

IST605: Human Information Processing — Practice Questions

Distribution: 25% Easy (5) | 40% Normal (8) | 35% Hard (7) — 20 questions total

Types: MCQ, short/structural, and complete (paragraph) questions. All answers include explanations.

EASY (25% — 5 questions)

E1. MCQ

Cognitive psychology is best defined as the study of:

- A) Brain anatomy only
- B) How people perceive, learn, remember, and think about information
- C) Social behaviour only
- D) Clinical disorders only

► **Answer**

B) How people perceive, learn, remember, and think about information.

Explanation: The document defines cognitive psychology as the study of cognition (thought)—i.e., how people perceive, learn, remember, and think about information. The other options are either too narrow (A, C, D) or not the core definition.

E2. Structural (fill-in)

Complete: The human information processing model views people as being like _____ in the sense that we store, retrieve, and use information.

► **Answer**

Computers.

Explanation: The framework states that the basic premise of the human information processing model is that people are like computers in that we store, retrieve, and use information (inputs and outputs).

E3. MCQ

Naive realism refers to the intuition that:

- A) Reality is unknowable
- B) Perception is simply seeing the world as it is
- C) Only experiments yield truth
- D) Memory is always accurate

► **Answer**

B) Perception is simply seeing the world as it is.

Explanation: The document gives “Naive Realism” as the intuition that perception is simply seeing the world as it is, and notes that many studies show this is not the case (e.g., conflicting interpretations of the same football match).

E4. Structural (one word/phrase)

Which philosophical approach did John Locke emphasize for studying the mind?

► **Answer**

Empiricism (or observation).

Explanation: John Locke emphasized observation as a method (empiricism) to study mental processes, in contrast to Descartes’ emphasis on rationalism and introspection.

E5. MCQ

Behaviourism proposed that the basic unit of behaviour is the:

- A) Thought
- B) Reflex
- C) Memory
- D) Perception

► **Answer**

B) Reflex.

Explanation: Behaviourism proposed that the basic unit of behaviour is the reflex—an automatic action by the body in response to a particular perceived stimulus. Behaviourism focused on behaviour and reinforcement, not thought or consciousness.

NORMAL (40% — 8 questions)

N1. MCQ

A key limitation of the human information processing (computer) metaphor is that it:

- A) Ignores the role of memory
- B) Does not acknowledge that humans are biological beings whose cognition serves adaptive behaviour
- C) Overstates the role of intuition
- D) Rejects the use of algorithms

► **Answer**

B) Does not acknowledge that humans are biological beings whose cognition serves adaptive behaviour.

Explanation: The document states that the metaphor does not acknowledge that humans are biological beings that have evolved so that our cognitive system serves adaptive or functional behaviours, and that

humans are special-purpose devices tuned to the environment, not general-purpose computers.

N2. Complete (short paragraph)

In 2–3 sentences, explain the “under-representation” problem in learning, using the example of a child learning the word “rabbit.”

► **Answer**

When a parent points to a rabbit and says “rabbit,” the child could associate the word with the rabbit, the parent’s finger, a property (e.g., colour or fur), or the category “animals.” The experience under-specifies which concept the word refers to (under-representation). Despite this ambiguity, learning still occurs, partly because humans have biases and expectations that help narrow the possibilities.

Explanation: The document uses this example to show that the mapping from experience to concept is ambiguous, yet learning happens; it links this to the role of biases in resolving such ambiguity.

N3. MCQ

According to the document, when people attribute causes to others’ behaviour without definitive information, they tend to:

- A) Attribute causes at random
- B) Bias their causal attributions toward what is unusual or abnormal in the situation
- C) Rely only on genetic explanations
- D) Avoid making any attribution

► **Answer**

B) Bias their causal attributions toward what is unusual or abnormal in the situation.

Explanation: The document states that people identify what is unusual in a situation and bias their causal attributions toward these abnormal conditions (e.g., attributing an accident to rain when rain is unusual, but less so in a rainy area).

N4. Structural (short list)

Name three topics that cognitive psychology includes (as listed in the document).

► **Answer**

Any three of: sensation, perception, attention, memory, language, reasoning, problem solving, decision making.

Explanation: The document lists these as topics that cognitive psychology includes.

N5. MCQ

Why does the document say that “tasks that seem most natural and easy for people” can be “some of the most difficult to encode as intelligence in a computer system”?

- A) Computers lack memory
- B) Human perception and cognition rely on assumptions and processes that are often unconscious and context-dependent
- C) Computers cannot run experiments
- D) Only intuition works for such tasks

► **Answer**

B) Human perception and cognition rely on assumptions and processes that are often unconscious and context-dependent.

Explanation: The document argues that despite the flaws of our perceptual system with ambiguous information, our assumptions are usually correct, and that natural, easy tasks for humans are often the hardest to implement in AI—implying that these tasks depend on complex, often unconscious, context-sensitive processes.

N6. Complete (short paragraph)

What is empiricism, and how does the document say cognitive psychology uses it?

► **Answer**

Empiricism is the view that knowledge is derived directly from experience; truth is determined through observation and experimentation. The document states that cognitive psychology relies heavily on scientific observation and experimentation, and thus on empiricism.

Explanation: This follows the document’s definition of empiricism and its role in cognitive psychology.

N7. MCQ

Immanuel Kant’s position on rationalism and empiricism, as presented in the document, was that:

- A) Only rationalism should be used
- B) Only empiricism should be used
- C) Both approaches must be used to decipher truth about the mind and reality
- D) Neither approach is useful

► **Answer**

C) Both approaches must be used to decipher truth about the mind and reality.

Explanation: The document states that Kant addressed the issue of rationalism and empiricism and concluded that both approaches must be used to decipher truth and the reality of the mind.

N8. Structural (short answer)

What was the main goal of introspectionism (e.g., Wundt), and what was one problem with it?

► Answer

Goal: To understand the basic structure of consciousness (perception and thought) by analyzing thought into its elements, similar to analyzing physical things into parts.

Problem (one of): (1) Perception and behaviour involve unconscious as well as conscious processes, so introspection is incomplete; or (2) Experiments on introspection did not reliably reveal the expected structure of thought.

Explanation: The document describes introspectionism's goal and the two main problems listed above.

HARD (35% — 7 questions)

H1. MCQ

In the “information overload” example (chess), the document implies that:

- A) Humans can consider all possible moves
- B) Machines can consider all possible moves
- C) Neither humans nor machines can consider all possibilities, but machines can explore many more good moves than humans
- D) Only intuition is needed for chess

► Answer

C) Neither humans nor machines can consider all possibilities, but machines can explore many more good moves than humans.

Explanation: The document states that the number of possible sequences in chess is enormous, that neither human nor machines can determine the best moves by considering all possibilities, but that machines can work out many more good moves than humans. This illustrates filtering and limited processing capacity.

H2. Complete (paragraph)

Explain how the “shaded objects” illusion is used in the document to illustrate a limitation of perception. What assumption does the visual system make, and what is the consequence?

► Answer

The document describes an illusion in which shaded objects are perceived as concave or convex. The visual system is said to assume that the light source is from above. When shading is altered to imply a different light source, the mind is fooled into perceiving different lighting, so some objects appear concave and others convex even when the physical stimulus is ambiguous. This shows that perception is not a direct “copy” of the world but depends on built-in assumptions that can produce errors under certain conditions.

Explanation: This ties the illusion to the document's point that intuition (e.g., naive realism) can mislead and that perception involves assumptions and inference.

H3. MCQ

The document suggests that a central theme in memory research is:

- A) To prove that memory is unlimited
- B) To discover how memory is organized to provide useful information when needed
- C) To show that only recent events are remembered
- D) To replace memory with computers

► **Answer**

- B)** To discover how memory is organized to provide useful information when needed.

Explanation: The document states that a central theme in memory research is to discover how memory is organized to provide useful information when needed, given that determining relevance is hard and doing it quickly is even harder.

H4. Complete (paragraph)

Compare the cognitive approach with behaviourism as presented in the document. What did behaviourism focus on and what did it ignore? How does the cognitive approach differ?

► **Answer**

Behaviourism treated psychology as the study of behaviour, with the goal of prediction and control. It took the reflex as the basic unit of behaviour and emphasized reinforcement and patterns of behaviour. It largely ignored thought and consciousness. The cognitive approach, by contrast, explains human behaviour as a set of information-processing (scientific) processes: behaviour is a series of responses to external stimuli and is controlled by thought processes, not (only) genetic or reflexive factors. So the cognitive approach explicitly brings back mental processes (thought, representation) as central to explaining behaviour.

Explanation: The document contrasts behaviourism's focus on behaviour and reflexes (and its neglect of consciousness) with the cognitive approach's emphasis on thought processes and responses to stimuli.

H5. MCQ

Why might “experience” fail to provide relevant information or even provide misinformation in reasoning about others’ behaviour?

- A) Experience is always wrong
- B) Without definitive information, attributions cannot be logically justified in almost all cases
- C) People never use experience
- D) Only experiments are valid

► **Answer**

- B)** Without definitive information, attributions cannot be logically justified in almost all cases.

Explanation: The document states that without definitive information, our attributions cannot be logically justified in almost all cases, and hence experience might fail to provide relevant information and might even provide misinformation. So experience is limited and can mislead when we lack enough evidence.

H6. Structural (short essay)

State one assumption of cognitive psychology about mental processes (as in the document), and briefly explain how the human information processing model reflects it.

► **Answer**

Assumption: Internal mental processes can be identified and described in terms of rules or algorithms in information processing models.

Reflection in the model: The human information processing model treats the mind as a system that receives inputs, stores and retrieves information, and produces outputs—i.e., as a process that can be broken down into stages and described with rules or algorithms (e.g., encode → store → retrieve → use). This aligns with the assumption that mental processes have a structure that can be studied scientifically.

Explanation: The document lists these assumptions and describes the model as viewing people as storing, retrieving, and using information (input–output, rule/algorithm-friendly).

H7. MCQ

In the rat-and-illness example, the document uses it to illustrate that:

- A) Rats have no memory
- B) Humans and organisms have biases and expectations that help them cope with ambiguous possibilities; these biases are often correct but can be wrong
- C) Only taste causes illness
- D) Laboratory research is always wrong

► **Answer**

B) Humans and organisms have biases and expectations that help them cope with ambiguous possibilities; these biases are often correct but can be wrong.

Explanation: The document presents the rat example (associating illness with the taste/smell of food rather than the cat or noise) to show that organisms have biases that resolve ambiguity (e.g., in learning and causal attribution). It then states that many times these biases are correct, and other times they are not.

Answer key (quick reference)

ID	Answer
E1	B
E2	Computers
E3	B
E4	Empiricism (observation)
E5	B
N1	B

ID	Answer
N2	(See explanation: under-representation + rabbit example)
N3	B
N4	Sensation, perception, attention, memory, language, reasoning, problem solving, decision making (any 3)
N5	B
N6	(See explanation: empiricism + observation/experimentation)
N7	C
N8	Goal: structure of consciousness; Problem: unconscious processes / failed to reveal structure
H1	C
H2	(See explanation: light-from-above assumption, concave/convex illusion)
H3	B
H4	(See explanation: behaviourism vs cognitive approach)
H5	B
H6	(See explanation: rules/algorithms + HIP model)
H7	B