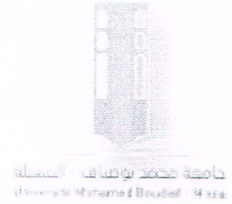




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## Cognitive Psychology Grading Rubrics

Level: Third year

Q1) How did cognitive psychology develop from psychology?(10pts)

Form: 3pts

- Introduction
- Body
- Conclusion

Body elements:

- Rationalism Vs. Empiricism
- Structuralism by Wundt focused on the structures of the mind
- Functionalism by James and Dewey focused on the processes of the mind
- Emerging from this dialectic was associationism, espoused by Ebbinghaus and Thorndike
- Behaviorism by underscoring the importance of mental associations. Another step toward behaviorism was Pavlov's discovery of the principles of classical conditioning. Watson, and later Skinner, were the chief proponents of behaviorism. It focused entirely on observable links between an organism's behavior and particular environmental contingencies.
- Gestaltism
- Cognitivism
- Artificial Intelligence (AI)

Q2) The two major approaches of Human perception (6pts)

1. BOTTOM-UP PROCESSES (1pt)

The term *bottom-up* (or *data-driven*) essentially means that the perceiver starts with small bits of information from the environment and combines them in various ways to form a percept (Gibson, 1979). The idea here is that the system works in one direction, starting



from the input and proceeding to a final interpretation. In this section, four distinct examples of bottom-up models of perception will be illustrated: direct perception, template theories, feature theories, and recognition-by-components theory.

- 1) **Direct perception:** According to Gibson's theory of direct perception, the information in our sensory receptors, including the sensory context, is all we need to perceive anything. As the environment supplies us with all the information we need for perception, this view is sometimes also called ecological perception. (0.5pt)
- 2) **Template matching:** It holds that patterns are recognized when perceivers match them to stored mental representations. In other words, Template theories suggest that we have stored in our minds myriad sets of templates. Templates are highly detailed models for patterns we potentially might recognize. We recognize a pattern by comparing it with our set of templates. We then choose the exact template that perfectly matches what we observe. (1pt)
- 3) **Feature-Matching Theories:** According to these theories, we attempt to match features of a pattern to features stored in memory, rather than to match a whole pattern to a template or a prototype (0.5pt)
- 4) **Recognition-by-Components Theory:** It is about how do we form stable 3-D mental representations of objects? The recognition by-components theory explains our ability to perceive 3-D objects with the help of simple geometric shapes. Irving Biederman (1987) suggested that we achieve this by manipulating a number of simple 3-D geometric shapes called geons (for geometrical ions). They include objects such as bricks, cylinders, wedges, cones, and their curved axis counterparts. Biederman's RBC theory explains how we may recognize general instances of chairs, lamps, and faces, but it does not adequately explain how we recognize particular chairs or particular faces. Another problem with Biederman's approach, and the bottom-up approach in general, is how to account for the effects of prior expectations and environmental context on some phenomena of pattern perception. (1pt)



## 2. TOP-DOWN PROCESSES (2pts)

Top-down, or conceptually driven, processes are directed by expectations derived from context or past learning or both. According to constructivists, during perception we quickly form and test various hypotheses regarding percepts. The percepts are based on three things:

- What we sense (the sensory data),
- What we know (knowledge stored in memory), and
- What we can infer (using high-level cognitive processes).

## Q3) Memory representations (4pts)

- Declarative memory definition(1pt)
  - Semantic memory definition(1pt)
  - Episodic memory definition(1pt)
- Procedural memory definition(1pt)