Unit - V

5 User Models

5.1 Predictive Models & Cognitive Models

Q.1 What do you mean model ? explain its types.

Ans. : • A 'model' in HCI refers to "a representation of the user's interaction behavior under certain assumptions".

- The model represents behavior of average users, not individuals.
- By encompassing information about user behavior, a model helps in alleviating the need for extensive requirement identification process. Once the requirements have been identified, designer 'propose' design(s).
- Models are of two types : Predictive models and Descriptive models

Predictive models :

- These models can "predict" behavior of a user in quantitative terms. An example is the GOMS model which can predict the task completion time of an average user for a given system.
- The predictive engineering models used in HCI are of three types :

1. Formal (system) models
2. Cognitive (user) models
3. Syndetic (hybrid) model

Descriptive models :

- This model provide a basis for understanding, reflecting, and reasoning about certain facts and interactions.

- It provide a conceptual framework that simplifies a, potentially real, system.
- Model are used to inspect an idea or a system and make statements about their probable characteristics.
- These models are used to reflect on a certain subject and it can reveal flaws in the design and style of interaction.
- Examples :

1. Descriptions, statistics, performance measurements
2. Taxonomies, user categories, interaction categories

Q.2 Explain keystroke-level model.

Ans. : • The keystroke-level model (KLM) predicts how long it will take an expert user to accomplish a routine task without errors using an interactive computer system.

- The actions are termed keystroke level if they are at the level of actions like pressing keys, moving the mouse, pressing buttons.
- There is a standard set of operators for use in the KLM, whose execution times have been estimated from experimental data.
- The following is a step-by-step description of how to apply the KLM to estimate the execution time required by a specified interface design :

1. Choose one or more representative task scenarios.
2. Have the design specified to the point that keystroke-level actions can be listed for the specific task scenarios.
3. For each task scenario, figure out the best way to do the task, or the way that you assume users will do it.
4. List the keystroke-level actions and the corresponding physical operators involved in doing the task.
5. If necessary, include operators for when the user must wait for the system to respond

6. Insert mental operators for when user has to stop and think.
7. Look up the standard execution time to each operator.
8. Add up the execution times for the operators.
9. The total of the operator times is the estimated time to complete the task.

- The model decomposes the execution phase into five different physical motor operators, a mental operator and a system response operator :

K : Keystroking, actually striking keys, including shifts and other modifier keys.

B : Pressing a mouse button.

P : Pointing, moving the mouse (or similar device) at a target.

H : Homing, switching the hand between mouse and keyboard.

D : Drawing lines using the mouse.

M : Mentally preparing for a physical action.

R : System response which may be ignored if the user does not have to wait for it, asin copy typing.

Q.3 Explain limitations keystroke-level model.

Ans. : • It measures only one aspect of performance : time, which means execution time and not the time to acquire or learn a task.

- It considers only expert users. Generally, users differ regarding their knowledge and experience of different systems and tasks, motor skills and technical ability.
- It considers only routine unit tasks.
- The method has to be specified step by step.
- The execution of the method has to be error-free.
- The mental operator aggregates different mental operations and therefore cannot model a deeper representation of the user's mental operations. If this is crucial, a GOMS model has to be used.

Q.4 KLM (key - store - level) model predicts expert error - freetask completion time (human performance) with interactive computing systems. Total predicted time for a task is given by the equation.

$$t_{EXECUTIVE} = t_K + t_P + t_H + t_D + t_M + t_R$$

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.

Ans. : • A task is broken into a series of subtasks. Total predicted time is the sum of the subtask times :

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

- Operators :

K → keystroking, P → pointing, H → homing

D → drawing, M → mental prep, R → system response

Task : Change the font and style for word "KLM" to bold, Arial.

- **Operations :**

Mouse Subtasks	**KLM Operators**	t_p(S)
Drag across text to select "KLM"	M P [2.5, 0.5]	0.686
Drag pointer to Bold button and click	M P [13, 1]	0.936
Move pointer to Font drop – down button and click	M P [3.3, 1]	0.588
Move pointer down list to Arial and click	M P [2.2, 1]	0.501
	$\Sigma t_p =$	2.71

- **Prediction :**

$$t_{EXECUTE} = 4 \times t_M + \Sigma t_p = 4 \times 1.35 + 2.71 = 8.11 \text{ seconds}$$

- Operations :

Keyboard Subtasks
Select text
Convert to boldfaoo
Activate Format menu and enter Font sub – menu
Type a ("Arial" appears at top of list)
Select "Arial"

$t_{EXECUTE} = 4 \times t_M + 12 \times t_K = 4 \times 1.35 + 12 \times 0.75 = 14.40$ seconds

Use "typing complex codes" ($t_K = 0.75$ s)

Q.5 Explain Interacting Cognitive Subsystems (ICS) model.

Ans. : • The Interacting Cognitive subsystems model is based on detailed cognitive experimentation which suggests that the human mind works by different subsystems passing information from one to another and copying it in the process.

- In this way, each subsystem has its own memory. Different systems operate with different coding, for instance, verbal, visual, auditory.
- There are higher order systems that translate these coding, and integrate the information.
- The architecture of ICS is built up by the coordinated activity of nine smaller subsystems: five peripheral subsystems are in contact with the physical world and four are central, dealing with mental processes.

- Each subsystem has the same generic structure. A subsystem is described in terms of its typed inputs and outputs along with a memory store for holding typed information
- It has transformation functions for processing the input and producing the output and permanently stored information.
- Each of the nine subsystems is specialized for handling some aspect of external or internal processing.
- An example of a central subsystem is one for the processing of propositional information, capturing the attributes and identities of entities and their relationships with each other.

Q.6 Compare KLM and GOMS model.

Ans. :

KLM	GOMS
Model creation is Quick and easy	Time consuming to create model
KLM not used any selection rules	GOMS uses selection rules
No methods	Methods are informal programs
In KLM, no multiple goals it support	GOMS support goals and subgoals
Only operators on keystroke-level	It is very flexible

Q.7 Write short note on linguistics models.

Ans. : • Linguistic models represent the user-system grammar. Understanding the user's behaviour and cognitive difficulty based on analysis of language between user and system.

- Backus - Naur Form (BNF) and Task - Action Grammar (TAG) are used to represent this model.

Backus-Naur Form

- BNF can be used to define the syntax of a language.
- It is based on techniques developed for use with natural languages, but was specifically designed for use with computing languages.

- BNF defines a language in terms of terminal symbols, syntactic constructs and productions.
- Terminal symbols are the elementary symbols of the language, such as words and punctuation marks.
- In the case of computing languages, these may be variable -names, operators, reserved words, etc.
- Syntactic constructs (or non-terminal symbols) are phrases, sentences, etc.
- In the case of computing languages, these may be conditions, statements, programs, etc.

TAG

- Task - Action Grammar (TAG) attempts to deal with some of these problems by including elements such as parametrized grammar rules to emphasize consistency and encoding the user's world knowledge.
- In BNF, three UNIX commands would be described as :

copy ::= cp + filename + filename | cp + filenames + directory

move ::= mv + filename + filename | mv + filenames + directory

link ::= ln + filename + filename | ln + filenames + directory

- No BNF measure could distinguish between this and a less consistent grammar in which

link ::= ln + filename + filename | ln + directory + filenames

- Consistency of argument order made explicit using a parameter or semantic feature for file operations
- Feature possible values : Op = copy; move; link
- Rules

file-op[Op] ::= command[Op] + filename + filename | command[Op] + filenames + directory

command[Op = copy] ::= cp

command[Op = move] ::= mv

command[Op = link] ::= ln

5.2 Interaction with Natural Languages

Q.8 Write short note on interaction with natural language.

Ans. : • Natural Language Interaction (NLI) is the convergence of a diverse set of natural language principles that enables people to interact with any connected device or service in a humanlike way.

- Language is ambiguous at a number of levels. First, the syntax, or structure, of a phrase may not be clear. If we are given the sentence :

  The boy hit the dog with the stick

- We cannot be sure whether the boy is using the stick to hit the dog or whether the dog is holding the stick when it is hit.
- Even if a sentence's structure is clear, we may find ambiguity in the meaning of the words used.
- Natural Language Interaction technology takes natural language processing (NLP) and Natural Language Understanding (NLU) to the next level.
- An analysis of "Carry Me" Airlines conversational data, a fictitious name for an airline, but based on real data, showed that questions about baggage are one of the more frequent topics, however, when we drill down, it's possible to see that customers use "baggage" and "luggage" differently.
- Luggage is much more likely to refer to carry-on bags. This type of information is tremendously useful when building an NLI app that is sensitive to the expectations of customers.
- This is where analysis on unstructured data using NLI comes into its own because human intuitions about conversational data are

often wrong. Businesses need the facts that NLI provides to guide them, otherwise enterprises risk misunderstanding the voice of the customer.

- It allows enterprises to create advanced dialogue systems that utilize memory, personal preferences and contextual understanding to deliver a proactive natural language interface.
- Natural language interaction removes the need for your customers to know and understand your terminology
- The deep understanding that natural language interaction delivers gives enterprises the information they need to deliver a superior customer experience and have a positive impact on their bottom line.
- In interface design, natural-language interfaces are sought after for their speed and ease of use, but most suffer the challenges to understanding wide varieties of ambiguous input.
- Natural-language interfaces are an active area of study in the field of natural-language processing and computational linguistics. An intuitive general natural-language interface is one of the active goals of the Semantic Web.
- An important problem in Natural Language Generation (NLG) is obtaining and representing in the system the knowledge required producing texts. This includes the knowledge from which texts are generated and linguistic knowledge required to produce the texts.
- In some cases, information produced by HCI researchers or practitioners can be exploited in this way for NLG systems. For example, task models can be exploited to generate documentation and on-line help. They can provide both the information to be included in the texts, and guide the structure of the texts to be generated.

5.3 Socio-organizational Issues and Stakeholder Requirements

Q.9 What is computer-supported cooperative work ?

Ans. : • The term 'computer-supported cooperative work' (CSCW) seems to assume that groups will be acting in a cooperative manner.

- CSCW is the study of the tools and techniques of groupware as well as their psychological, social and organizational effects.
- CSCW was an effort by technologists to learn from social, economic, organizational and anthropologic researchers or anyone who could shed light on group activity.
- Fig. Q.9.1 shows the relationship between CSCW, groupware, workgroup computing and workflow management.

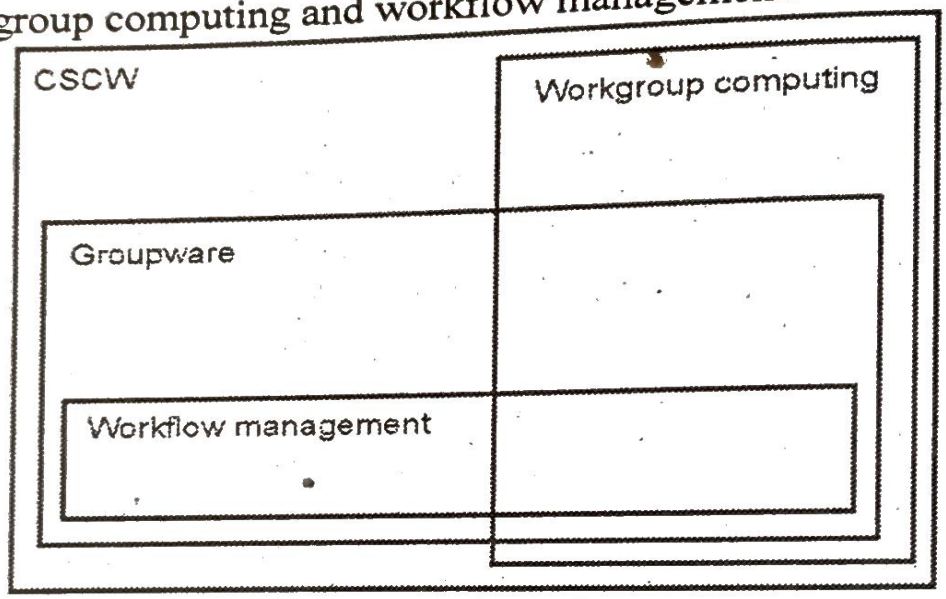

Fig. Q.9.1

- CSCW studies the use of groupware. CSCW is the study of the tools and techniques of groupware as well as their psychological, social and organizational effects.
- Examples :

1. Scientists collaborating on a technical issue
2. Authors editing a document together

3. Programmers debugging a system concurrently
4. Workers collaborating over a shared video conferencing application
5. Buyers and sellers meeting on eBay

• Main challenge : Support awareness

1. Presence of collaborators
2. Behaviours and actions of collaborators
3. Presence of resources and arte-facts
4. Knowledge and expectations of counterparts

Q.10 What is groupware technology ? List types of textual communication of groupware.

Ans. : • Groupware is technology designed to facilitate the work of groups. This technology may be used to communicate, cooperate, coordinate, solve problems, compete or negotiate.

• Groupware denotes the technology that people use to work together. Systems that support groups of people engaged in a common task (or goal) and that provide an interface to a shared environment.

• There are four types of textual communication in current groupware :

1. Discrete : directed message as in email. There is no explicit connection between different messages, except in so far as the text of the message refers to a previous one.
2. Linear : participants' messages are added in (usually temporal) order to the end of a single transcript.
3. Non-linear : when messages are linked to one another in a hypertext fashion.
4. Spatial : where messages are arranged on a two-dimensional surface.

Q.11 What is speech act theory ? Describe positive and negative issues that have arisen when it has been embodied in a specific system.

Ans. : • When language is viewed as a series of assertions about the world, the reasons for speaking and the way language is comprehended are difficult to understand.

- A breakthrough in understanding the functions of language was made by the development of a theory of speech-acts.
- Some utterances (way of speaking) are more than statements about something; these utterances actually effect changes in the world.
- For example : If you say 'I'm hungry', this has a certain propositional meaning - that you are feeling hungry. However, depending on who is talking and to whom, this may also carry the meaning 'get me some food' - the intent of the statement is to evoke an action on the part of the hearer.
- Speech act theory concerns itself with the way utterances interact with the actions of the participants.
- The act of saying the words changes the state of the couple. Other acts include promises by the speaker to do something and requests that the hearer do something. These basic acts are called **illocutionary points.**

Problems :

- Speech acts do not appear to correspond neatly to sentences
- Assignment of meaning to acts cannot be accomplished by a set of rules expressing conventions
- Sequence oriented speech act models are too simple to account for the complexity of real world exchanges
- The immense variety of surface utterances cannot be reduced to a limited set of acts.

Q.12 Explain meeting and decision support systems.

Ans. : • Three types of system where the generation and recording of ideas and decisions is the primary focus.

Argumentation tools :

- Argumentation tools which record the arguments used to arrive at a decision and support principally asynchronous co-located design teams.
- Good example of argumentation tools is the family of tools developed to support the argumentation model called issue-based information system.
- Argumentation tools may allow a range of interaction styles from asynchronous, when the designers use it one at a time, to fully synchronous, when several use it at once.

Meeting rooms :

- Meeting rooms which support face-to-face groups in brainstorming and management meetings.
- These are specially constructed rooms, with extensive computer equipment designed to support face-to-face meetings.
- There are potential problems if several participants decide to write at the same time, so different systems adopt different floor control policies to determine which participant can write at any moment.
- The design and building of meeting rooms is both expensive and time consuming, but less sophisticated facilities are more widely available.

Shared drawing surface :

- Shared drawing surfaces which can be used for synchronous remote design meetings.
- The participants write on a sheet of paper on their desktop, which is then filmed from above.
- The images from each participant are then mixed and displayed on a screen in each participant's work area. By looking at the screen

while they point and write, the participants can refer to one another's work.

Q.13 Who are the stakeholders ? Explain its types. Classify the stakeholders of an airline booking system.

Ans. : • A stakeholder is as anyone who is affected by the success or failure of the system.

- Primary stakeholders are people who actually use the system, the end-users.
- Secondary stakeholders are people who do not directly use the system, but receive output from it or provide input to it.
- Tertiary stakeholders are people who do not fall into either of the first two categories but who are directly affected by the success or failure of the system.
- Facilitating stakeholders are people who are involved with the design, development and maintenance of the system.
- The airline booking system stakeholders can be classified as follows :

1. Primary stakeholders : Travel agency staff, airline booking staff
2. Secondary stakeholders : Customers, airline management
3. Tertiary stakeholders : Competitors, civil aviation authorities, customers' traveling companions, airline shareholders
4. Facilitating stakeholders : Design team, IT department staff

Q.14 Explain Socio-technical systems theory.

Ans. : • Socio Technical Systems (STS) in organizational development is an approach to complex organizational work design that recognizes the interaction between people and technology in workplaces.

- Socio technical systems pertains to theory regarding the social aspects of people and society and technical aspects of organizational structure and processes. Here, technical does not necessarily imply material technology. The focus is on procedures and related knowledge.

- Within a socio-technical systems perspective, any organisation, or part of it, is made up of a set of interacting sub-systems, as shown in Fig. Q.14.1.

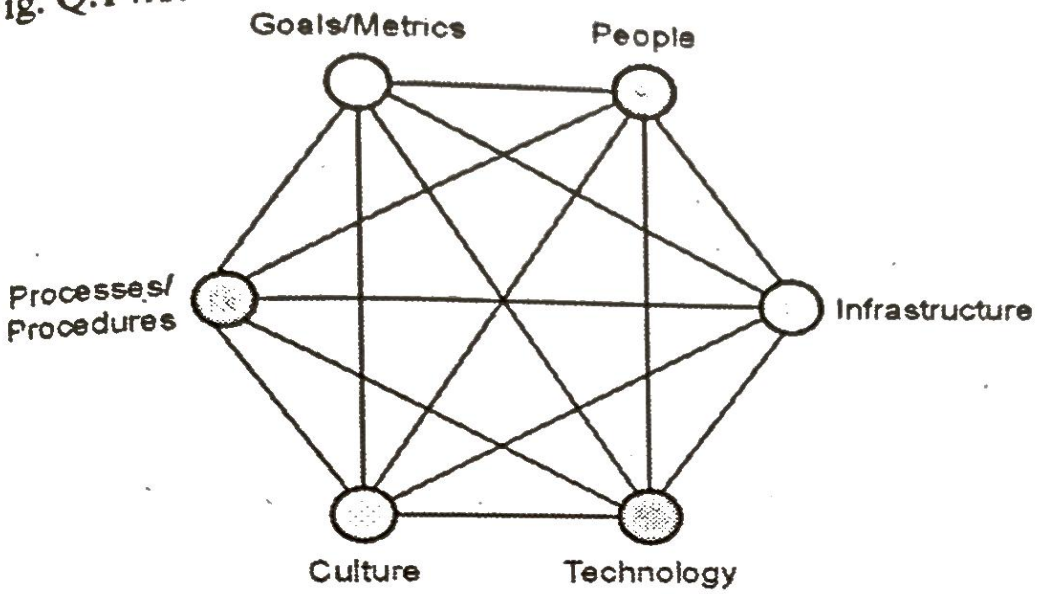

Fig. Q.14.1

- Thus, any organisation employs people with capabilities, who work towards goals, follow processes, use technology, operate within a physical infrastructure, and share certain cultural assumptions and norms.
- Socio-technical theory has at its core the idea that the design and performance of any organisational system can only be understood and improved if both 'social' and 'technical' aspects are brought together and treated as interdependent parts of a complex system.
- Organisational change programmes often fail because they are too focused on one aspect of the system, commonly technology, and fail to analyse and understand the complex interdependencies that exist.
- This is directly analogous to the design of a complex engineering product such as a gas turbine engine. Just as any change to this complex engineering system has to address the knock-on effects through the rest of the engine, so too does any change within an organisational system.

- Socio-Technical models of system design are of three types : USTM/CUSTOM, OSTA and Ethics
- Potential benefits are as follows :

1. Strong engagement
2. Reliable and valid data on which to build understanding
3. A better understanding and analysis of how the system works now (the 'as is')
4. A more comprehensive understanding of how the system may be improved (the 'to be')
5. Greater chance of successful improvements

Q.15 Write short note on CUSTOM methodology.

Ans. : • CUSTOM is a socio-technical methodology designed to be practical to use in small organizations. It is based on the User Skills and Task Match (USTM) approach, developed to allow design teams to understand and fully document user requirements.

- It focuses on establishing stakeholder requirements and all stakeholders are considered, not just the end-users.
- It is applied at the initial stage of design when a product opportunity has been identified, so the emphasis is on capturing requirements.
- It is a forms-based methodology, providing a set of questions to apply at each of its stages.
- There are six key stages to carry out in a CUSTOM analysis :

1. Describe the organizational context, including its primary goals, physical characteristics, political and economic background.
2. Identify and describe stakeholders. All stakeholders are named, categorized and described with regard to personal issues, their role in the organization and their job.

3. Identify and describe work-groups. A work-group is any group of people who work together on a task, whether formally constituted or not.
4. Identify and describe task-object pairs. These are the tasks that must be performed, coupled with the objects that are used to perform them or to which they are applied.
5. Identify stakeholder needs.
6. Consolidate and check stakeholder requirements.

Q.16 What is Open System Task Analysis (OSTA) ? Explain its steps.

Ans. : • OSTA is an alternative socio-technical approach, which attempts to describe what happens when a technical system is introduced into an organizational work environment.

- OSTA specifies both social and technical aspects of the system. It focus on tasks.
- Fig. Q.16.1 shows OSTA.

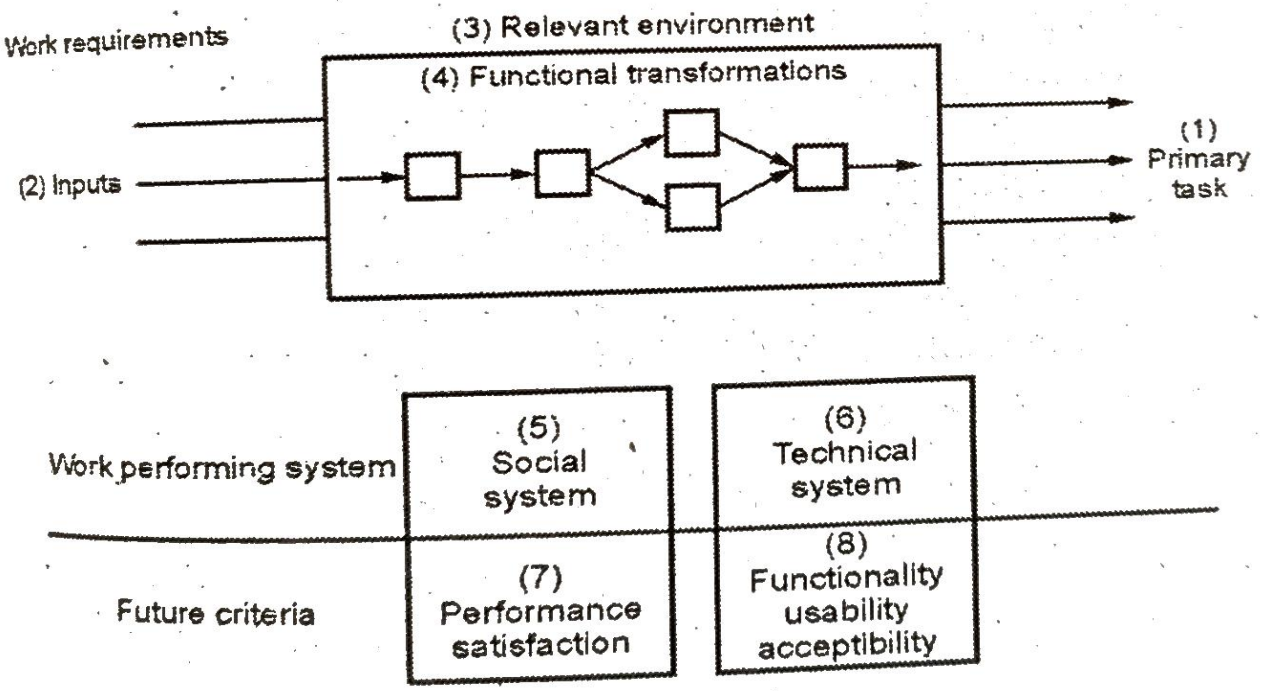

Fig. Q.16.1

- OSTA has eight main stages :

1. The primary task which the technology must support is identified in terms of users' goals.
2. Task inputs to the system are identified. These may have different sources and forms that may constrain the design.
3. The external environment into which the system will be introduced is described, including physical, economic and political aspects.
4. The transformation processes within the system are described in terms of actions performed on or with objects.
5. The social system is analyzed, considering existing work-groups and relationships within and external to the organization.
6. The technical system is described in terms of its configuration and integration with other systems.
7. Performance satisfaction criteria are established, indicating the social and technical requirements of the system.
8. The new technical system is specified.

Q.17 What is Soft Systems Methodology (SSM) ?

Ans. : • Soft Systems Methodology (SSM) is a cyclic learning system which uses models of human activity to explore with the actors in the real world problem situation, their perceptions of that situation and their readiness to decide upon purposeful action which accommodates different actor's perceptions, judgments and values.

- The idea of the Soft Systems Methodology is to understand the particular situation in which the problem is believed to lie and not to just find a general solution to a specified problem.

- Fig. Q.17.1 shows SSM.

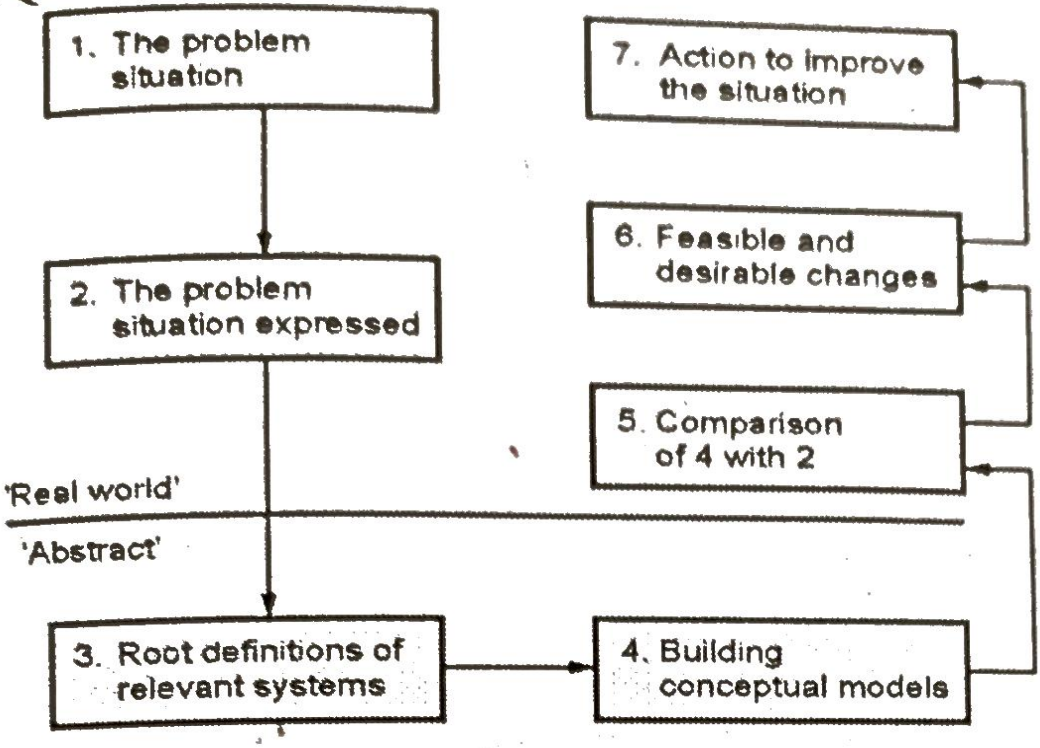

Fig. Q.17.1

- Therefore, this approach first tries to define the situation (stages 1 and 2). The definition of the situation occurs in 2 stages. First, a problem situation is perceived and in stage 2, a better overview is gained by having the problem situation expressed through communication with all involved parties.
- After expressing the problem in the given situation, the approach tries to deliver a precise definition of the system (stage 3), which is applied to produce conceptual models of the system.
- These conceptual models in stage 4 include the consideration of clients/customers, actors, transformations, world view, owners and the environment. The precise root definition from stage 3 will have already identified who all the involved people are.
- Stages 3 and 4 are typically abstract modeling processes that do not relate directly to the specific situation at hand, i.e. many scenarios can be considered and simulated. This is an abstract modeling process that does not take place in the real world.

- Stages 5, 6 and 7 then go away from the abstract point of view and try to embed the earlier processes into the real world.
- Stage 5 will expose gaps in the original root definition after incorporating the expressed situational circumstances until a well-formed root definition has been found.
- In Stage 6, the conceptual model of the situation is compared with the original expression of the situation.
- It is possible that Stage 6 exposes further changes that might be necessary.
- In Stage 7, action takes place to improve the situation at hand with the help of the designed system, but this may not succeed in the first place, so many iterations might be necessary

Q.18 What do you mean by participatory design ?

Ans. : • In participatory design the users are involved in development of the products, in essence they are co-designers.

- Participatory Design (PD) is a set of theories, practices, and studies related to end users as full participants in activities leading to software and hardware computer products and computer-based activities.
- Cultural differences can often arise between users and designers, sometimes the users are unable to understand the language of the designers, it is recommended that the team uses prototypes, such as mockups, or a paper-based outline of the screen of a webpage, or a product.
- Other types of prototyping techniques are PICTIVE (Plastic Interface for Collaborative Technology Initiatives through Video Exploration) and CARD (Collaborative Analysis of Requirements and Design).
- The PICTIVE prototyping method uses low-fidelity office products, such as pens, papers, and sticky notes.

- The actions of the users are videotaped. CARD uses playing cards with pictures of specific items on them.
- PICTIVE concentrates on the detailed aspects of the system while CARD looks at the flow of the task, just as storyboarding

Q.19 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 ?

Ans. : • Scheduling a meeting that involves diverse commitments and people from different background and with different preferences is a difficult task. A tool for scheduling a meeting provides a mechanism for better time planning and utilization.

- Fig. Q.19.1 shows outline sketch of electronic calendar.

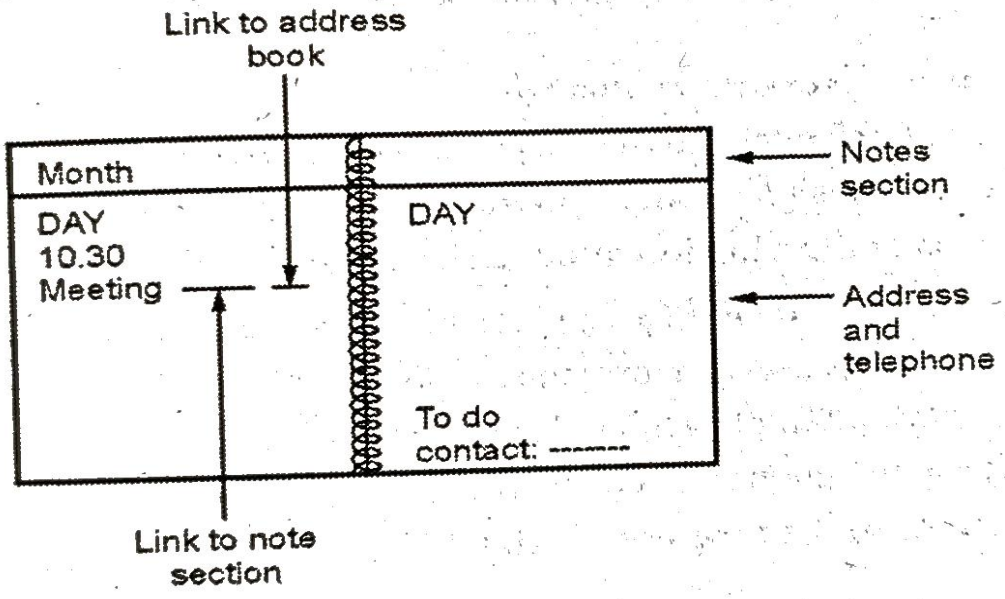

Fig. Q.19.1

- **Assumptions are as follows :**
  1. Identify needs and establishing requirement.
  2. Develop alternative designs that meets those requirements.

3. Building interactive versions so that they can be communicated
4. Evaluating design.

- While designing , make sections for month, time, day and other. We can also add section number and notes.
- We can also add hyperlinks to make it easier for navigations. We also requires address, email and phone numbers.
- Search facility is also added for searching particular name or phone number.
- We can keep maps, appointments, small notes.
- One more parameter is thinking about interface and look. The exact steps to produce product will vary from designer to designer and product to product.

5.4 Heuristic Evaluation, Evaluation with Cognitive Models and Users

Q.20 Discuss Heuristic evaluation.

Ans. : • A third expert-based approach is the use of models. Certain cognitive and design models provide a means of combining design specification and evaluation into the same framework.

- For example, the GOMS (goals, operators, methods and selection) model predicts user performance with a particular interface and can be used to filter particular design options. Similarly, lower-level modeling techniques such as the keystroke-level model provide predictions of the time users will take to perform low-level physical tasks.
- Design methodologies, such as design rationale, also have a role to play in assessment at the design stage. Design rationale provides a framework in which design options can be evaluated.

- Dialog models can also be used to estimate dialog sequences for problems, such as unreachable states, circular dialogs and complexity. Models such as state transition networks are useful for evaluating dialog designs prior to implementation.

Q.21 Understanding users and their behavior is an important factor influencing user - interface design. An automatic syringe is designed to administer proper dose of medicine to the patient. Create a prototype user interface for the same that can set the dose (4 digit numeric) with minimal human error while setting the dose. Justify your design.

Ans. : • User interface prototype : Fig. Q.21.1 shows functional block diagram process of dosing the syringe.

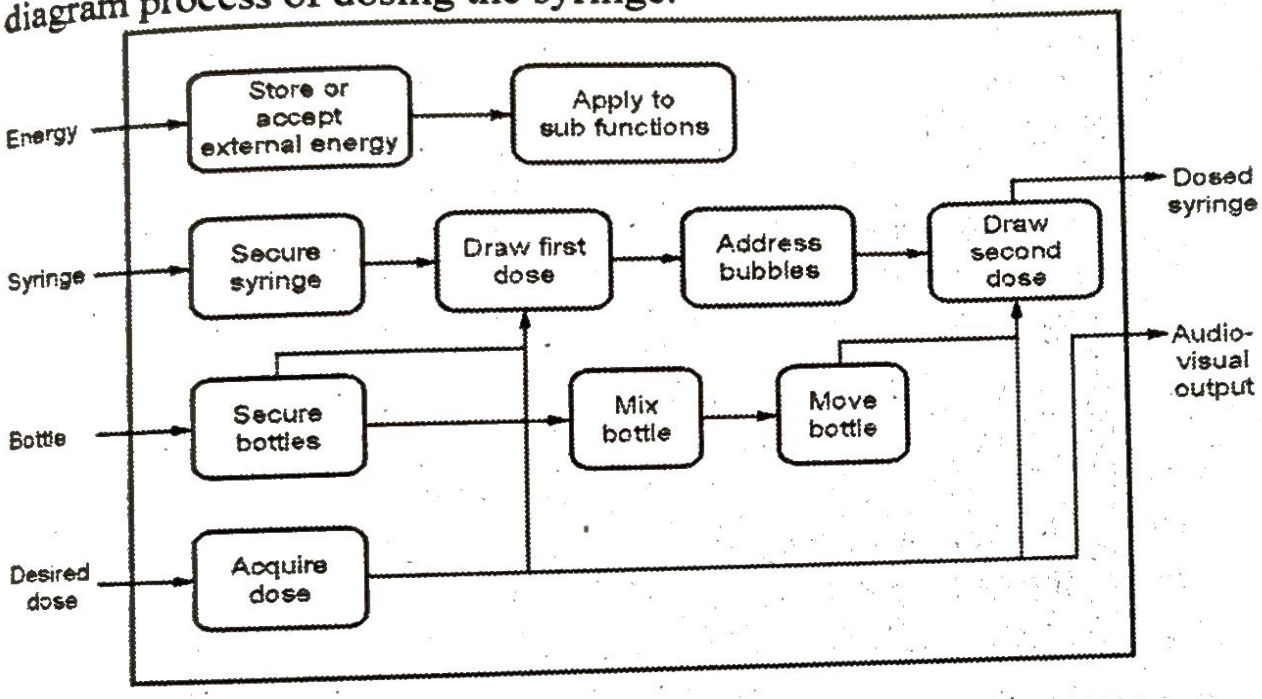

Fig. Q.21.1

- Many designers will build a system that they find easy and pleasant to use, and they find it incomprehensible that anyone else could have trouble with it. Simply sitting someone down with an early version of an interface is enormously valuable.
- Where possible, the eventual users should be involved in the design process. They have vital knowledge and will soon find flaws.

- A mechanical syringe was once being developed and a prototype was demonstrated to hospital staff. Happily they quickly noticed the potentially fatal flaw in its interface
- The doses were entered via a numeric keypad: an accidental key press and the dose could be out by a factor of 10! The production version had individual increment/decrement buttons for each digit.

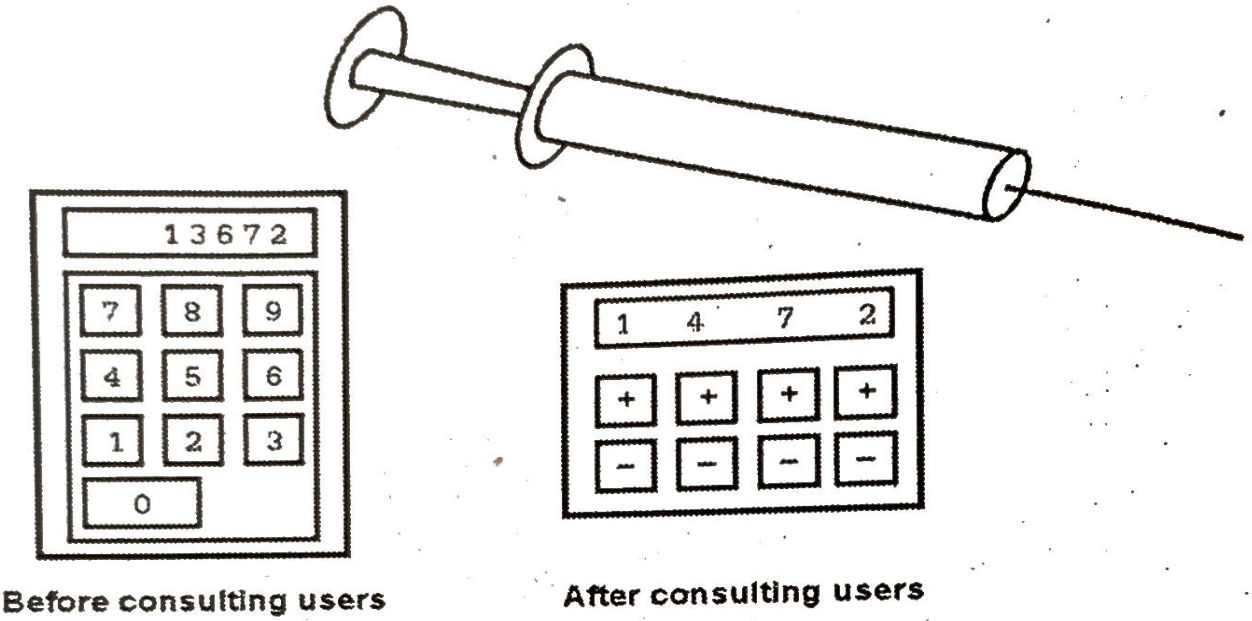

Fig. Q.21.2 : Prototype

- People are complicated, so you won't get it right first time. Programming an interface can be a very difficult and time-consuming business.
- So, the result becomes precious and the builder will want to defend it and minimize changes.
- Making early prototypes less precious and easier to throw away is crucial.

Q.22 Write short note on user focus.

Ans. : • User focus is a never ending process because there is so much to know and because the users keep changing.

- An interactive system designer should consider the human factors that characterize users.

- User characteristics vary with age, gender, physical and cognitive abilities, personality, education, cultural or ethnic background and goals.
- An interactive system designer should recognize this diversity. Systems used by several communities of users.
- Designer faces real challenge to cater to the need of each community. Designers must characterize users and situations as precisely and completely as possible.
- Over time many people are affected directly or indirectly by a system and these people are called stakeholders.
- Tracing the tenuous links between people could go on forever and user need to draw boundaries as to whom you should consider. This depends very much on the nature of the systems being designed.
- When designing a system it is easy to design it as if you were the main user : you assume your own interests and abilities.
- People may also be able to tell you about how things really happen, not just how the organization says they should happen. To encourage users to tell you this, you will need to win their trust, since often the actual practices run counter to corporate policy.
- A professional in any field is very practiced and can do things in the domain. An academic in the same field may not be able to do things, but she knows about the things in the domain. These are different kinds of knowledge and skill.
- Sometimes people know both, but not necessarily so. The best sports trainers may not be the best athletes, the best painters may not be the best art critics.
- Because of this it is important to watch what people do as well as hear what they say. This may involve sitting and taking notes of how they spend a day, watching particular activities, using a video camera or tape recorder.

- It can be done in an informal manner or using developed methods such as ethnography or contextual inquiry.
- Another way to find out what people are doing is to look at the artifacts they are using and creating. Look at a typical desk in an office. There are papers, letters, files, perhaps a stapler, a computer, sticky notes.
- One method that has been quite successful in helping design teams produce user focused designs is the persona. A persona is a rich picture of an imaginary person who represents your core user group.

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