Take another sheet of paper and cover the answers located in the right hand column. Then read through the unit filling in the blanks as you go. After filling in each space, move your paper down to reveal the correct answer. If your answer is right, move on the next problem. If your answer is wrong, go back and correct your mistake.

1. Learning refers to a relatively permanent change in behavior which occurs as a result of practice or other past experience. Since all behavior does not fit into this definition of __ we must narrow the definition. Learning

2. Learning refers to a relatively __ change in behavior. This excludes simple behaviors which are automatic. These types of behaviors are called reflexes. Permanent

3. ___ are simple automatic behaviors which are not included within the definition of learning. Learning also does not include changes in behavior which are a result of development or maturation. Reflexes

4. Therefore we can conclude learning is a relatively permanent ___ in behavior which occurs as a result of ___ excluding behaviors that are due to maturation, development and ___. Change Practice Reflexes

5. In a typical learning experiment the independent variable is practice and the dependent variable, the one measured, is the behavior shown. Learning is the activity between these two variables. In a learning experiment, learning hypothetically occurs between the ___ variable and the ___ variable. Independent Dependent

6. A young child gets lost at a major shopping center but is unwilling to tell the security personnel his name. The child does know his name but has also been told not to talk to strangers. In this example the child has learned his name but his performance does not show it. Learning and performance are not the same thing. A person's behavior will not always show what the person has learned. In the above example the child had learned what his name was, but this fact was not demonstrated by his ___. Performance

7. To summarize, learning is a relatively permanent change in __ which occurs as a result of __, though the learned behavior may not be revealed in the person's ___. Behavior Practice Performance

8. Many times while we are attempting to solve a problem, the answer suddenly comes to us and the puzzle seems simple. This phenomena is called insight or the "aha phenomena.” Insight or the "aha phenomena" is the ___ solving of a problem or puzzle by perceiving the complete relationship. Sudden

9. Many times we are forced to learn something through a pick and choose guessing situation. We have never had any previous experience which
could help us with the problem. We have to make a guess at each step we come to. This type of learning is known as trial and error learning. In this learning everyone starts out equal and intelligence does not help during the first attempts to solve the problem. In ___ and ___ learning everyone starts out equal.

10. In trial and error learning everyone starts out ___ and the person's level of ___ does not help during the first attempts.

11. In a famous study by Pavlov, dogs were placed in a harness and an apparatus was set up to measure the dog’s flow of saliva. Pavlov then put some meat powder on the dogs’ tongue and the dogs began to salivate. This response of salivating is an unlearned response, because it does not require any prior learning or conditioning, and is automatically elicited. An unlearned response such as salivating to meat powder is called a(n) ___ response.

12. If a puff of air is directed into the eye the person will blink. This too, is an unlearned response, therefore it is called a(n) ___.

13. Any response to a stimulus that does not require prior learning is called an unconditioned ___.

14. If a response that is unlearned is called an unconditioned response then it seems logical to call the stimulus that gave rise to the response a(n) ___.

15. In Pavlov's original experiment, the meat powder caused the unconditioned response of salivation; it is therefore called the unconditioned ___.

16. The next step in this experiment by Pavlov was to ring a bell just before placing the meat powder on the dog's tongue. Pavlov continued to do this until the dog would salivate at the sound of the bell alone. The dog learned the contingency between the sound of the bell and the arrival of the meat powder. The meat powder is called the ___ stimulus of the experiment.

17. In Pavlov's experiment, the bell eventually became a cue or stimulus for the response of salivation. The bell, however, does not normally cause salivation in a dog. Therefore, the connection between the bell and the coming of the meat powder had to be ___.

18. The bell becomes a learned stimulus, therefore the sound of the bell is the conditioned stimulus. The conditioned stimulus is associated with the unconditioned stimulus through conditioning trials. The bell in Pavlov's experiment is called the ___ stimulus.

19. The conditioned stimulus is a stimulus that would not normally by itself elicit the desired response but gains the power to cause the response by being associated with the ___ stimulus.
20. If the response to an unconditioned stimulus is called the unconditioned response, the response to the conditioned stimulus should be called the __. Just as the association between the unconditioned stimulus and the conditioned stimulus is learned, so is the association between the conditioned stimulus and conditioned response. In Pavlov's experiment the unconditioned response (salivating) and the conditioned response (salivating) are the same, though in actuality Pavlov found the two salivations are not completely equal in strength, though they are of the same in type.

21. The association between the conditioned stimulus and the conditioned response must be __.

22. Classical conditioning is the term given for the type of learning demonstrated in Pavlov's experiment. It can be defined as a learning situation in which a response is caused by a certain stimulus (the conditioned stimulus) because this stimulus was associated for a number of trials with a stimulus (the unconditioned stimulus) which normally would cause the response. This type of learning was demonstrated by experiments done by __.

23. The experiment of Pavlov that shows a dog salivating to a bell after being conditioned is an example of __ conditioning.

24. The more times we pair the meat powder (unconditioned stimulus) with the bell (conditioned stimulus) the stronger the response will be to the bell (conditioned stimulus). After conditioning the dog's response to the bell (conditioned stimulus) it is called the __ response.

25. Classical conditioning is illustrated in the following manner:

Before conditioning:  NS (bell) -------- No response
                      UCS (meat powder) --- UCR (salivation)

During conditioning:  CS (bell) -----  
                      UCS (meat powder)--- UCR (salivation)

After conditioning:  CS (bell)----- CR (salivation)

CS stands for __.

UCS stands for __.

UCR stands for __.

CR stands for __.

26. After conditioning an animal to respond to some stimulus we find the animal will respond to the __ stimulus with the same type of response it
would to the unconditioned stimulus. If we, however, continue to present the conditioned stimulus without the unconditioned stimulus, the animal eventually with time stops giving the response. The process where we continue to present the conditioned stimulus without the unconditioned stimulus and the animal stops responding is called extinction.

27. __ is the process where we can stop the animal from responding by presenting the __ stimulus without the __ stimulus. If we, however, go through the process of extinction and then wait a period of time, the animal will respond again to the conditioned stimulus. This process is called spontaneous recovery. In spontaneous recovery we find the animal can still respond to the conditioned stimulus after extinction if a period of time elapses. Spontaneous recovery shows that the animal does not completely unlearn the association between the unconditioned and conditioned stimuli in the extinction process.

28. __ shows that the extinction process is not permanent.

29. Let us say that on Monday we condition our dog to salivate through classical conditioning. We present a bell, the __, and then the meat powder. Eventually the dog will salivate to the sound of the bell alone.

30. On Tuesday we present only the bell, the __. We continue to present only the bell until the animal stops salivating to it. This process is called __.

31. On Wednesday we let the animal rest and present the bell again on Thursday without the presentation of the meat powder. The dog salivates to the bell this time. This process where the dog salivates to the bell after extinction and a period of rest is called __.

32. This total process where we have the animal learn to respond to the bell is called __ conditioning. Now suppose the animal is conditioned to respond to a certain tone called tone 1. After the conditioning we find the animal will respond to a tone (tone 2) which is similar but not exactly the same as the first tone. This responding to the second tone which is similar to the tone used in the conditioning is called generalization. In generalization the animal responds to tone 2 just as it would respond to __.

33. The process where the animal or subject responds to a similar stimulus as the one used in the conditioning process is called __. If we, however, were to present the unconditioned stimulus only when tone 1 is presented and not present it for tone 2, the dog will respond only to tone 1. This ability of distinguishing between the two tones is called discrimination learning, for the animal learns to discriminate between the tones and learns which one to respond to.

34. When the animal can distinguish between similar stimuli the animal has learned __.

35. Operant conditioning is the strengthening of a stimulus response association
by following the response with some type of reinforcement. A reinforcement is anything which strengthens a response when it is made contingent on the response. A reinforcement can be thought of as a reward for the response. Operant conditioning differs in many ways from classical conditioning. In operant conditioning the animal or subject must perform the desired response before there is any reinforcement. In classical conditioning the subject does not have to perform any special behavior before the unconditioned stimulus is presented. To condition the animal to salivate to a bell, the bell is rung then the meat powder, the ___ stimulus, is delivered, no matter what the animal is doing.

36. In ___ conditioning, the subject must make the desired or correct response before it gets reinforced. Another difference between operant and classical conditioning is classical usually involves some type of involuntary, unlearned, automatic response while operant conditioning is concerned with voluntary emitted responses. Instead, in operant conditioning, we reinforce the animal when it gives the correct response.

37. In ___ conditioning the animal can be passive and still be conditioned, while in ___ conditioning the animal must give the correct response before we reinforce it.

38. In ___ conditioning we reinforce the correct response. As stated above, a reinforcement is anything which strengthens a response when it is made contingent on the response. A reinforcement can be thought of as a reward for the response. It must be remembered that a reward for one person may not be considered reinforcement for someone else. If something increases the likelihood of the response happening again it can be considered reinforcing.

39. Anything which strengthens a response when made contingent to the response is called a ___. For example, in a Skinner Box, a rat is given a piece of food every time it pushes a lever down. The food in this example is a form of ___.

40. Since we reinforce the animal for correctly responding, the animal learns the consequence of its behavior. Operant conditioning is based on the principle that behavior is controlled by its consequences. Operant conditioning is based on the principle that the subject’s behavior is dependent on the ___ of that behavior.

41. In operant conditioning the animal is ___ for the correct response. The animal, however, does not have to be reinforced for each and every response. If the animal is reinforced for every so many (i.e. once every correct response or once every fifth correct response), it is said to be on a fixed ratio schedule. A fixed ratio schedule is similar to the schedule in a factory called piece work, where the worker gets paid for every so many items made.
42. If the animal is reinforced for every correct response or after a specific number of correct responses it is on a **Fixed Ratio** schedule of reinforcement. If the animal gets reinforced after the first response after a 20 second interval it is on a **Fixed Interval** schedule. If the animal gets reinforced after so many correct responses, but that number changes randomly it is on a variable ratio schedule. For example, the animal is reinforced after it completes 5 correct responses, then it is reinforced again after 8 correct responses, then 3 correct responses. A variable ratio schedule is the most resistant to extinction.

43. **Variable Ratio** is the schedule of conditioning most resistant to extinction. If the animal is reinforced for the first correct response after a certain period of time has elapsed he is on a **Fixed Interval** schedule. If the time period randomly varies from reinforcement to reinforcement, it is called a variable interval schedule.

44. To summarize, if the animal is reinforced for after 7 correct responses it is on a **Fixed Ratio** schedule of reinforcement. If it, however, is reinforced after 5, then 8, then 2 correct responses it is on a **Variable Ratio** schedule. If the animal is reinforced after the first correct response after a fixed period of time goes by it is on a **Fixed Interval** schedule. If the time period changes from reinforcement to reinforcement it is called a **Variable Interval** schedule.

45. When an experimenter conditions an animal to a behavior, he uses a process called shaping or successive approximation. In this process, the experimenter reinforces closer and closer approximations to the desired behavior until the correct behavior is shown. The process of reinforcing closer approximations to the correct behavior is called **Shaping**.

46. As with classical conditioning, it is possible to extinguish operant behavior through extinction. To extinguish behavior learned by classical conditioning the conditioned stimulus is presented without the unconditioned stimulus. In operant conditioning we simply stop reinforcing the behavior and the animal will eventually stop the behavior. To achieve extinction of behaviors learned through operant conditioning we must stop the **Reinforcement**.

47. This study guide is a form of operant conditioning called a programmed learning unit. The person using this guide is rewarded when they get the correct answer. The principle of reinforcement for this guide is being reinforced for the **Correct Answer**.

48. This handout is called a **Programmed** learning unit.