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Reference Short Questions for Mid TERM EXAMS
CS408 - HUMAN COMPUTER INTERACTION

Q.No.1 Define Attention   (Page#76)

Answer:-
Attention is the process of selecting things to concentrate on, at a point in time, from the range of possibilities available

Q.No.2 Define Recognition

Answer:-
Recognition refers to act of recognizing or the state of being recognized, identification of something as having been previously seen, heard, and known as.

Reference: http://dictionary.reference.com/browse/recognition

Q.No.3 What is the difference between Tertiary and Analogous colors?   (Page#64)

Answer:-
These are the colors formed by mixing one primary and one secondary color.
TERTIARY COLORS
Yellow-orange, red-orange, red-purple, blue-purple, blue-green and yellow-green.
Analogous colors are any three colors, which are side by side on a 12 part color wheel, Such as yellow-green, yellow, and yellow-orange. Usually one of the three colors Predominates

Q.No.4   Comment to justify the following statement.   (Page#64,115)
"Most users are neither beginners nor experts; instead they are intermediates"
What are the pointing devices? Explain trackball as pointing device?

Answer:-
According to the statement pointing devices will help for the beginner user because we can use to deal easily with requirement. Pointing devices are input devices that can be used to specify a point or path in a one-, Two- or three-dimensional space and, like keyboards, their characteristics have to be considering in relation to design needs.
Pointing devices are as follow:
• Mouse
• Touch pad
• Track ball
• Joystick
• Touch screen
• Eye gaze
Trackballs is other alternatives. The user is presented with a cursor on the screen that is controlled by the input device.

Q.No.5   Consider the vertical scroll bar of a web browser or word processor. For each of Norman's five principles below, give one way that the scrollbar uses the principle for effective design. Describe the interface model of the scroll bar in one sentence.   (Page#104-108)

Affordance:
Constraints:
Mapping:
Visibility:
Feedback:

Answer:-
As consider the vertical scroll bar of a web browser or word processor. According to the Norman's principles we design the scrollbar uses the principle for effective design that users should see and do when carrying out their tasks using an interactive product. Here we briefly describe which is given:-

Affordance is a term used to refer to an attribute of an object that allows people to know How to use it.

For example, a mouse button invites pushing by the way it is physically constrained in its plastic shell. At a very simple level, to afford means "to give a clue." When the affordances of a physical object are perceptually obvious it is easy to know how to interact with it

Constraints:

The design concept of constraining refers to determining ways of restricting the kind of user interaction that can take place at a given moment. There are various ways this can be achieved. An Interface design in graphical user interfaces is to deactivate certain menu options by shading them, thereby restricting the user to only actions permissible at that stage of the activity.

- **Physical constraints**
  Physical constraints refer to the way physical objects restrict the movement of things.

- **Logical constraints**
  Logical constraints rely on people's understanding of the way the world works

- **Culture constraints**
  Culture constraints rely on learned conventions, like the use of red for warning, the use of certain kinds of signals for danger, and the use of the smiley face to represent happy emotions

Mapping:

This refers to the relationship between controls and their effects in the world. Nearly all artifacts need some kind of mapping between controls and effects, whether it is a flashlight, car, power plant, or cockpit. An example of a good mapping between controls is effect is the up and down arrows used to represent the up and down movement of the cursor, respectively, on a computer keyboard.

Visibility:

The more visible functions are, the more likely users will be able to know what to do next. In contrast, when functions are "out of sight," it makes them more difficult to fid and knows how to use. Norman describes the controls of a car to emphasize this point. The controls for different operations are clearly visible (e.g., indicator, headlights, horn, hazard warning lights), indicating what can be done.

Feedback

Related to the concept of visibility is feedback. This is best illustrated by an analogy to what everyday life would be like without it. Imagine trying to play a guitar, slice bread using knife, or write a pen if none of the actions produced any effect for several seconds. There would be an unbearable delay before the music was produced, the bread was cut, or the words appeared on the paper, making it almost impossible for the person to continue with the next strum, saw, or stroke. Feedback is about sending back information about what action has been done and what has been accomplished, allowing the person to continue with the activity. Various kinds of feedback are available for interaction design—audio, tactile, verbal, visual, and combinations of these.

Q.No.6   As a product designer what you need to do for constructing personas? Write all steps: (Page#14)

Answer:-
Being a product designer we use to do constructing personas steps:-
 1. Revisit the persona hypothesis
 2. Map interview subjects to behavioral variables
 3. Identify significant behavior patterns
 4. Synthesize characteristics and relevant goals.
 5. Check for completeness.
 6. Develop narratives
 7. Designate persona types

Q.No.7   You are product designer. You are making plan to introduce a shampoo. Just one type of shampoo for every user! Is this plan good or not? Answer yes or no, and support your answer.

Answer:-

No! it is not a good plan and being product designer, we are making plan to introduce a shampoo for every one, It also includes performance things like how well it cleans, what the foam looks and feels like and how irritating it will be. Often consumer testing is employed to help with determining these characteristics.

The basic ingredient in a shampoo formulation is as follows for the betterment of gathering market.

Water: It helps dilute the detergents, makes the formula easier to spread and reduces irritation. It also keeps the formula inexpensive

Detergents: The next most abundant ingredients in a shampoo. These surfactants are the primary cleansing ingredients and make up about 10% − 15% of the formula.

Foam Boosters: Other types of surfactants are added to shampoos to improve the foaming characteristics of the formulation. These compounds usually botanies or alkanolamides, help increase the amount of foam and the size of the bubbles.

Thickeners: To some extent the secondary detergents make shampoo formulations thicker. Simply adding salt can also increase shampoo thickness.

Conditioning agents: Some materials are added to shampoos to offset the harsh effect of surfactants. Typical conditioning agents include polymers, silicones, and quaternary agents

Preservatives: Any formula that contains water holds the potential to be contaminated by bacteria and other microbes.

According the statement user should change occasionally if we don't get the build up of just one shampoo to another variety of shampoo

Reference: http://chemistscorner.com/how-shampoos-are-made/

Q.No.8 Norman model focus on which principal of HCI? (Page#63)

Answer:-
MENTAL MODEL

Q.No.9 briefly explains physical constraints?   (Page#106)

Answer:-
Physical constraints refer to the way physical objects restrict the movement of things.
For example, the way external disk can be placed into a disk drive is physically constrained by its shape and size, so that it can be inserted in only one way. Likewise, keys on a pad can usually be pressed in only one way.

Q.No.10   What user-centered approach means?   (Page#172)

Answer:-

The user-centered approach means that the real users and their goals, not just technology, should be the driving force behind development of a product.

Q.No.11   usefulness of metaphor

Answer:-

There are several dimensions along which the usefulness of a metaphor can be evaluated. A good metaphor, for example, might help the developers understand and agree on the functionality of the system they are designing.

Reference: http://reports-archive.adm.cs.cmu.edu/anon/isri/CMU-ISRI-03-100.pdf

Qno.12   Which includes in research phase of goal-directed design model?   (Page 157)

Answer:-

Goal-directed approach to design is the premise that product must balance business and engineering concerns with user concerns. You begin by asking, "What do people desire?" then you ask, "of the things people desire, what will sustain a business." And finally you ask, "Of the things people desire, that will also sustain the business, what can we build?" a common trap is to focus on technology while losing the sight of viability and desirability.

Qno.13   How customer goal are different from corporate goal with respect to Non User Goal?   (Page#193)

Answer:-

Customer goals, corporate goals, and technical goals are all non-user goals. Typically, these goals must be acknowledged and considered, but they do not form the basis for the design direction. Although these goals need to be addressed, they must not be addressed at the expense of the use

Q.No.14   Why dialog boxes are used in WIMP explain it with an example   (Page#131)

Answer:-

There are also many additional interaction objects and techniques commonly used in WIMP interfaces, some designed for specific purposes and others more general. Our discussion will cover the toolbars, menus, buttons, palettes and dialog boxes. Together, these elements of the WIMP interfaces are called widgets, and they comprise the toolkit for interaction between user and system.

Example

Normal pointer cursor maybe an arrow, but change to change to cross-hairs when drawing a line. Cursors are also used to tell the user about system activity.

Q.No.15   How to construct persona (step)

Answer:-

1. Define the problem
2. Identify the people
3. Get into the field

Reference: http://chopsticker.com/2007/09/13/a-10-step-summary-of-how-to-create-personas/

Q.No.16 How can you improve a website interface of a university through GUI   (Page#145)

Answer:-

As the university matured, In the move from command-line to graphical user interface, design and usability also became involved in the process, though often only at the end, and often only affecting visual presentation. Today common practice includes simultaneous coding and design followed by bug and user testing and then revision.

University improve the website interface through GUI which is given

- Padded block links
- Typesetting buttons
- Using contrast to manage focus
- Using color to manage attention
- Using color to manage attention
- Letter spacing
- Auto-focus on input
- Hover controls

http://uxdesign.smashingmagazine.com/2008/12/15/10-useful-techniques-to-improve-your-user-interface-designs/

Q.No.17   Why do you prefer command line interface?   (Page#246)

Answer:-
The command-line interface forces an even more expensive excise budget on the user: He must first memorize the commands. Also, he cannot easily configure his screen to his own personal requirements. The excise of the command-line interface becomes smaller only after the user has invested significant time and effort in learning it.

Q.No.18   Where do you use check boxes and radio buttons?   (Page#133)

Answer:-
Radio buttons:
Buttons can also be used to toggle between two states, displaying status information such as whether the current font is italicized or not in a word processor or selecting options on a web form.

Check boxes:
It a set of options is not mutually exclusive, such as font characteristics like bold, italic and underlining, and then a set of toggle buttons can be used to indicate the on/off status of the options.

Q.No.19   How do use modeling phase of software development while selecting persona.   (Page#187)

Answer:-
The persona is a powerful, multipurpose design tool that helps overcome several problems that currently plague the development of digital products. Personas help designers"

• Determine what a product should do and how it should behave. Persona goals and tasks provide the basis for the design effort.

• Communicate with stakeholders, developers, and other designers. Personas provide a common language for discussing design decisions, and also help keep the design centered on users at every step in the process.

• Build consensus and commitment to the design. With a common language comes a common understanding. Personas reduce the need for elaborate diagrammatic models because, as it is found, it is easier to understand the many nuances of user behavior through the narrative structures that personas employ.

• Measure the design's effectiveness. Design choices can be tested on a persona in the same way that they can be show to a real user during the formative process. Although this doesn't replace the need to test on real users. It provides a powerful reality check tool for designers trying to solve design problems. This allows design iteration to occur rapidly and inexpensively at the whiteboard, and it results in a far stronger design baseline when the time comes to test with real users.

• Contribute to other product-related efforts such as marketing and sales plan. It has been seen that clients repurpose personas across their organization, informing marketing campaigns, organizational structure, and other strategic planning activities. Business units outside of product development desire sophisticated knowledge of a product's users and typically view personas with great interest.

Q.No.20 Describe Norman's interaction framework with reference to the action and evaluation cycle. (Page#122)

Answer:-
The interaction framework breaks the system into four main components, as per Donald Norman's Model of interaction. In which user chooses a goal, formulate a plan of action, which is then executed at the computer interface. When the plan or part of the plan has been executed, the user observes the computer interface to evaluate the result of the execution plan, and to determine further actions

Gulf of execution and evaluation
Norman also describes the two gulfs, which represent the problems that are caused by some interfaces to their users.

Gulf of execution
Gulf of execution is the difference between the user's formulation of the actions to reach the goal and the actions allowed by the system. If the action allowed by the system correspond to those intended by the user, the interaction will effective. The interface should therefore aim to reduce this gulf of execution.

Gulf of evaluation
The gulf of evaluation is the distance between the physical presentation of the system state and the expectation of the user. If the user can readily evaluate the presentation in terms of his goal, the gulf of evaluation is small. The more effort that is required on the part of the user to interpret the presentation, the less effective the interaction

Q.No.21 **what is the gulf of evaluation and gulf of execution? Your answer must also be illustrated with a diagram** **(Page#122)**

Answer:-

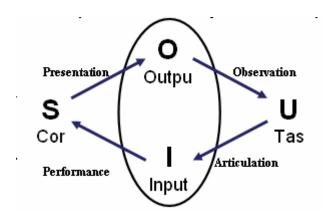**Gulf of execution and evaluation**
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Q.No.22 **describes the design principles given below with some examples and explains their implications for interface design.** ◆**Visibility** ◆**Affordance** **(Page#104-108)**

Answer:-

Visibility:
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difficult to fid and knows how to use. Norman describes the controls of a car to emphasize this point. The controls for different operations are clearly visible (e.g., indicator, headlights, horn, hazard warning lights), indicating what can be done.

Affordance is a term used to refer to an attribute of an object that allows people to know How to use it.
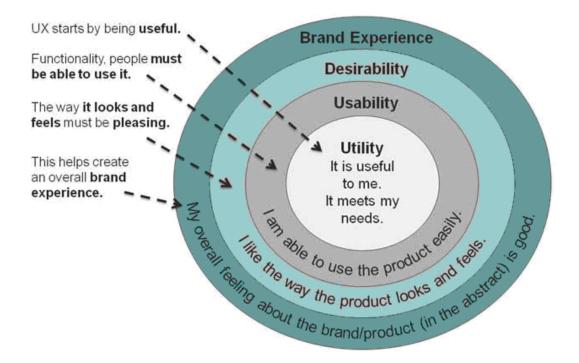
For example, a mouse button invites pushing by the way it is physically constrained in its plastic shell. At a very simple level, to afford means "to give a clue." When the affordances of a physical object are perceptually obvious it is easy to know how to interact with it

Q.No.23   Define usability and user experience. Draw a conceptual diagram that illustrates the relationship between an interface, usability, user experience and the interaction between humans and computers. Provide a brief explanation of this diagram with examples.

Usability User Experience

Answer:-

Usability is a narrower concept than user experience since it only focuses on goal achievement when using a web site. By contrast, user experience is a "consequence of the presentation, functionality, system performance, interactive behaviour, and assistive capabilities of the interactive system". This essentially means that user experience includes aspects such as human factors, design, ergonomics, HCI, accessibility, marketing as well as usability. An alternative way to look at this relationship is by subdividing user experience into utility, usability, desirability and brand experience. This is best illustrated by representing these sub divisions as concentric circles where the innermost circle is the most basic aspect of user experience as **shown in the diagram below:**

Example the credibility of a site that provides health advice will have a massive influence on its overall effectiveness. You might be able to find the information you want quickly. But if you don't trust the source as being credible then the website is not effective for its purpose. This is bad usability

Reference: http://usabilitygeek.com/the-difference-between-usability-and-user-experience/

Q.No.24   Suppose you are a product designer and have to create a product that satisfy broad audience but some "Self-referential design". A user-Centered design issue arises during product development. What are they and how persona resolves them?   (Page#186,187)

Answer:-
Being a product designer keeping in the mind before we going to create a product that satisfy board audience in self referential design which are given :

Personas

To create a product that must satisfy a broad audience of users, logic tells you to make it as broad in its functionality as possible to accommodate the most people. This logic, however, is flawed. The best way to successfully accommodate a variety of users is to design for specific types of individuals with specific needs.

Personas also resolve three User-Centered design issues that arise during product development:

- The elastic user
- Self-referential design
- Design edge cases

The elastic user
Although satisfying the user is goal, the term user causes trouble when applied to specific design problems and contexts. Its imprecision makes it unusable as a design tool—every person on a product team has his own conceptions of the user and what the user needs.

Self-referential design
Self-referential design occurs when designers or developers project their own goals, motivations, skills, and mental models onto a product's design. Most "cool" product designs fall into this category: the audience doesn't extend beyond people like the designer, which is fine for a narrow range of products and completely inappropriate for most others. Similarly, programmers apply self-referential design when they create implementation-model products. They understand perfectly how it works and are comfortable with such products. Few non-programmers would concur.

Design edge cases
Another syndrome that personas help prevent is designing for edge cases—those situations that might possibly happen, but usually won't for the target personas. Naturally, edge cases must be programmed for, but they should never be the design focus. Personas provide a reality check for the design.

Q.No.25   Give the two real world example of QWERTY keyboard.

Answer:-

ar keyboard = qwertyHancock('keyboard', 600, 150, 3,
'A3', 'white', 'black', '#f3e939')

Q.No.26 Being a researcher, identify in which phases of ethnographic interviews you Explore, Identify patterns of use and Confirm patterns of use? Briefly explain them.   (Page#178)

Answer:-

Being researcher ethnography is term borrowed form anthropology, meaning the systematic and immersive study of human cultures. In anthropology, ethnographic researchers spend years living immersed in the cultures they study and record. Ethnographic interviews take the spirit of this type of research and apply it on a micro level. Rather than trying to understand behaviors and social ritual of an entire culture, the goal is understand the behaviors and rituals of people interacting with individual products.

- Identifying candidates
- The personal hypothesis

Q.No.27   As a HCI specialist, if we design a system with good usability and good user experience, what will be the result?   (Page#21)

Answer:-

As a HCI specialist, we design a system with good usability and good user experience we may use basic fundamental difference between the approaches taken by software engineers and human-computer interaction specialists. Human-computer interface specialists are user-centered and software engineers are system-centered. Software engineering methodologies are good at modeling certain aspects of the problem domain. Formal methods have been developed to represent data, architectural, and procedural aspects of a software system. Software engineering approaches deal with managerial and financial issues well. Software engineering methodologies are useful for specifying and building the functional aspects of a software system. Human-computer interfaces emphasize developing a deep understanding of user characteristics and a clear awareness of the tasks a user must perform.

Q.No.28 Being a researcher, what is the need of literature review in research in your point of view? Give brief answer.   (Page#171)

Answer:-
In parallel with stakeholder interviews, the design team should review any literature pertaining to the product or its domain. This can and should include product marketing plans, market research, technology specifications and white papers, business and technical journal articles in the domain, competitive studies. Web searches for related and competing products and news, usability study results and metrics, and customer support data such as call center statistics.

Q.No.29   List four kinds of translated input events.

Answer:-
1. Mouse click or double-click
2. Mouse entered or exited component
3. Keyboard focus gained or lost
4. Character typed

Reference: http://groups.csail.mit.edu/graphics/classes/6.831/lectures/L7.pdf

Q.No.30 What is a semantic network?   (Page#82)

Answer:-
Semantic memory is structured in some way to allow access to information, representation of relationships between pieces of information, and inference. One model for the way in which semantic memory is structured is as a network. Items are associated to each other in classes, and may inherit attributes from parent classes. This model is known as a semantic network

Q.No.31 if you are spouse to be a software engineer then what u assume about the life cycle of the models?   (Page#149)

Answer:-
The traditional view of software engineering characterizes the development of software as Consisting of number of processes and representations that are produced in an essentially linear fashion. This is often called waterfall model, because the output of each process 'tumbles down' neatly to the next activity.

Projects involving only a few experienced developers, a simple process would probably be adequate. However, for larger systems involving tens or hundreds of developers with hundreds or thousands of users, a simple process just isn't enough to provide the management structure and discipline necessary to engineer a usable product. So something is needed that will provide more formality and more discipline. Note that this does not mean that innovation is lost or that creativity is stifled. It just means that structured process is used to provide a more stable framework for creativity.

Q.No.32   Why the user are blamed themselves for guilty the insomnious or faults?   (Page#97)

Answer:-
User can blamed badly designed objects—constructed so as to lead to misunderstanding—faulty mental models, and poor feedback, no wonder people feel guilty when they have trouble using objects, especially when they perceive that nobody else is having the same problems. The problem is that once failure starts, it soon generalizes by self-blame to all technology. The vicious cycle starts: if you fail at something, you think it is your fault. Therefore you think you can't do that task. As a result next time you have to do the task, you believe you can't so you don't even try. The result is that you can't, just as you thought. You are trapped in a self-fulfilling prophecy.

Q.No.33   As a product designer what you need to do for constructing personas? Write all steps   (Page#14)

Answer:-
Being a product designer we use to do constructing personas steps:-
 1. Revisit the persona hypothesis
2. Map interview subjects to behavioral variables
3. Identify significant behavior patterns
4. Synthesize characteristics and relevant goals.
5. Check for completeness.
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7. Designate persona types