# CAT 1

## Question1

1. Highly Organized *Case study: Googles knowledge graph* It is a knowledge base used by Google Search to enhance its search results with semantic-search information gathered from a wide variety of sources. The knowledge base is structured in a way that allows rapid retrieval of information based on user queries whereby it organizes information into entities and their relationships making it easier for users to find relevant information quickly.
2. Analogical and Propositional Representation

*Case study: Medical diagnosis system*

medical knowledge is represented in a structured format incorporating both analogical patterns based on similarities between cases and propositional logic based on explicit rules and relationships. For example, consider a system designed to diagnose diseases based on symptoms reported by patients. This system may utilize analogical representation by comparing the symptoms reported by a patient to those of known medical cases stored in its database. Additionally, it may incorporate propositional representation by applying logical rules to infer potential diagnoses based on the presence or absence of specific symptoms, risk factors and medical history.

## Question 2

1. Gestalt Theory

*Case study: Logo design*

The theory emphasizes that humans perceive objects as organized wholes, rather than the sum of their individual parts.

This theory is often applied in logo design to create visually appealing and memorable designs.

1. Depth Perception Theory

*Case study: virtual reality technology*

The theory explains we perceive depth and distance in a visual scene.

Combinations of visual cues and depth perception allows users to feel immersed in a virtual environment.

1. Bottom-Up Processing

*Case Study: Facial Recognition Software*

It suggests that perception begins with the analysis of individual sensory stimuli and then integrates them into a coherent whole.

Facial recognition software utilizes bottom-up processing to identify faces in images or videos by analysing the features of individual pixels and their spatial relationships, detecting patterns that resemble human facial features and analyzing these low-level visual cues, the software can accurately recognize and identify faces within complex visual scenes.

## Question 3

**Physical factors**

1. **Input devices.**

The type and design of input devices can significantly impact how users interact with computer systems.

Touchscreen interfaces are intuitive for tasks like tapping and swiping on mobile devices, while ergonomic keyboards may reduce physical strain during prolonged typing sessions.

1. Output devices.

They influence users' perception and interpretation of information presented by computer systems. High-resolution displays and clear audio output enhance user engagement and comprehension.

1. Accessibility

Considerations for users with disabilities play a crucial role in designing inclusive computer systems.

Accessibility features (including screen readers, captioning tools, and adaptive input devices) ensure equal access to technology for all users.

**Psychological factors**

1. Cognitive loads

This refers to the mental effort required to process information and perform tasks, influencing their interaction with computer systems.

Designing interfaces with clear navigation, concise instructions and appropriate feedback helps manage cognitive load and enhances user efficiency.

1. User Experience (UX)

The overall experience a person has when using a computer system can greatly impact their interaction. Factors like ease of use, efficiency, and satisfaction play a role in how people perceive and interact with a system.

1. User Expectations

People often have preconceived notions about how computer systems should work based on their past experiences. Aligning a system's design with user expectations can improve interaction.

## Question 4

## Question 5