Exam Cognition & Emotion 2017

Example questions: multiple choice, fill-in the blanks and open questions

1 (Matlin, Chapter 1)
Matlin and the lectures present some information about the history of cognition. According to this discussion

a. the issue of how humans acquire knowledge was not considered until about 80 years ago.
b. the birthday of scientific psychology is usually traced to the first studies of John B. Watson.
c. behaviorism is an approach that relies on objective, observable reactions.
d. behaviorists have been primarily interested in studying images and thought processes.

(Answer c)

2 (Matlin, Chapter 1)
A cognitive psychologist who analyzes a cognitive task in terms of a series of stages—like the way a computer operates—is using which of the following approaches?

a. the information-processing approach
b. the introspection approach
c. the gestalt approach
d. the parallel distributed processing approach

(Answer a)

3 (Matlin, Chapter 1)
Chris just telephoned Roberta and listed eight items that they need for the afternoon picnic. Roberta didn't have a pencil, so she couldn't write them down. However, she remembers the last three items very well because of

a. object permanence.
b. long-term memory.
c. an event-related potential.
d. the recency effect.

(Answer d)

4 (Matlin, Chapter 2)
What is perception?

a. Perception is the immediate registration of information by the sensory receptors.
b. Perception uses previous knowledge to gather and interpret the stimuli registered by the senses.
c. Perception involves only unprocessed sensory information.
d. Perception requires complex problem solving.

(Answer b)
5 (Matlin, Chapter 2)

The template model of object recognition would have the most difficulty explaining

   e. how people recognize letters of the alphabet if you turned the letters upside-down.
   f. how computers recognize a standardized set of numbers.
   g. how people can recognize an isolated letter, without any word context.
   h. how people recognize neatly printed numbers.

(Answer a)

6 (Matlin, Chapter 2)

If you were to study top-down processing as it applies to smell, which of the following topics would be most relevant?

   a. Whether people recognize a lemon fragrance more readily when they see a photo of a lemon than when they see a photo of a rose.
   b. Whether the chemical structure of lemon-fragrance molecules is substantially different from the chemical structure of rose-fragrance molecules.
   c. Whether the receptors in the nasal passages respond differently to lemon and rose fragrances.
   d. Whether the brain stores lemon and rose fragrances in different locations.

(Answer a)

7 (Lecture 3 - Applications: Affective Computing)

Which of these statements below is not correct?

   a. Affect is a broad term covering emotions, moods, interpersonal relationships and personality.
   b. “Affective Computing” and “Technology as Experience” are similar to each other.
   c. Antonio Damasio states that the body and emotions have a key role in our rational-decision making.
   d. Somatic Markers Hypothesis associates physiological signals to positive or negative outcomes.

(Answer b)

8 (Lecture 8 - Emotion Recognition and Generation)

Which of these statements is correct?

   a. Sympathetic Nervous System (SNS) brings the body to a rest state.
   b. Parasympathetic Nervous System (PNS) is also called the “fight or flight” system.
   c. Sympathetic Nervous System (SNS) responds to changes in the negative or positive arousal.
   d. Heart rate increases only during the Sympathetic Nervous System (SNS) activity.

(Answer c)
9 (Lecture 9 - Virtual Reality and Presence)

Below are the properties of immersion. Which of them is not correct?

a. Extensiveness is the range of sensory modalities presented to the user (e.g., visuals, audio, and physical force).
b. Vividness is the quality of energy simulated (e.g. resolution, lighting, frame rate, audio bitrate).
c. Interactability is the congruence between sensory modalities (e.g. appropriate visual presentation corresponding to head motion and a virtual representation of one’s own body).
d. Surroundness is the extent to which cues are panoramic (e.g. wide field-of-view, spatialized audio, 360° tracking).

(Answer c)

10 (Lecture 11 – Persuasive Technology and Behavior Change)

Which of these statements below is correct for “facilitator as trigger”?

a. It works when a person lacks motivation but have the ability and sufficient trigger.
b. Persuading people to donate, by showing the benefits of donation on people, is an example of “facilitator as trigger”.
c. Social media address book uploaders is an example of “facilitator as trigger”.
d. When people have both motivation and ability, “facilitator as trigger” works well.

(Answer c)

11 (Lecture 8 - Emotion Recognition and Generation)

Please give examples to Effort parameters in the Laban Movement Analysis below.

1. Space:
   a. Indirect: ........................................ b. Direct: ................................................

2. Weight:
   a. Light: ................................................ b. Strong: ................................................

3. Lack or sense of urgency:
   a. Sustained: ........................................ b. Sudden: ..............................................

4. Flow:
   a. Free: ................................................ b. Bound: ................................................
Open question 1

Matlin, Chapter 1-12 (max. approx. 15 lines)

a. One of the important themes in the book *Cognitive Psychology* by Matlin concerns bottom-up and top-down processing. Explain in ± 15 lines what these concepts mean.
b. Give two examples related to for instance visual object recognition, use of general knowledge, or decision making.

Matlin p. 17 Theme 5. Many cognitive processes rely on both bottom-up and top-down processing. Bottom-up processing emphasizes the importance of information from the stimuli registered on your sensory receptors. Bottom-up processing uses only a low-level sensory analysis of the stimuli. In contrast, top-down processing emphasizes how our concepts, expectations, and memory influence our cognitive processes. This top-down processing requires higher-level cognition, ....Both bottom-up and top-down processing work simultaneously to ensure that our cognitive processes are typically fast and accurate.

Matlin p.34-35: With respect to perception, bottom-up processing focuses on the physical stimuli in the environment. In contrast, top-down processing emphasizes how your concepts, expectations and memory influence perceptual processing. Matlin discusses how top-down processing supports reading; and how overactive and top-down processing can lead to mistakes (change blindness and inattentional blindness).

Matlin p.273-274:Clearly, schemas emphasize how top-down processing and bottom-up processing work together, a cognitive principle highlighted in Theme 5. Schemas allow us to predict what will happen in a new situations. These predictions are generally correct (zie verder paragraaf over schemas)

Matlin p.415: Belief-bias effect. In our lives outside the psychology laboratory, our background (or top-down) knowledge helps us function well. Inside the psychology laboratory (..)this background information sometimes encourages us to make mistakes. (..)

The belief-bias effect occurs in reasoning when people make judgments based on prior beliefs and general knowledge, rather than on the rules of logic. In general, people make errors when the logic of a reasoning problem conflicts with their background knowledge. The belief-bias effect is one more example of top-down processing. Our prior expectations help us to organize our experiences and understand the world...
Open question 2 (max. approx.15 lines)

What are the three approaches to technology and emotions? Explain their differences and provide a discussion about them based on the literature provided in the lecture. (InteractionDesign.org Affective Computing Chapter).

The three approaches are Affective Computing, Affective Interaction and Technology as Experience.

**Affective Computing:** The term was initially coined by Rosalind Picard in 1997. The idea is that it is possible to create machines that relate to, arise from, or deliberately influence emotion or other affective phenomena. It has its roots in neurology, psychology and AI. The focus is on developing computers that can understand the emotions of the people and respond to that using cognitive and biologically inspired models of human decision making.

**Affective Interaction:** It started as a counter-reaction to the Affective Computing by Kia Hook et al. in 2005. They see emotions as constructed in interaction and as tools that supports the understanding of emotions in daily life. By this way people can reflect on their emotional experiences and themselves become part of the interaction.

**Technology as Experience:** This approach sees emotions as part of a larger whole of experiences and do not specifically focus on only emotions. It has its roots in design and arts and focuses on creating experiences that triggers emotions. One of the major representative of this area is Don Norman and he focuses on emotional design of everyday objects.

Each approach has different goals and starting points. Affective Computing pushes the boundaries of research on using technology to develop intelligent machines. This results in the development of sophisticated methods in computer science, signal processing and computer animation etc. However, it is true that this is a challenging problem and computers may not and not necessarily should replace human intelligence. Affective Interaction addresses this aspect and makes computers and humans equally important in the design of the systems. Technology as Experience zooms out even more and states that it is not only computers and software that effect the emotions of people. Objects, processes, experiences in daily life should be designed with that perspective in mind and as a consequence it will increase efficiency and improve the ways we work.