

# AP<sup>®</sup> PSYCHOLOGY

## 2010 SCORING GUIDELINES

### Question 1

For each of the pairs below, use an example to show how the first term in each pair affects or is related to the second. Definitions alone without examples will not score.

- Serial-position effect . . recall
- Functional fixedness . . problem solving
- Operational definition . . replication
- Double-blind research . . bias
- Operant conditioning . . superstition
- Reinforcement . . overjustification effect
- Myelin sheath . . neural impulse

#### *General Considerations*

1. Answers must provide an example that describes an accurate relationship between the first part of each item with the second part of each item. This description may be stated positively or negatively (e.g., “myelin improves the speed . . .” “lack of myelin reduces the speed . . .”).
2. Simply writing “for example” as a prelude to a response does not guarantee that the response will qualify as an example.
3. Answers must be presented in sentences, and sentences must be cogent enough for students’ meaning to be apparent. Spelling and grammatical mistakes do not reduce students’ scores, but spelling must be close enough so that the reader is convinced of the word intended.
4. Within a point, students will not be penalized for misinformation unless it *directly contradicts* correct information that would otherwise have scored a point. An accurate example scores, even if provided with a definition that is not correct.
5. Students can only score points if information is presented in *context*. This means that they must clearly convey which part of the question is being answered before a point can be earned. However, it may be possible to infer context from the structure or ordering of the essay.

#### **Point 1: Serial-position effect . . recall**

The example must include the ability to remember the first or last items in a sequence more easily (for example, describing primacy and/or recency effects) **OR** more difficulty remembering items in the middle of a sequence.

*Note:* Mention of “a list” is the minimum context for an correct example.

#### Score

- “It is easier to remember the first items on a list.”

#### Do not score

- “Remembering where in the house a friend’s phone number is in order to be able to call them” (because this is referring to method of loci).

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### Question 1 (continued)

#### **Point 2: Functional fixedness . . . problem solving**

Students must include an example of how *failing* to find a novel, unintended use for a specified object prevents finding a solution to a problem **OR** of how overcoming the fixation on the original use of a specified object facilitates solving a particular problem. The feasibility of the example is not important.

*Note:* A specific object and a specific problem (or action linked to achieving a goal) must be included in the answer.

#### Score

- “Because Moe had no hammer and didn’t realize he could use his baseball bat, he could not figure out how to drive a nail.”
- “Instead of thinking of his baseball bat as something that could only hit baseballs, Moe overcame this limitation and used the bat to drive the nail.”

#### Do not score

- “Moe used a baseball bat to drive a nail” (because this is *not* an example of functional fixedness).
- “Moe did not have a clothesline and could not think of any other way to hang his clothes” (because no object is specified that Moe can think about in novel ways to overcome his problem, nor is any object specified that Moe is unable to think differently about so that he thus fails to solve his problem).

#### **Point 3: Operational definition . . . replication**

Students must include an example of how defining a variable (or term or concept) in a study facilitates future repetition of the study.

#### *Notes*

- Referring solely to the overall step-by-step procedures of the study (how the study is done) without mentioning the definition of a variable (or term or concept) will not score.
- Mentioning a study or experiment is the minimum context for an example.

#### Score

- “Researchers define the variables in a study so that the study may be more easily repeated.”

#### Do not score

- “Carmine writes down all the procedures for how an experiment is performed so that the experiment can be repeated” (because this is not referring to defining specific variables in a study).

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### Question 1 (continued)

#### **Point 4: Double-blind research . . . bias**

The example must indicate that *both researchers and participants* are not informed about some aspect of a specific study in order to reduce the possibility of confounding factors.

#### *Notes*

- An example of some aspect of a specific study must be given. For example, referring to a “placebo” does provide a minimum context for an example. Simply alluding to “an experiment” does not provide a minimum context for an example.
- Students do not have to provide a specific example or description of bias, as long as they mention that it is reduced by this procedure.
- If a student gives a full description/definition of “double-blind,” then an example of part of that procedure will score.

#### Score

- “When testing a new drug, neither the participants nor experimenter knew whether a particular participant was receiving a drug or a placebo, thus lessening the amount of bias in the study.”
- “An experiment where neither the participants nor the experimenters know which condition a participant is in, in order to reduce bias. For example, in a drug study, subjects do not know whether they are getting an actual drug or a placebo.”

#### Do not score

- “An experiment where neither the participants nor the experimenters know which condition a participant is in, in order to reduce the amount of bias” (because this is not a specific example).
- “A placebo experiment where neither the participants nor the experimenters know they are in a study” (because the participants and experimenters need to be blind to some *aspect* of the study, not to the existence of the study itself).

#### **Point 5: Operant conditioning . . . superstition**

The example must show how random or noncontingent consequences alter (or maintain) a behavior that is not tied to the consequences. The noncontingency aspect of the relationship between the response and the consequence must be clear.

*Note:* Students may also describe how some specific operant procedures like reinforcement, extinction or punishment might eliminate a specific superstitious behavior. The behavior that is specified must clearly be a superstitious behavior (elimination of common behaviors or mental disorders will not score).

#### Score

- “A person wears a green shirt and scores well on an exam and so now wears the green shirt to every exam.”
- “Guido brings a rabbit’s foot into work and gets a promotion, which reinforces carrying the rabbit’s foot.”
- “A person overcomes his superstitious behavior of not walking underneath ladders by being reinforced to walk under them.”

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### Question 1 (continued)

#### Do not score

- “A student studies and gets good grades so continues to study” (because the consequence of good grades is contingent on the behavior of studying).
- “A student is told that he needs to avoid black cats to avoid bad luck” (because it is *not* an example of operant conditioning).
- “A student gets shocked every time a cat is presented and then develops a fear of cats” (because this is more clearly an example of classical conditioning).
- “Extinction can be used to eliminate Lucy’s fear of snakes” (because “fear of snakes” is not clearly a superstition).

#### **Point 6: Reinforcement . . . overjustification effect**

The example must include a situation in which an actual or potential external reinforcement reduces or eliminates an intrinsic motive for a behavior.

*Note:* A response that uses the reduction of a student’s “interest in” or “desire to perform” a behavior will score because it alludes to a student’s intrinsic motivation for the task.

#### Score

- “After being given money to read books, Edna loses her desire to read books.”

#### Do not score

- “A child believes that for every good thing she does, she should receive reinforcement” (because there is no mention of a reduction in intrinsic motivation).
- “A child stops reading books when he is no longer reinforced” (because this describes extinction and there is no mention of a reduction in internal motivation).

#### **Point 7: Myelin sheath . . . neural impulse**

The example must describe how the presence of myelin sheath increases the speed of neural impulses or how the absence of myelin sheath decreases the speed of neural impulses.

#### Score

- “The myelin sheath allows the neuron to send its signal more quickly.”
- “Loss of the myelin sheath leads to slower neural impulses.”

#### Do not score

- “The myelin sheath increases the strength of a neural impulse” (because it does not address the speed of the neural impulse).

The serial-position effect influences the ability to recall from memory items from a larger list. Given a list of numbers, a person will be more readily able to recall those from the start and end of the list, due to the serial position effect. Functional Fixedness is ~~or~~ the association of an object with its proper function. With a low degree of functional fixedness, one may use objects in alternative ways to facilitate problem solving, as ~~does~~ ~~magicians~~ do many heroes in action movies. A pen may be used as a splint for a broken finger, for example. ~~In an ex~~

~~ty~~ In an experiment, an operational definition is a definition of variables and a precise description of their application in the experiment. Operational definitions, like defining time as being measured in minutes via a stopwatch, allow for accurate replication of experiments. The use of a double-blind in research means that neither the researchers or the subjects know which group is receiving the experimental or control conditions; and this is utilized to prevent biased behavior by both researchers and subjects. For example, if a new drug is being tested against a placebo, the researchers and participants do not know who is receiving which pill.

Operant conditioning, the reinforcement or ~~discouragement~~ discouragement of behavior via the addition or subtraction of

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consequences, can be used to create superstition. By giving birds in a box a food reward on fixed intervals of time, the birds learn to replicate the behavior they exhibit when the food is given, although the behavior has nothing to do with receiving food. By reinforcement, a behavior can be increased. In the overjustification effect, behaviors that have been reinforced will only be performed ~~if~~ for a reward. For example, a child who receives money as reinforcement for good test scores may cease getting good scores if money is not offered, as a result of the overjustification effect.

The myelin sheath is a covering of schwann cells over the axon of a neuron, and its presence increases the rate at which a neural impulse travels the length of the axon. Without a myelin sheath, neural impulses can't travel fast enough for normal functioning, and an individual who loses their myelin sheaths from their neurons due to disease will die.

It is apparent that terms in Psychology can be readily related to one another. Serial position effect — the tendency for one to move easily remember that that occurs at the beginning and end or first and last — ~~one~~ is predominant in recall — the recollection or remembering of things. When writing an essay, it is important to have a strong opening and closing as, due to this effect, these will be the areas most thoroughly remembered. Functional fixedness — the tendency to focus on the function of an item while having difficulty thinking of obscure things to do with the item — could result in problem solving situation. As the problem of deodorizing Martha's fridge arises, she cannot think to use baking soda as she is fixated that it can only be used for baking as that is why she bought it. Operational definition — how something is prescribed to take place — happens in replication as when repeating an experiment with a different people group or subject, one must follow operational definition to ensure it remains true to the original premise. Double-blind research — where both the subject and the researcher carrying out the experiment are unaware as to which is the experimental group and which is the control group receiving a placebo — helps to avoid bias as one's opinions and ~~the~~ prior beliefs cannot interfere. If the researcher believes that caffeine pills make subjects more agile he may over estimate the agility of those he knows have taken them. This is avoided with the double-blind research as he does not know who is taking caffeine pills and who is taking the placebo pills. Operant conditioning — the strengthening

or weakening of a behaviour through reinforcement or punishment — can occur in regards to superstition. ~~the~~ Beliefs with no hard scientific evidence supporting them can be supported by an individual. Martina has always passed her tests when carrying her lucky penny but ~~she~~ coincidentally failed the test she took when she forgot her penny at home. She does not see it as coincidence and therefore has been conditioned to continue to bring her lucky penny to tests. Reinforcement — the support or strengthening of a behaviour — can be positive or negative as one either takes something undesirable away or gives something desirable. The overjustification effect — where one tells one self over and over that their action is correct and tells one self reasons why what they did was right — relates to reinforcement as, in a way, they are rewarding themselves with positive reinforcement, strengthening the behaviour they committed. The myelin sheath — a coating on neurons that regulates what goes in and out. — may affect neural impulse ~~sent~~ — the sending of neural information — as impulses will not be received in full quantities at all times depending on the myelin sheath. The affects of ~~the~~ numerous psychological terms can be reflected in numerous others.

Psychology has many subfields that help broaden its definition. Out of one of the subfields comes the topic of memory. Memory is broken into two sections long-term and short-term. Even though short-term memory is obviously not permanent there are methods to actually help remember names, events and ~~and~~ much more. Serial position effect is the sequencing of either words, numbers etc in such a way as to remember them. For example putting words in alphabetical order in order to remember them for a spelling test, therefore one could easily recall, in other words remember, the words if memorized in that specific order.

Another part of psychology is learning and our ability to problem solve. Functional fixedness is when a person becomes fixated on a particular problem which prevents them from actually looking at the problem differently or continuing with the next problem like in a math test.

In psychology a common method of research is double-blind research. It is where the subject and person directing the research are not aware if the subject is in either a controlled or manipulated group. Therefore there is less chance of biased outcomes. For example, if a new antidepressant was to be tested and neither side knew who was actually taking the new drug, the subject is less likely to be treated differently by the ~~res~~ researcher.

In another side of the learning part of psychology,

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punishment and reward play a huge part in the development of a person. To every action there is a reinforcer. The reinforcers job is to either punish or reward the person who took the action based on whether the action was positive or not. Sometimes the reinforcer will use actual rewards instead of a positive comment or some sort of physical punishment for every wrong-doing. A dog, for example, is given a treat for every time he or she obeys the masters commands like sit or follow. The dog will learn that if he or she does everything the master says he or she will get a treat. Sometimes too much positive reinforcement is given which will lead to the overjustification effect. The dog will expect a treat for every command even if it is not simply sit.

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## 2010 SCORING COMMENTARY

### Question 1

#### Overview

This question had a twofold intent. First, the subject matters of the various points required demonstration of knowledge across several subfields of the discipline (memory, problem solving, research methods, learning, biological psychology). Second, within each point the question required students to apply critical conceptual thought to show the relation between the members of each pair of psychological terms.

#### Sample: 1AA

**Score: 6**

The essay earned point 1 when the student indicates that words at “the start and end” of a list will be more readily recalled. The student merited point 2 by describing how using a pen as a splint is a novel use for an object, thus overcoming functional fixedness. Point 3 was awarded when the student indicates that measuring time “in minutes via a stopwatch” is an operational definition and that using a clear definition will increase the accuracy of a replication. The student describes the double-blind technique (“neither the researchers or the subjects know which group is receiving [*sic*]” the treatment), but credit for point 4 was granted only when the student specifically references a drug study. The student provides an example in which birds are given a food reward “on fixed intervals” (not a fixed interval schedule). The essay earned point 5 by explaining that the birds begin to associate the food with a behavior, even though the behavior has nothing to do with the reward. The essay did not gain point 6 because the example does not mention the reduction of intrinsic motivation. Point 7 was awarded because the student indicates that the myelin sheath increases the speed of neural impulses.

#### Sample: 1BB

**Score: 4**

The essay received credit for point 1 when the student indicates that items “at the beginning and end” are recalled more easily. It earned point 2 when the student describes how baking soda can be used in a novel way (deodorizing the refrigerator) to overcome functional fixedness. The essay was not awarded point 3 because the student does not provide a specific example of an operational definition in a study. To earn point 4 a specific study had to be mentioned, and the use of the term “placebo” establishes such a context when the student indicates that a placebo study reduces bias. The essay merited point 5 when the student describes how “Martha” developed a superstition through operant conditioning. Because Martha earned a good grade every time she carried “her lucky penny,” she began to believe that her penny was indeed lucky and that she would do well on her tests when she had it with her. The noncontingent pairing establishes the relationship with operant conditioning and superstition. The essay did not gain point 6 because there is no mention of a reduction in intrinsic motivation. The essay did not earn point 7 because the student does not indicate that the myelin sheath increases the speed of neural impulses.

#### Sample: 1CC

**Score: 1**

Although the student indicates that recall is influenced by order of presentation, the essay was not awarded point 1 because it does not indicate that recall is better when an item is first or last in a series or worse for items in the middle of a list. The essay did not receive credit for point 2 because the student does not provide a specific example of how an object might be used in a novel way. The student does not attempt point 3. The essay earned point 4 when the student describes a specific study in which the double-blind technique

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**Question 1 (continued)**

(“neither side knew who was actually taking the new drug”) would reduce bias. Although operant conditioning is described, the student does not explain how it might lead to superstition, so point 5 was not merited. The essay was not granted credit for point 6 because there is no indication of how “too much positive reinforcement” alters intrinsic motivation. The student does not attempt point 7.