Name: _____
Date: _____

Psychology 101 Exam
Rice University, February 5, 2009

"On my honor, I have neither given nor received aid on this exam."

_____

Part I: Multiple Choice (40 questions worth 2 points each; answer all of them using your Scantron)

1. Wundt believed that scientific psychology should focus on analyzing consciousness and the basic elements that constitute the mind, an approach he called:
   A) functionalism.
   B) empiricism.
   C) structuralism. Correct p. 8
   D) dualism.

2. Gestalt psychologists believed that:
   A) visual illusions are caused by faulty thinking.
   B) the whole is different than the sum of its parts. Correct p. 13
   C) images are produced in different parts of the brain.
   D) hallucinations are the result of a chemical imbalance in the brain.

3. The theory that emphasizes the importance of unconscious mental processes in shaping feelings, thoughts, and behaviors is called:
   A) Gestalt theory.
   B) the theory of the unconscious mind.
   C) innate theory.
   D) psychoanalytic theory. Correct p. 15

4. If you are having trouble finding your cat, you may try shaking the can that contains his treats. The sound of the treats as you shake the can would be:
   A) a response.
   B) a stimulus. Correct p 18
   C) an aural reinforcement.
   D) a delusion.

5. The scientific study of mental processes, including perception, thought, memory, and reasoning, is called:
   A) behavioral neuroscience.
   B) physiology.
   C) cognitive psychology. Correct p. 21
   D) mental psychology.

6. Understanding why an aversion to noxious odors may have been a factor in the survival of our forebears is most relevant to the _____ perspective.
   A) cultural
   B) Gestalt
   C) evolutionary Correct p. 26
   D) psychoanalytic

7. Elizabeth believes in _____, in that she thinks people who are experts in their occupations are just born that way. No matter how hard people practice, they will never be professional athletes or expert musicians if they do not have the innate ability.
   A) nativism Correct p. 5
   B) philosophical empiricism
   C) natural selection
   D) functionalism

8. An operational definition is:
   A) a description of a property in measurable terms. Correct p. 41
   B) the way sciences tend to operate when forming hypotheses.
   C) the consensus scientists reach when defining their terms.
   D) a set of rules and techniques for confirming observations.

9. A reliable measure is one that:
   A) tends to produce the same result whenever it is used to measure the same thing. Correct p. 44
   B) tends to differentiate between accurate and inaccurate data.
   C) compensates for a weak operational definition of a property under study.
   D) is also an accurate measure of an underlying property.

10. Measures of central tendency and measures of variability are both examples of:
    A) inferential statistics.
    B) descriptive statistics. Correct p. 47
    C) averaging statistics.
    D) frequency distributions.

11. In a normal distribution, what do you know is true about the mean, median, and mode?
    A) They all have the same value. Correct p. 47
    B) The mean is lower than the mode and median.
    C) The mean is higher than the mode but lower than the median.
    D) The median is to the left of the distribution, the mode is in the middle, and the mean is toward the right of the distribution.

12. Correlation coefficients reveal both the _____ and the _____ of a correlation between two variables.
    A) magnitude; strength
    B) direction; type
    C) direction; strength Correct p. 54
    D) cause; effect

13. The independent variable is _____ , whereas the dependent variable is _____.
    A) reliable; valid
    B) measured; manipulated
    C) observed; matched
    D) manipulated; measured Correct p. 60

14. Which of the following values for a correlation coefficient indicates the weakest degree of relationship?
    A) –.72
    B) –.57
    C) +.10 Correct p. 55
    D) +.44

15. What is the only way to determine a causal relationship between two variables?
    A) observation
    B) correlation
    C) measurement
    D) experimentation Correct p. 58

16. The process by which we transform what we perceive, think, or feel into an enduring memory is called:
    A) encoding. Correct 168
    B) remembering.
    C) recalling.
    D) storing.

17. At her 50th high school reunion, Sophie was surprised to realize that she remembered almost everyone in her graduating class of nearly 60 people. This feat of memory was possible most likely because:
    A) Sophie kept in close touch with almost all of them over the years.
    B) Sophie's brain stored both names and faces in long-term memory. Correct 176-7
    C) high school was an especially exciting time in Sophie's life.
    D) Sophie's hippocampus is remarkably healthy for her age.

18. Recall of when, where, and how information was acquired is called:
    A) retrieval.
    B) retrospective memory.
    C) source memory. Correct p. 194
    D) retroactive memory.

19. _____ memory consists of one's general knowledge of the world, whereas _____ memory consists of one's past personal experiences that occurred at particular times and places.
    A) Heuristic; state-dependent
    B) Explicit; implicit
    C) Semantic; episodic Correct p. 185
    D) Echoic; iconic

20. Research has shown that different aspects of a single memory are stored:
    A) in the hippocampus and adjacent areas of the cortex.
    B) primarily in the hippocampus.
    C) in the brain's temporal lobe.
    D) in different places in the brain. Correct p. 176-9

21. The inability to recognize familiar faces, even when vision is normal, is a disorder known as:
    a. apraxia
    b. hypoxia
    c. prosopagnosia
    d. anosmia

ans: c (pg 73)

22. Which type of neuron receives information from the external world and conveys this information to the brain?
    a. sensory neuron
    b. motor neuron
    c. interneuron
    d. Purkinje cell

ans: a (pg 77-78)

23. _____ cells are support cells found in the nervous system.
    a. Teratogenic
    b. Mitochondrial
    c. Glial
    d. Neural

ans: c (75-76)

24. Alan Hodgkin and Andrew Huxley first measured the resting potential of neurons in the _____ in the summer of 1939.
    a. squid
    b. bear
    c. dolphin
    d. human

ans: a (79)

25. _____ is the primary excitatory neurotransmitter in the brain; _____ is the primary inhibitory neurotransmitter in the brain.
    a. Glutamate; GABA
    b. GABA; Glutamate
    c. Glutamate; serotonin
    d. GABA; dopamine

ans: a (83-84)

26. The process that allows an amputee to "feel" sensations in a missing limb is called:
    a. peripheral reassignment.
    b. peripheral optimization.
    c. brain construction.

d. brain plasticity.

Ans: d (100)

27. The _____ is mainly involved in orienting an organism in its environment.

a. reticular formation
b. cerebellum
c. medulla
d. tectum

ans: d (94)

28. The intensity needed to just barely detect a stimulus is the:

a. absolute threshold
b. minimal threshold
c. lowest common denominator
d. maximum threshold

ans: a (124)

29. For humans, the perceived colors of the visible spectrum in order from shortest to longest wavelength are:

a. deep purple, blue, green, yellow, orange, red
b. red, orange, yellow, green, blue, deep purple
c. red, yellow, orange, deep purple, green, blue
d. blue, green, deep purple, orange, yellow, red

ans: a (135)

30. Even though a friend may change hair style and color, we can both notice the differences and recognize our friend because of:

a. visual perceptions
b. visual compacts
c. perceptual objects
d. perceptual constancies

ans: d (142)

31. Which of the following sequences lists the parts of the human ear in the order in which sound waves travel through them from the environment?

a. auditory canal, pinna, eardrum, ossicles, cochlea, auditory nerve, brain
b. pinna, auditory canal, eardrum, cochlea, ossicles, auditory nerve, brain
c. auditory canal, pinna, eardrum, cochlea, ossicles, auditory nerve, brain
d. pinna, auditory canal, eardrum, ossicles, cochlea, auditory nerve, brain

ans: d (151)

32. The area of the brain that motivates us to escape from or relieve the pain that occurs when we get too close to a hot fire is the:

a. thalamus

b. receptor cortex
c. somatosensory cortex
d. amygdala

ans: d (156)

33. Research on cell phone use and attention in driving suggests that laws requiring hands-free cell phones could significantly reduce accidents. (True/False)

Ans: False (129)

34. The researcher most closely associated with classical conditioning is:

a. Ivan Pavlov
b. B. F. Skinner
c. Edward Titchener
d. John B. Watson

Ans: a (212)

35. Your dog has learned to salivate whenever you hum the theme from *Sesame Street* on your way to the kitchen, even though your humming has never been directly associated with food. This behavior is the result of:

a. second-order conditioning
b. third-order conditioning
c. habituation
d. operant conditioning

ans: a (215)

36. In Watson's experiment with Little Albert, the child's fear reaction to the loud noise of the steel bar being struck by a hammer was the:

a. CS
b. CR
c. US
d. UR

Ans: d (218)

37. After Josue received a $100 speeding ticket, flashing lights in his car's rear-view mirror quickly became a(n):

a. positive punisher
b. negative punisher
c. primary reinforcer
d. conditioned response

ans: a (227)

38. Variable ratio schedules of reinforcement produce _____ rates of responding than fixed ratio schedules primarily because it is difficult to know exactly when the next reinforcement is going to occur.

a. slightly higher
b. slightly lower
c. much higher
d. much lower

ans: a (231)

39. Learning in humans that takes place largely independent of awareness of both the process and the products of information acquisition is called:

a. explicit learning
b. implicit learning
c. mirror learning
d. habituation

ans: b (246)

40. Research has shown that while you are asleep, your brain does all the following except:

a. process information experienced during the day
b. inhibit levels of dopamine
c. code information experienced during the day
d. strengthen learning

ans: b (248)

Part II: Short answer (4 points each). Choose <u>any 5</u> out of the following 7 questions. The length of your answers should range from just a short sentence or list, if that is sufficient, to a few sentences. Write your answers on the exam pages (use the back if needed). Be sure you are clear which five you are answering – cross out the two you are skipping if needed

41. Suppose you were to conduct an experiment on the effects of sleep deprivation on driving performance (in a driving simulator, so no one gets hurt). What would be your independent variable (IV), and what specific dependent variable would you choose. Draw a simple chart or graph showing what your result might look like, labeling your axes and showing your prediction.
Answer: IV= # hours slept in the last 48 hours or some such; DV = number of scored driving errors (stop signs and red lights ignored, collisions, waving between lanes), basically any numerical scale that combines reasonable factors with reasonable weights. The predicted results should be a line or curve, but most likely a curve because additional sleep would improve driving performance only up to a point, say 10 hours sleep per 24; further sleep would not help. So I would think a curve reaching a flat asymptote would be about right, but other predictions from other models are certainly possible

42. What does it mean for two variables to be confounded, and why is this regarded as a bad thing? Give an example of how you might confound two or more variables when studying the relationship between income level and memory capacity.
Answer: variables are confounded when they are correlated, e.g., when they vary together, in the same direction, either totally or partially. When they are totally confounded, it becomes impossible to determine which of them, or what combination of them, was responsible for any effect you observe. So if you look at the effect of income level on memory span, there are usually many additional factors confounded with income. Poorer people have less healthy diets, live under greater levels of stress, have had fewer educational opportunities to learn memory strategies, etc. These sorts of factors could distort the effect of income level per se on actual memory capacity; i.e., holding one of them constant could eliminate any relationship between income and memory.

43. "There are three kinds of lies: lies, damned lies, and statistics!" This quote often attributed (probably falsely) to Mark Twain or British Prime Minister Benjamin Disraeli, but it contains much truth. Give an example of how you can mislead people using statistics.
Answer: there are many ways. Some of them are graphical, such as the example given in class of having a non-zero origin, making differences appear to be larger than they are; or plotting data on axes that have been log-transformed, etc. Some are numerical, e.g., using different kinds of measures of central tendency; it's not hard to make Group A appear to have a higher score than Group B using means with the reverse being true using medians. Many more examples are on the web at: http://tinyurl.com/cupo7.

44. What are three sorts of methods that can be used to determine what functions are carried out in different parts of the brain?
Answer: 1. Look for patients who have lost parts of their brains to see what functions they have lost; 2. Stimulate various parts of the brain with tiny electrodes and see what happens; 3. Record from different

parts of the brain, using single cell recording, EEG, PET scans, fMRI, etc. as people are placed into different cognitive states or are shown different stimuli. 4. Scramble the neural activity in different brain regions using transcranial magnetic stimulation (TMS) to see what functions are disrupted.

45. What is the importance of the synapse in brain functioning?
Answer: the synapse is the junction between two neurons, the tiny gap over which cells communicate when transmitter substances or neuromodulators move from one cell's terminal button / endfoot to the next cell's dendrite. The synapse is where the critical action takes place in nervous systems, by allowing one cell to exert an effect on another and thus allowing neural networks to function. Learning is generally regarded as a long-term change at the synapse, permanently modifying the probability that one neuron will affect another. Many drugs have their effect at the synapse, such as mimicking a neurotransmitter or blocking receptors for them.

46. One of the basic facts about perception mentioned in the lectures is that it's selective. Say what this means and give an example or two.
Answer: there are limits on how much information people can process – pay attention to – at any one time. Thus, some kind of selection must take place to choose what gets processed. That selection is not random, fortunately; instead we have mechanisms and strategies to help us select what is right. In vision, we have eye movements to direct our gaze to the most important parts of scenes, and we have eyelids when we want to ignore vision altogether (say, to focus on our ears instead). We also have the ability to look in one direction and pay attention in another (a sometimes-useful social skill). When two images are superimposed, we can switch our attention to one or the other. In a scene, we can attend to objects by their features, say attending only to red letters on a page. Similar selection takes place in the auditory realm (with the famous "cocktail party effect," and to some extent with our other senses as well. The same is true with memory, when we direct our attention away from our senses in order to focus on recalling previous information.

47. Two of the four forms of learning (along with habituation and cognitive learning) are classical conditioning and operant conditioning. How do these two *differ* from each other? Answer: classical conditioning starts with a reflex, in which a US elicits a UR (food in mouth elicits salivation); a CS (bell) that slightly precedes the US comes to elicit a CR (salivation) with enough repetitions Operant condition does not begin with a reflex; the response in operant conditioning (pressing the bar in a Skinner Box) is voluntary and is emitted. The organism learns a connection between a response it makes and a consequence that can be either a reinforcer or a punisher.