**1. Using an example, describe the principles of affordance and visibility. (4 marks)**

**Affordance**: Affordance refers to the relationship between an object and an individual, and the possibilities for action that the object affords. For example, a door handle affords the action of pulling or pushing, making it clear to the user how to interact with the door.

**Visibility**: Visibility refers to the degree to which features of a system or design are visible and easily identifiable. For example, the buttons on a microwave oven should be clearly visible and labeled, indicating their function to the user.

**2. There are large number of factors which should be considered in analysis and design of a system using HCI design principles. Many of these factors interact with each other making analysis even more complex. State any of these three factors.**

Three factors that interact with each other in the analysis and design of a system using HCI design principles are:

1. User characteristics (e.g., age, experience, physical abilities)
2. Task requirements (e.g., frequency, complexity, criticality)
3. Environmental factors (e.g., lighting, noise, distractions)

**3. List any four Jacob Nielsen visibility Heuristic principle of commercial websites. (4 marks)**

1. Visibility of system status
2. Match between system and the real world
3. User control and freedom
4. Consistency and standards

**4. Describe the participatory design approach in human computer interface. (3 marks)**

Participatory design is an approach to user interface design that actively involves the end-users in the design process. It emphasizes the collaboration between designers and users, with the goal of creating interfaces that better meet the users' needs and expectations. This approach encourages users to actively participate in the design process, providing feedback, ideas, and insights that can help shape the final product.

**5. The focal point of Gestalt theory is the idea of grouping of how we intend to interpret visual field or problem in a certain**

(a) Explain briefly the main 4 factors that determine grouping. (4 marks)

The main factors that determine grouping in Gestalt theory are:

1. Proximity: Objects that are close together are perceived as belonging to the same group.
2. Similarity: Objects that share similar characteristics, such as color, shape, or size, are perceived as belonging to the same group.
3. Continuity: Objects that form a continuous line or pattern are perceived as belonging to the same group.
4. Closure: Objects that form a closed shape or pattern are perceived as belonging to the same group.

(b) List and explain the stages of knowledge analysis. (5 marks)

The stages of knowledge analysis are:

1. Identification: Identifying the relevant knowledge and information needed to solve a problem or complete a task.
2. Acquisition: Gathering and collecting the necessary knowledge and information from various sources.
3. Organization: Structuring and categorizing the acquired knowledge and information in a meaningful way.
4. Representation: Representing the knowledge and information in a format that can be easily understood and used, such as diagrams, models, or databases.
5. Application: Applying the organized and represented knowledge and information to solve problems or complete tasks.

(c) Describe the

(d) Describe by use of a diagram the extended human information process. (6 marks)

The extended human information process can be represented using a diagram that includes the following stages:

1. Perception: The process of receiving and interpreting sensory information from the environment.
2. Attention: The selective focus on specific information or stimuli.
3. Memory: The storage and retrieval of information.
4. Cognition: The mental processes involved in thinking, problem-solving, and decision-making.
5. Action: The physical or verbal response to the information processed.
6. Feedback: The evaluation and monitoring of the results of the action, which can then be used to refine or modify the process.