body Problem

44. Which of the following is an example of an innate idea?
- a. flowers
 - b. sweetness
 - c. tone
 - d. machines
 - e. infinity

ANS: E PTS: 1

REF: The Contributions of Descartes: Mechanism and the Mind-Body Problem

45. Which of the following is a contribution of Rene Descartes to modern psychology?
- a. a mechanistic conception of the body.
 - b. the theory of reflex action.
 - c. mind-body interaction.
 - d. localization of mental function in the brain.
 - e. All of the choices are correct.

ANS: E PTS: 1

REF: The Contributions of Descartes: Mechanism and the Mind-Body Problem

46. The idea of a house is an example of Descartes' notion of ____.
- a. innate ideas
 - b. *undulatio* reflexa
 - c. derived ideas
 - d. simple ideas
 - e. complex ideas

ANS: C PTS: 1

REF: The Contributions of Descartes: Mechanism and the Mind-Body Problem

47. Descartes theorized that we are born with knowledge of the axioms of geometry. Thus, these axioms are ____ ideas.
- innate
 - derived
 - synthetic
 - simple
 - complex

ANS: A PTS: 1

REF: The Contributions of Descartes: Mechanism and the Mind-Body Problem

MSC: WWW

48. The doctrine of ____ is important because it stimulated opposition among early empiricists and associationists.
- derived ideas
 - innate ideas
 - idea principles
 - simple ideas

ANS: B PTS: 1

REF: The Contributions of Descartes: Mechanism and the Mind-Body Problem

49. Descartes' notion that we are born with certain perceptual processes is also a principle of which modern school of psychology?
- behavioristic
 - psychoanalytic
 - Gestalt
 - phenomenological
 - humanistic

ANS: C PTS: 1

REF: The Contributions of Descartes: Mechanism and the Mind-Body Problem

50. The doctrine that recognizes only natural phenomena or facts that are objectively observable is ____.
- materialism
 - empiricism
 - positivism
 - mechanism
 - reductionism

ANS: C PTS: 1

REF: Philosophical Foundations of the New Psychology: Positivism, Materialism, and Empiricism

51. Both the term and concept of positivism represent the thought of ____.
- Descartes
 - Comte
 - Locke
 - Berkeley
 - Mill

ANS: B PTS: 1

REF: Philosophical Foundations of the New Psychology: Positivism, Materialism, and Empiricism

52. The idea that science should be based totally on objectively observable facts is called ____.
- a. factualism
 - b. materialism
 - c. absolutism
 - d. positivism
 - e. observation

ANS: D PTS: 1

REF: Philosophical Foundations of the New Psychology: Positivism, Materialism, and Empiricism

53. In eyewitness testimony, one swears that what one has observed accurately depicts reality. Because this "fact" has not been determined through the methods of science, it does not meet Comtes' strictest application of ____.
- a. positivism
 - b. determinism
 - c. complex ideas
 - d. materialism
 - e. mechanism

ANS: A PTS: 1

REF: Philosophical Foundations of the New Psychology: Positivism, Materialism, and Empiricism

54. The doctrine that considers the facts of the universe to be sufficiently explained in physical terms by the existence and nature of matter is ____.
- a. positivism
 - b. materialism
 - c. mentalism
 - d. immaterialism
 - e. reductionism

ANS: B PTS: 1

REF: Philosophical Foundations of the New Psychology: Positivism, Materialism, and Empiricism

55. Those who argue today that behavior is no more than the action of chemicals and electrical events in the brain might be labeled "modern ____."
- a. empiricists
 - b. positivists
 - c. materialists
 - d. associationists
 - e. determinists

ANS: C PTS: 1

REF: Philosophical Foundations of the New Psychology: Positivism, Materialism, and Empiricism

MSC: WWW

56. Materialism is the belief that ____.
- speculation and inference are acceptable
 - consciousness exists beyond physics and chemistry
 - the mental world exists on a plane of its own
 - all things can be described in physical terms
 - ideas exist only in Descartes' mind

ANS: D PTS: 1

REF: Philosophical Foundations of the New Psychology: Positivism, Materialism, and Empiricism

57. Locke's ____ marks the formal beginning of British empiricism.
- An Essay Concerning Human Understanding*
 - A Treatise Concerning the Principles of Human Knowledge*
 - An Essay Toward a New Theory of Vision*
 - A Treatise of Human Nature*
 - Observations on Man, His Frame, His Duty, and His Expectations*

ANS: A PTS: 1

REF: Philosophical Foundations of the New Psychology: Positivism, Materialism, and Empiricism

58. A fundamental difference between Descartes's psychology and that of Locke was their position about the existence of ____.
- innate ideas
 - derived ideas
 - idea doctrines
 - simple ideas
 - complex ideas

ANS: A PTS: 1

REF: Philosophical Foundations of the New Psychology: Positivism, Materialism, and Empiricism

59. John Locke disagreed with the doctrine of innate ideas. According to Locke, ____.
- innate ideas once existed in the human mind, but modern humans do not have them
 - innate ideas only exist in the most intelligent human beings; most people do not have innate ideas
 - innate ideas stay in the unconscious mind and never reach the level of consciousness
 - the mind is a blank slate at birth; therefore, there are no innate ideas
 - There was no disagreement between Locke and Descartes

ANS: D PTS: 1

REF: Philosophical Foundations of the New Psychology: Positivism, Materialism, and Empiricism

60. Aristotle held that the mind was a wax slate upon which impressions are made. Locke invoked the metaphor of the ____ to illustrate the same phenomenon.
- undulatio reflexa*
 - tabula rasa*
 - cogito
 - complex idea
 - reflection

ANS: B PTS: 1

REF: Philosophical Foundations of the New Psychology: Positivism, Materialism, and Empiricism

61. What position did Locke take on the origin of ideas?
- Some innate ideas exist, such as self, God, and time.
 - The only acquired ideas are verbal ideas; all other ideas are innate.
 - Innate ideas don't change; derived ideas are malleable.
 - All ideas are innate; experience just makes us aware of their presence.
 - All ideas are acquired from experience; no ideas are innate.

ANS: E PTS: 1

REF: Philosophical Foundations of the New Psychology: Positivism, Materialism, and Empiricism

62. Locke argued that ideas seem to us to be innate because ____.
- they were classically conditioned
 - they are simple ideas
 - they are complex ideas
 - we don't recollect having learned them
 - we can't identify their component elemental ideas

ANS: D PTS: 1

REF: Philosophical Foundations of the New Psychology: Positivism, Materialism, and Empiricism

63. For Locke, ideas are the result of ____.
- reflection and sensations
 - reasoning about sensations
 - primary sensations and secondary sensations
 - experience and cognition
 - primary qualities and secondary qualities

ANS: A PTS: 1

REF: Philosophical Foundations of the New Psychology: Positivism, Materialism, and Empiricism

64. According to Locke, in human development, what kind of ideas appears first?
- sensation
 - reflection
 - simple
 - complex
 - innate

ANS: A PTS: 1

REF: Philosophical Foundations of the New Psychology: Positivism, Materialism, and Empiricism

65. "Why should I have to read what Locke wrote over 300 years ago? Schultz and Schultz and the instructor get paid to summarize that for me." What answer would the textbook authors give you?
- "Full understanding comes from reading the original data of history from the theorists themselves."
 - "To see how even a good idea can be badly written."
 - "Because you are expected to do so."
 - "Don't worry if you do not have time to read the original source material; authors and teachers provide accurate versions."
 - "Actually, you shouldn't have to."

ANS: A PTS: 1

REF: Philosophical Foundations of the New Psychology: Positivism, Materialism, and Empiricism

66. According to Locke, simple ideas become complex ideas through the process of ____.
- association
 - deductive logic
 - sensing primary qualities
 - reflection
 - recombination

ANS: D PTS: 1

REF: Philosophical Foundations of the New Psychology: Positivism, Materialism, and Empiricism

67. According to Locke, the idea of an army or a navy would be an example of ____.
- a complex idea
 - an innate idea
 - a simple idea
 - a derived idea
 - a primary quality

ANS: A PTS: 1

REF: Philosophical Foundations of the New Psychology: Positivism, Materialism, and Empiricism

68. For Locke, the difference between a simple and a complex idea is that a simple idea ____.
- contains more premises
 - is the result of inductive logic
 - is the result of deductive logic
 - is contiguous
 - cannot be reduced

ANS: E PTS: 1

REF: Philosophical Foundations of the New Psychology: Positivism, Materialism, and Empiricism

69. If a tree falls in the forest and no one is present to hear it, then the fall makes no sound. Using Locke's distinctions, this conclusion assumes that the sound is a(n) ____.
- a. primary quality
 - b. secondary quality
 - c. association
 - d. simple idea
 - e. complex idea

ANS: B PTS: 1

REF: Philosophical Foundations of the New Psychology: Positivism, Materialism, and Empiricism

70. According to Locke, the tickle of a feather would be a(n) ____.
- a. complex idea
 - b. primary quality
 - c. secondary quality
 - d. tertiary quality
 - e. essential quality

ANS: C PTS: 1

REF: Philosophical Foundations of the New Psychology: Positivism, Materialism, and Empiricism

71. The notion of secondary qualities was proposed by Locke to explain ____.
- a. the distinction between the physical world and one's experience of it
 - b. the need for objectivity in psychology
 - c. the role of positivism in the new science of psychology
 - d. Descartes's dualism
 - e. the difference between simple ideas and complex ideas

ANS: A PTS: 1

REF: Philosophical Foundations of the New Psychology: Positivism, Materialism, and Empiricism

72. "If a tree falls in the forest and no one is present to hear it, a sound will still occur because God is the permanent perceiver of all objects in the universe." This argument illustrates the position of ____.
- a. Berkeley
 - b. Locke
 - c. Hume
 - d. Hartley
 - e. the Mills

ANS: A PTS: 1

REF: Philosophical Foundations of the New Psychology: Positivism, Materialism, and Empiricism

73. Which philosopher believed that the only things that humans know with certainty are those objects that are perceived?
- Rene Descartes
 - John Locke
 - David Hartley
 - James Mill
 - George Berkeley

ANS: E PTS: 1

REF: Philosophical Foundations of the New Psychology: Positivism, Materialism, and Empiricism

74. The doctrine that all knowledge is a function of mental phenomena and is dependent on the perceiving or experiencing person is an illustration of ____.
- Locke's associationism
 - Locke's mentalism
 - Berkeley's mentalism
 - Berkeley's associationism
 - Comte's positivism

ANS: C PTS: 1

REF: Philosophical Foundations of the New Psychology: Positivism, Materialism, and Empiricism

75. Which of the following slogans could be attributed to Berkeley?
- I think, therefore I am.
 - To think is to perceive.
 - To be is to perceive.
 - Whatever exists must have a cause of existence.
 - Go west, young man.

ANS: C PTS: 1

REF: Philosophical Foundations of the New Psychology: Positivism, Materialism, and Empiricism

76. Berkeley's basic difference with Locke was the former's argument that ____.
- there are no primary qualities
 - there is a one-to-one correspondence between physical objects and subjective perceptions
 - an object is the association of consecutive perceptions
 - there are only complex ideas
 - there are only primary qualities

ANS: A PTS: 1

REF: Philosophical Foundations of the New Psychology: Positivism, Materialism, and Empiricism

77. The phenomenology of the humanistic school focuses on the individual's unique experiences as they define the person's reality. This idea is a direct descendant of ____.
- a. Locke's empiricism
 - b. Berkeley's mentalism
 - c. Hume's law of resemblance
 - d. James Mill's mechanical associationism
 - e. J. S. Mill's mental chemistry hypothesis

ANS: B PTS: 1

REF: Philosophical Foundations of the New Psychology: Positivism, Materialism, and Empiricism

78. For Berkeley, depth perception is the result of ____.
- a. concurrent mechanical associations
 - b. innate ideas
 - c. the association of primary qualities and complex ideas
 - d. the association of ideas that must be learned
 - e. contiguity and repetition

ANS: D PTS: 1

REF: Philosophical Foundations of the New Psychology: Positivism, Materialism, and Empiricism

79. What was the significance of the defecating duck?
- a. It demonstrated the Zeitgeist of the time.
 - b. It was widely popular and well-known.
 - c. It was described as the "glory of France."
 - d. It was one example of the spirit of mechanism.
 - e. All of the above.

ANS: E PTS: 1 REF: The Defecating Duck and the Glory of France

80. Why was the mechanical clock a revolutionary invention?
- a. Clocks brought precision, regularity, and predictability to everyday life, which was later developed into a model for science.
 - b. Clocks were used only by the elite to control the masses.
 - c. Because of the varying sizes and shapes, clocks helped stimulate the European economy like never before.
 - d. Clocks were used for religious practices.
 - e. Clocks were built to look like people and animals.

ANS: A PTS: 1 REF: The Clockwork Universe

81. Which of the following types of automata are NOT described in the book?
- a. A defecating duck
 - b. A life-sized animated flute player
 - c. A "Lady-Musician" that played the harpsichord
 - d. A 16-inch mechanical monk
 - e. A singing mouse

ANS: E PTS: 1 REF: The Clockwork Universe

82. Which theorist believed that people are similar to machines?

- a. Descartes
- b. Berkeley
- c. Galileo
- d. Locke
- e. Comte

ANS: A PTS: 1 REF: The Clockwork Universe

83. What was the basis for Babbage's calculating machine?

- a. The spirit of mechanism
- b. Automata and clocks
- c. The mechanical nature of human mental actions
- d. None of the above
- e. All of the above

ANS: E PTS: 1 REF: The Clockwork Universe

84. What was the most influential doctrine to modern psychology?

- a. History
- b. Materialism
- c. Empiricism
- d. Chemistry
- e. Positivism

ANS: C PTS: 1

REF: Philosophical Foundations of the New Psychology: Positivism, Materialism, and Empiricism

85. While Hartley's fundamental law of association was ____, he also proposed that ____ was necessary for associations to be formed.

- a. resemblance; contiguity
- b. contiguity; repetition
- c. resemblance; repetition
- d. temporal contiguity; spatial contiguity
- e. contiguity; similarity

ANS: B PTS: 1

REF: Philosophical Foundations of the New Psychology: Positivism, Materialism, and Empiricism

86. Hartley was the first to apply the theory of association to explain ____.

- a. all mental activity
- b. rote learning
- c. memory
- d. the difference between recall and recognition
- e. the difference between sensations and perceptions

ANS: A PTS: 1

REF: Philosophical Foundations of the New Psychology: Positivism, Materialism, and Empiricism

87. Hartley argued that the human brain and nervous system transmitted impulses ____.
- with electricity
 - with chemicals
 - using capillary impulses
 - with changes in neurochemical intensities
 - with nerve vibrations

ANS: E PTS: 1

REF: Philosophical Foundations of the New Psychology: Positivism, Materialism, and Empiricism

88. James Mill demonstrated a radical perspective because he believed that the mind is a(n) ____.
- crucible
 - machine
 - association
 - calculator
 - tool

ANS: B PTS: 1

REF: Philosophical Foundations of the New Psychology: Positivism, Materialism, and Empiricism

89. ____, the most radically mechanistic of the British empiricists, claimed that the mind is a machine and that there is no freedom of the will, believing instead that the mind is totally a passive entity and all thought can be analyzed in terms of sensations.
- John Stuart Mill
 - David Hume
 - John Locke
 - James Mill
 - George Berkeley

ANS: D PTS: 1

REF: Philosophical Foundations of the New Psychology: Positivism, Materialism, and Empiricism

90. *Mind is Machine* would be a good book title for ____.
- Berkeley
 - Hume
 - Hartley
 - James Mill
 - J. S. Mill

ANS: D PTS: 1

REF: Philosophical Foundations of the New Psychology: Positivism, Materialism, and Empiricism

91. James Mill's model says that all knowledge ____.
- begins with sensations, and associations create complex ideas
 - is innate, and combined to form complex ideas
 - comes from ideas
 - requires an actively engaged mind
 - More than one of the choices are correct.

ANS: A PTS: 1

REF: Philosophical Foundations of the New Psychology: Positivism, Materialism, and Empiricism

92. James Mill: ____; John Stuart Mill: ____.
- mechanical; chemical
 - dualistic; monistic
 - active mind; passive mind
 - passive mind; active mind
 - mechanical; chemical and dualistic; monistic

ANS: A PTS: 1

REF: Philosophical Foundations of the New Psychology: Positivism, Materialism, and Empiricism

93. Which British empiricist championed women's rights and condemned the unequal status of women?
- David Hartley
 - John Stuart Mill
 - James Mill
 - David Hume
 - John Locke

ANS: B PTS: 1

REF: Philosophical Foundations of the New Psychology: Positivism, Materialism, and Empiricism

94. The idea that "the whole is greater than the sum of its parts" was the position of ____.
- Berkeley
 - Hume
 - Hartley
 - James Mill
 - John Stuart Mill

ANS: E PTS: 1

REF: Philosophical Foundations of the New Psychology: Positivism, Materialism, and Empiricism

95. John Stuart Mill (JSM) differed from his father's view of the mind by proposing: "Complex ideas emerge from combinations of simple ideas and possess characteristics not found in those elements." JSM was concerned with mental ____.
- magic
 - coordination
 - mechanics
 - hospitals
 - chemistry

ANS: E PTS: 1

REF: Philosophical Foundations of the New Psychology: Positivism, Materialism, and Empiricism

96. Complex ideas formed from simple ideas take on new qualities. This is a definition of ____.
- James Mill's creative synthesis
 - Hartley's creative synthesis
 - James Mill's active mind theory
 - Hume's creative synthesis
 - John Stuart Mill's creative synthesis

ANS: E PTS: 1

REF: Philosophical Foundations of the New Psychology: Positivism, Materialism, and Empiricism

97. John Stuart Mill's metaphor of mental chemistry came to be known as ____.
- a. association
 - b. the law of contiguity
 - c. classical conditioning
 - d. operant conditioning
 - e. creative synthesis

ANS: E PTS: 1

REF: Philosophical Foundations of the New Psychology: Positivism, Materialism, and Empiricism

98. Which of the following was not a contribution of British empiricism to the development of psychology?
- a. the role of sensation in consciousness
 - b. the analysis of conscious experience into elements
 - c. the claim that almost all human knowledge is derived from experience. However, the principles of mathematics are innate ideas.
 - d. the focus on conscious experiences
 - e. through association, synthesizing elements into complex mental experiences

ANS: C PTS: 1

REF: Contributions of Empiricism to Psychology

TRUE/FALSE

99. The idea of mechanism was a result of the initial work of Newton.

ANS: F PTS: 1 REF: The Spirit of Mechanism

100. A basic principle of 17th century physics was that every physical effect is predictable and measurable.

ANS: T PTS: 1 REF: The Spirit of Mechanism
MSC: WWW

101. The aspect of technology that 17th century science adopted was precise measurement.

ANS: T PTS: 1 REF: The Spirit of Mechanism

102. Determinism is the belief that every act is brought about by past events.

ANS: T PTS: 1 REF: The Clockwork Universe

103. Babbage was the first in modern America to create and market software.

ANS: F PTS: 1 REF: The Clockwork Universe

104. The doctrine that challenged theological authority as a source of knowledge was determinism.

ANS: F PTS: 1 REF: The Clockwork Universe
MSC: WWW

105. Wundt inaugurated the era of modern psychology.

ANS: F PTS: 1 REF: The Beginnings of Modern Science

106. For Descartes, certainty of knowledge was the result of mathematical principles.
- ANS: T PTS: 1
REF: The Contributions of Descartes: Mechanism and the Mind-Body Problem
107. A major contribution of Descartes to psychology was to deflect attention from the study of the mind in general to the study of consciousness in particular.
- ANS: F PTS: 1
REF: The Contributions of Descartes: Mechanism and the Mind-Body Problem
108. For Descartes, the functions of the body operate according to mechanical principles.
- ANS: T PTS: 1
REF: The Contributions of Descartes: Mechanism and the Mind-Body Problem
109. For Descartes, the unique function of the mind is thought.
- ANS: T PTS: 1
REF: The Contributions of Descartes: Mechanism and the Mind-Body Problem
110. At the heart of Descartes' notion of the *undulatio reflexa* is the role of the conscious mind in determining behavior
- ANS: F PTS: 1
REF: The Contributions of Descartes: Mechanism and the Mind-Body Problem
111. Descartes' contemporaries believed that neither humans nor animals had souls.
- ANS: F PTS: 1
REF: The Contributions of Descartes: Mechanism and the Mind-Body Problem
MSC: WWW
112. Comte's main contribution to psychology was the doctrine of materialism.
- ANS: F PTS: 1
REF: Philosophical Foundations of the New Psychology: Positivism, Materialism, and Empiricism
MSC: WWW
113. Comte would argue that because God perceives the world, objects in it remain constant.
- ANS: F PTS: 1
REF: Philosophical Foundations of the New Psychology: Positivism, Materialism, and Empiricism
114. The materialists argued that consciousness could be understood in accordance with the principles of physics and chemistry.
- ANS: T PTS: 1
REF: Philosophical Foundations of the New Psychology: Positivism, Materialism, and Empiricism

115. The nativistic theory of perception holds that certain ideas and mental functions are learned through experience.

ANS: F PTS: 1

REF: Philosophical Foundations of the New Psychology: Positivism, Materialism, and Empiricism

116. The best-known opponents of nativism were the British empiricists.

ANS: T PTS: 1

REF: Philosophical Foundations of the New Psychology: Positivism, Materialism, and Empiricism

117. Locke argued that we believe ideas are innate if or when we cannot recall having learned them.

ANS: T PTS: 1

REF: Philosophical Foundations of the New Psychology: Positivism, Materialism, and Empiricism

118. The first idea of the *tabula rasa* was John Locke's.

ANS: F PTS: 1

REF: Philosophical Foundations of the New Psychology: Positivism, Materialism, and Empiricism

MSC: WWW

119. "Beauty is in the eye of the beholder," reflects Locke's notion of primary qualities.

ANS: F PTS: 1

REF: Philosophical Foundations of the New Psychology: Positivism, Materialism, and Empiricism

120. The notion in modern psychology that knowledge depends on the experiencing person is essentially a restatement of Berkeley's position.

ANS: T PTS: 1

REF: Philosophical Foundations of the New Psychology: Positivism, Materialism, and Empiricism

121. Berkeley used the phenomenon of depth perception to illustrate the presence of innate ideas.

ANS: F PTS: 1

REF: Philosophical Foundations of the New Psychology: Positivism, Materialism, and Empiricism

122. Locke used simple and complex ideas to describe his theory of association, now commonly known as learning.

ANS: T PTS: 1

REF: Philosophical Foundations of the New Psychology: Positivism, Materialism, and Empiricism

123. There was little difference between James Mill and son John Stuart Mill in their interpretations of human mental functioning.

ANS: F PTS: 1

REF: Philosophical Foundations of the New Psychology: Positivism, Materialism, and Empiricism

124. Rote learning has at its core Hartley's law of repetition.

ANS: T PTS: 1

REF: Philosophical Foundations of the New Psychology: Positivism, Materialism, and Empiricism

125. Hartley attempted to explain psychological and physiological processes in terms of mechanical principles.

ANS: T PTS: 1

REF: Philosophical Foundations of the New Psychology: Positivism, Materialism, and Empiricism

126. James Mill denied that people had free will.

ANS: T PTS: 1

REF: Philosophical Foundations of the New Psychology: Positivism, Materialism, and Empiricism