

Total No. of Questions : 10]

SEAT No. :

P1765

[Total No. of Pages : 4

[5460] - 595

T.E. (IT)

HUMAN COMPUTER INTERACTION
(2015 Pattern)

Time : 2½ Hours]

[Max. Marks :70

Instructions to the candidates:

- 1) *Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8, Q.9 or Q.10.*
- 2) *Figures to the right indicate full marks.*
- 3) *Neat diagrams must be drawn wherever necessary.*
- 4) *Assume suitable data if necessary.*

Q1) a) Express your opinion - "A design should be User-Centric". **[5]**

b) Explain any 2 of the following HCI principles in brief. **[5]**

- i) Know thy user
- ii) Understand the task
- iii) Reduce Memory Load
- iv) Strive for Consistency
- v) Prevent Errors/Reversal of Action

OR

Q2) a) Human memory plays an important role in how well people deal with an interface. Describe differences between STM and LTM. **[5]**

b) What are differences between menu-bar & a tool-bar? Many times users face problems in understanding/learning tool-bar icons. How to resolve this issue? **[5]**

Q3) a) How does making a call differs when using **[5]**

- i) Cell phone
- ii) Smart phone?

Consider the kinds of user, type of activity and context of use

P.T.O.

- b) When systems are not designed to match the way people actually work, then users end up having to do 'work arounds'. Discuss. [5]

OR

- Q4)** a) What influence does the social environment in which you work have on your interaction with the computer? What effect does the organization (commercial or academic) to which you belong have on the interaction? [5]
- b) There are four main translations involved in the interaction framework viz. articulation, performance, presentation and observation. [5]
- i) The compact disk player has a button for power off. However its remote control does not have a power off button.
- ii) It is difficult in a command line interface to determine the result of copying and moving files in a hierarchical file system.
- iii) User is unable to figure out which switches from the bank to turn on to lit the front portion of a class room.
- iv) The user is unable to know whether the voice recorder is in playing or recording state.

Specify in each of the above four cases which of the interaction framework translations are ineffective.

- Q5)** a) Explain Hill climbing approach with prototyping? [8]
- b) What is design? What is the golden rule of design? Illustrate the process of interaction design. [8]

OR

- Q6)** a) What is a prototype? Explain different types of rapid prototyping techniques. [8]
- b) A scenario is an idealized but detailed description of a specific instance of human-computer interaction (HCI). Scenarios specify how users carry out their tasks in a specified context. Write scenarios for purchasing an airline ticket.
- Note** - Generate scenarios to cover a wide range of situations, not just the most common ones. Include problem situations that will test the system concept, not just straightforward scenarios. [8]

- Q7)** a) What is the definition of usability as per ISO 9241 standard? Effective applications are both consistent within themselves and consistent with one another. Discuss this in context of Microsoft Office products. [8]
- b) Explain Nielsen's ten heuristics. [8]

OR

- Q8)** a) The cognitive walk-through is a formalized way of imagining people's thoughts and actions when they use an interface for the first time. During a cognitive walk-through the evaluator needs to ask four questions as below [8]
- i) Is the effect of the action the same as the user's goal at that point?
 - ii) Will users see that the action is available?
 - iii) Once users have found the correct action, will they know it is the one they need?
 - iv) After the action is taken, will users understand the feedback they get?

Given below is an action sequence for creating a Customized voicemail message on an iPhone:

- 1) Tap Voicemail.
- 2) Tap Greeting.
- 3) Tap Custom.
- 4) Tap Record and speak your greeting.
- 5) When you finish, tap Stop.
- 6) To listen to your greeting, tap Play.
- 7) To re-record, repeat steps 4 and 5.
- 8) Tap Save.

Imagine an iPhone interface and create a report of the cognitive walk-through for the above mentioned task in context with the review questions.

b) Explain the following terms [8]

- i) Predictability
- ii) Synthesizability
- iii) Familiarity
- iv) Consistency

Q9) a) KLM (key-stroke-level) model predicts expert error-free task completion time (human performance) with interactive computing systems. Total predicted time for a task is given by the equation.

$$t_{\text{EXECUTE}} = t_K + t_P + t_H + t_D + t_M + t_R$$

What does each of the above timing represent?

Develop a KLM model and predict time for the completion of the task **“Change font and style for the word “KLM” to bold, Arial”** using mouse only. [9]

b) Discuss applications meant for computer-mediated communication. [9]

OR

Q10) a) Draw a state chart diagram of a machine that dispenses bottles on inserting coins. [9]

b) Hierarchical task analysis (HTA) is used to describe the interactions between a user and software system. Draw and explain HTA to online bus reservation system. [9]

