

Total No. of Questions : 10]

SEAT No. :

P2516

[Total No. of Pages : 3

[5253]-546

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) Neat diagrams must be drawn wherever necessary.
- 3) Figures to the right indicate full marks.
- 4) Assume suitable data, if necessary.

- Q1)** a) A software for handling meetings (diary or calendar) electronically needs to be developed. Identify any frequent task that will be performed on this system and specify its usability specifications assuming the new system will be a replacement of the old paper-based system. What assumptions you need to make about its user? [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) Design and explain an experiment to investigate the decay aspect of human short-term memory. [5]
- b) A semantic network is used in modeling the organization of knowledge in memory. Produce a semantic network to train memory for gaining knowledge about all living things. [5]

P.T.O.

- 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

- b) Negative affect can make it harder to do even easy tasks; positive affect can make it easier to do difficult tasks. What are implications of this for interaction design? **[5]**

OR

- Q4) a)** Suggest ideas for an interface which uses the properties of sound effectively? **[5]**
- b) When systems are not designed to match the way people actually work, then users end up having to do 'work arounds'. Discuss. **[5]**

- Q5) a)** What is design? What is the golden rule of design? Illustrate the process of interaction design. **[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]**

OR

- Q6) a)** If the user has perfect knowledge of what they wanted (goal) and how the system worked (task) interaction becomes effective and satisfying. In designing navigation for a website page each screen needs to give the user enough knowledge of what to do to get closer to their goal. Discuss four important questions that drive a webpage navigation design for achieving the above motto. **[8]**
- b) What is a prototype? Explain different types of rapid prototyping techniques. **[8]**

**Q7) a)** What is learnability, flexibility and robustness in context of usability? It has been suggested that consistency could be considered a major category of interactive principles, on the same level as learnability, flexibility and robustness. If this had been the case, discuss the principles that would appear in support of consistency? [8]

b) Explain Nielsen's ten heuristics. [8]

OR

**Q8) a)** Discuss Shneiderman's eight golden rules of interface design with suitable examples. [8]

b) Design an experiment to test whether adding color coding to an interface will improve accuracy. Identify your hypothesis, participant group, dependent and independent variables, experimental design, task and analysis approach. [8]

**Q9) a)** Goals are accomplished by methods consisting of operators which are identified by selection rules. Illustrate this for following goals

i) to delete a sentence in a graphical text editor.

ii) to close window in a graphical text editor. [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) A hierarchical task analysis (HTA) provides an understanding of the tasks users need to perform to achieve certain goal. Perform HTA of the task - to cook food (rice). Illustrate using diagram. [9]

