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ASSESSMENT TEST I

DEPARTMENT OF INFORMATION TECHNOLOGY

U20IT851 / HUMAN COMPUTER INTERACTION

SYLLABUS

UNIT I FOUNDATIONS OF HCI **9**

The Human: I/O channels – Memory – Reasoning and problem solving; The computer: Devices – Memory – processing and networks; Interaction: Models – frameworks – Ergonomics – styles – elements – interactivity- Paradigms.

UNIT II DESIGN & SOFTWARE PROCESS **9**

Interactive Design basics – process – scenarios – navigation – screen design – Iteration and prototyping. HCI in software process – software life cycle – usability engineering – Prototyping in practice – design rationale. Design rules – principles, standards, guidelines, rules. Evaluation Techniques – Universal Design.

UNIT III MODELS AND THEORIES **9**

Cognitive models –Socio-Organizational issues and stake holder requirements – Communication and collaboration models-Hypertext, Multimedia and WWW.

UNIT IV MOBILE HCI **9**

Mobile Ecosystem: Platforms, Application frameworks- Types of Mobile Applications: Widgets, Applications, Games- Mobile Information Architecture, Mobile 2.0, Mobile Design: Elements of Mobile Design, Tools.

UNIT V WEB INTERFACE DESIGN **9**

Designing Web Interfaces – Drag & Drop, Direct Selection, Contextual Tools, Overlays, Inlays and Virtual Pages, Process Flow. Case Studies

TEXT BOOKS:

1. Alan Dix, Janet Finlay, Gregory Abowd, Russell Beale, "Human Computer Interaction", 3rd Edition, Pearson Education, 2004 (UNIT I , II & III).
2. Brian Fling, "Mobile Design and Development", First Edition , O'Reilly Media Inc., 2009 (UNIT –IV).
3. Bill Scott and Theresa Neil, "Designing Web Interfaces", First Edition, O'Reilly, 2009.(UNIT-V).

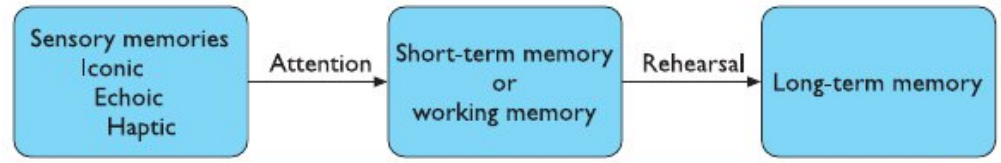
UNIT-I

FOUNDATIONS OF HCI **9**

The Human: I/O channels – Memory – Reasoning and problem solving; The computer: Devices – Memory – processing and networks; Interaction: Models – frameworks – Ergonomics – styles – elements – interactivity- Paradigms.

PART A

Q.No	Questions
1	**What is meant by Human-computer interaction?** Human-computer interaction is the study, planning and design of how people computer work together so that a person's needs are satisfied in the most effective way.
2	**How the HCI ensure the following when designing, selecting, commissioning or modifying software:** ● that it is suitable for the task ● that it is easy to use and, where appropriate, adaptable to the user's knowledge and experience ● that it provides feedback on performance ● that it displays information in a format and at a pace that is adapted to the user that it conforms to the 'principles of software ergonomics'
3	**What are the input and output channels:** –visual channel –auditory channel –haptic channel
4	**Where the Information is stored in memory:** –sensory memory –short-term (working) memory –long-term memory
5	**What are the Input–OUTPUT CHANNELS?** In an interaction with a computer the user receives information that is output by the computer, and responds by providing input to the computer.
6	**What are the capabilities and limitations of visual processing?** Display screens can be used in various public places to offer information, link spaces or act as message areas. These are often called situated displays as they take their meaning from the location in which they are situated presenter's shadow can often fall across the screen

7	**Label the structure of memory** 
8	**What is long-term memory?** It store factual information, experiential knowledge, procedural rules of behavior it has a huge, if not unlimited, capacity. Secondly, it has a relatively slow access time of approximately a tenth of a second. Thirdly, forgetting occurs more slowly.
9	**What is short term memory** Short-term memory or working memory acts as a 'scratch-pad' for temporary recall of information. It is used to store information which is only required fleetingly Short-term memory can be accessed rapidly, in the order of 70 ms. However, it also decays rapidly, meaning that information can only be held there temporarily, in the order of 200 ms
10	**What are the devices for virtual reality and 3d interaction** ● Positioning in 3D space ○ Cockpit and virtual controls ○ The 3D mouse ○ Dataglove ○ Virtual reality helmets ○ Whole-body tracking ● 3D displays Seeing in 3D VR motion sickness Simulators and VR caves
11	**Define Reasoning. APR /MAY 2017** Reasoning is the process by which we use the knowledge we have to draw conclusions or infer something new about the domain of interest.
12	**What are the types of reasoning? APR /MAY 2017** Deductive reasoning Inductive reasoning Abductive reasoning

13	**Define Gestalt theory** Problem solving is a matter of reproducing known responses or trial and error. problem solving is both productive and reproductive. Reproductive problem solving draws on previous experience as the behaviorists claimed, but productive problem solving involves insight and restructuring of the problem
14	**Define Problem space theory** Problem solving involves generating these states using legal state transition operators. The problem has an initial state and a goal state and people use the operators to move from the former to the latter. Such problem spaces may be huge, and so heuristics are employed to select appropriate operators to reach the goal
15	**What are the text entry devices?** ● The alphanumeric keyboard The QWERTY keyboard Ease of learning -alphabetic keyboard Ergonomics of use DVORAK keyboard and split designs ● Chord keyboards ● Phone pad and T9 entry ● Handwriting recognition Speech recognition
17	**What are the display devices?** ● Bitmap displays – resolution and color ● Liquid crystal display ● Special displays ● Virtual reality helmets Whole-body tracking
18	**What are the Devices for virtual reality and 3D interaction?** ● Seeing in 3D ● VR motion sickness ● Simulators and VR caves ● Touch, feel and smell Physical controls
19	**Define Visualization.** It is a cognitive process that allows people to understand information that difficult to perceive, because it is either too voluminous or too abstract
20	**What are the stages of execution and evaluation cycle?** 1. Establishing the goal. 2. Forming the intention. 3. Specifying the action sequence. 4. Executing the action. 5. Perceiving the system state. 6. Interpreting the system state. Evaluating the system state with respect to the goals and intentions.

21	**What are goals of interface design?** **The goals in interface design are** • Reduce visual work. • Reduce intellectual work. • Reduce memory work. • Reduce motor work. Minimize or eliminate any burdens
22	**What are the common interface styles ?** ● command line interface ● menus ● natural language ● question/answer and query dialog ● form-fills and spreadsheets ● WIMP ● point and click three-dimensional interfaces
23	**What are the several factors that can limit the speed of an interactive system? NOV/DEC2018** ● Computation bound ● Storage channel bound ● Graphics bound Network capacity

PART-B

Q.No	Questions
1	Explain different I/O channels in detail?
2	Distinguish between short term & long term memory. State requirements to perform cognitive walkthrough of a system? **NOV/DEC 2017**
3	Explain the model of the structure of human memory with diagrammatic illustration? **APR/MAY 2017**
4	Explain the common interface styles used in interactive system. **NOV/DEC 2018**
5	Discuss the factors that can limit the speed of an interactive computer system? **152** **APR/MAY 2017**

6	With examples explain the various types of users and the organizational issues to be considered in designing an interactive system? **NOV/DEC 2017**
7	Explain positioning, pointing and drawing devices in detail.
8	Examine the technology involved in display devices? **NOV/DEC2018**
9	List and explain the stages of Norman's model of interaction? **APR/MAY 2017**
10	Explain different styles of interaction & interface system? **APR/MAY 2017**
11	Explain in detail about elements of the WMP INTERFACE **APR/MAY 2018**
12	Write down the effects of finite processor **/MAY 2018**
13	Write down the factors that can limit the speed of an interactive system? **APR/MAY 2018**
14	Explain the framework of Human computer interaction **NOV/DEC2018**
15	Explain about the features of direct manipulation interfaces in detail **NOV/DEC2018**

UNIT-2

DESIGN & SOFTWARE PROCESS **9**

Interactive Design basics – process – scenarios – navigation – screen design – Iteration and prototyping. HCI in software process – software life cycle – usability engineering – Prototyping in practice – design rationale. Design rules – principles, standards, guidelines, rules. Evaluation Techniques – Universal Design.

PART-A

Q.No	Questions		
1	**What are the steps for Interaction design process? <u>NOV/DEC 2018</u>** ● Requirements ● Analysis ● Design ● Iteration and prototyping ● Implementation and deployment		
2	**Identify human characteristics in design?** The important human characteristics in design are perception, memory, visual acuity, fovea and peripheral vision, sensory storage, information processing learning, skill and individual differences.		
3	**What are the guidelines for designing conceptual model?** • Reflect the user's mental model. • Provide action-response compatibility. • Provide proper and correct feedback. • Provide design consistency. • Provide documentation and a help system that will reinforce the conceptual model. • Promote the development of both novice and expert mental models.		
4	**What are goals of interface design?** • Reduce visual work. • Reduce intellectual work. • Reduce memory work. • Reduce motor work.		
5	**What is the navigation in design?** **Widgets** The appropriate choice of widgets and wording in menus and buttons will help you know how to use them for a particular selection or action. **Screens or windows** You need to find things on the screen, understand the logical grouping of buttons		

6	**What are the structures of design?** local structure – looking from one screen or page out global structure – structure of site, movement between screens		
7	**What are the scenarios of software processes?** **Communicate with others** – other designers, clients or users. It is easy to misunderstand each other whilst discussing abstract ideas. Concrete examples of use are far easier to share. **Validate other models** A detailed scenario can be 'played' against various more formal representations such as task models (discussed in Chapter 15) or dialog and navigation models (Chapter 16 and below). **Express dynamics** Individual screen shots and pictures give you a sense of what a system would look like, but not how it behaves		
8	**What are the several levels of interaction with computer?** **Widgets** The appropriate choice of widgets and wording in menus and buttons will help you know how to use them for a particular selection or action. **Screens or windows** You need to find things on the screen, understand the logical grouping of buttons. **Navigation within the application** You need to be able to understand what will happen when a button is pressed, to understand where you are in the interaction. **Environment** The word processor has to read documents from disk, perhaps some are on remote networks. You swap between applications, perhaps cut and paste		
9	**What is Global structure – hierarchical organization?** The hierarchy links screens, pages or states in logical groupings. For example, a high-level breakdown of some sort of messaging system. This sort of hierarchy can be used purely to help during design, but can also be used to structure the actual system. For example, this may reflect the menu structure of a PC application or the site structure on the web.		
10	**What are the implications of wider still?** **Style issues** We should normally conform to platform standards, such as positions for menus on a PC application, to ensure consistency between applications. For example, on our proposed personal movie player we should make use of standard fast-forward, play and pause icons. **Functional issues** On a PC application we need to be able to interact with files, read standard formats and be able to handle cut and paste. **Navigation issues** We may need to support linkages between applications, for example allowing the embedding of data from one application in another, or, in a mail system, being able to double click an attachment icon and have the right application launched for the attachment.		

11	**What are the tools for layout?** o Grouping and structure o Order of groups and items o Decoration o Alignment o White space		
12	**What is prototyping? <u>APR /MAY 2017</u>** iteration and prototyping are the universally accepted 'best practice' approach for interaction design. Prototyping is an example of what is known as a *hill-climbing* approach		
13	**What are the prototyping methods? <u>NOV/DEC 2018</u>** 1. To understand what is wrong and how to improve. 2. A good start point.		
14	**Define usability.** The usability describes the effectiveness of human performance. It cart b defined as "the capability to be used by humans easily and effectively". Easily = to a specified level of subjective assessment. Effectively = to a specified level of human performance		
15	**What is usability engineering?** Iterative design practices that involve prototyping and participative evaluation. engineering are also called *usability metrics*.		
16	**Define software life cycle.** . The software life cycle is an attempt to identify the activities that occur in software development. These activities must then be ordered in time in any development project and appropriate techniques must be adopted to carry them through		
17	**What are the Activities in the life cycle?** ● Requirements specification ● Architectural design		
	● Detailed design ● Coding and unit testing ● Integration and testing ● Maintenance		
18	**What do u mean by universal design ? <u>APR/MAY 2017</u>** Universal design means designing software that can be used by people of as many abilities as possible, without them having to modify things or use assistive technologies.For most software, the major concerns are: ● Use of color ● Minimum font sizes ● Minimum contrast ● Alternate text for graphics and visual content		

19	**Define validation** Validation is a much more subjective exercisethan verification, mainly because the disparity between the language of the requirements and the language of the design forbids any objective form of proof. In interactive system design, the validation against HCI requirements is often referred to as evaluation and can be performed by the designer in isolation or in cooperation with the customer.		
20	**What is now level?** The *now level* indicates the value for the measurement with the existing system, whether it is computer based or not.		
21	**Define worst-case value?** The *worst case* value is the lowest acceptable measurement for the task, providing a clear distinction between what will be acceptable and what will be unacceptable in the final product		
22	**What is planned level?** The *planned level* is the target for the design and the *best case* is the level which is agreed to be the best possible measurement given the current state of development tools and technology.		
23	**What are the Set levels with respect to information ?** 1. an existing system or previous version 2. competitive systems 3. carrying out the task without use of a computer system 4. an absolute scale 5. your own prototype 6. user's own earlier performance 7. each component of a system separately 8. a successive split of the difference between best and worst values observed in user Tests		
24	**What are the Problems with usability engineering?** ● they rely on measurements of very specific user actions in very specific situations. it provides a means of satisfying usability specifications and not necessarily usability..		
25	**What is iterative design?** This is the essence of *iterative design*, a purposeful design process which tries to overcome the inherent problems of incomplete requirements specification by cycling through several designs, incrementally improving upon the final product with each pass.		

PART-B

Q.No	Questions		
1	Explain design process in detail. **Page no: 276**		
2	Discuss the principles of good UI design. Evaluate the suitability of the manual tour booking form using UI design principles. **Page no: 260 NOV/DEC2107**		
3	Explain Global structure – hierarchical organization. **Page no: 278**		
4	Explain different Tools for layout **Page no: 300**		
5	Explain in detail about iterative design and prototyping **Page no: 290**		
6	Explain in detail about interaction design process. **Page no: 189 APR/MAY 2017 , APR/MAY 2018**		
7	Explain the Principles to support usability. Consider the following usability objective. Theatre booking clerks with low motivation, no computing experience and no previous training, working in a small and hectic box office, are able to learn to reserve or book seats within a one hour period. What measure could be taken and which techniques would you consider appropriate to test whether this objective was met? **Page no: 420 NOV/DEC2107**.		
8	Explain Shneiderman's eight Golden rules of interface design **Page no: 282 APR/MAY 2017**		
9	Explain about the factors that influence for choosing evaluation techniques. Outline the approaches used for evaluating through expert analysis? **Page no: 320 APR/MAY 2017, NOV/DEC2018**		
10	Discuss in detail about the activities in waterfall and spiral model of software life cycle? **Page no: 298APR/MAY 2018, NOV/DEC2018**		
11	What rules must be followed for interface design? Explain **Page no: 282**		

12	Explain about usability in detail? **Page no: 420**		
13	Discuss in detail about the visual tools used in screen design and layout **Page no: 300 NOV/DEC2018**		
14	Explain in detail of the design process in interaction **Page no: 189**		
15	Explain Norman's seven principle for transferring difficult task to simple one in design **Page no: 278 NOV/DEC 2018**		

UNIT-3

MODELS AND THEORIES **9**

Cognitive models –Socio-Organizational issues and stake holder requirements – Communication and collaboration models-Hypertext, Multimedia and WWW.

PART-A

Q.No	Questions		
1	**e Cognitive model.** ive models represent users of interactive systems. Hierarchical models represent a user's task and goal structure. Linguistic models represent the user–system grammar. Physical and device models represent human motor skills. Cognitive architectures underlie all of these cognitive models.		
2	**e applications of hypermedia? <u>APR/MAY 2017</u>** ● Education ● Training ● Science & technology ● Business ● games		
3	**Define Linguistic model** The user's interaction with a computer is often viewed in terms of a language, so it is not surprising that several modeling formalisms have developed centered around this concept. Several of the dialog notations described in Chapter 16 are also based on linguistic ideas. Indeed, BNF grammars are frequently used to specify dialogs.		
	The models here, although similar in form to dialog design notations, have been proposed with the intention of understanding the user's behavior and analyzing the cognitive difficulty of the interface.		
4	**Define BNF :** Representative of the *linguistic approach* is Reisner's use of Backus–Naur Form (*BNF*) rules to describe the dialog grammar [301]. This views the dialog at a purely syntactic level, ignoring the semantics of the language. BNF has been used widely to specify the syntax of computer programming languages, and many system dialogs can be described easily using BNF rules.		
5	**What is TASK – Action grammar** : *Task–action grammar* (*TAG*) [284] attempts to deal with some of these problems by including elements such as parameterized grammar rules to emphasize consistency and encoding the user's world knowledge (for example, up is the opposite of down). To illustrate consistency, we consider the three UNIX commands: cp (for copying files), my (for moving files) and ln (for linking files). Each of these has two possible forms. They either have two arguments, a source and destination filename, or have any number of source filenames followed by a destination directory:		

6	**Define Keystroke-level model?** *KLM* (*Keystroke-Level Model* [55]) uses this understanding as a basis for detailed predictions about user performance. It is aimed at unit tasks within interaction – the execution of simple command sequences, typically taking no more than 20 seconds. Examples of this would be using a search and replace feature, or changing the font of a word. It does not extend to complex actions such as producing a diagram. The assumption is that these more complex tasks would be split into subtasks (as in GOMS) before the user attempts to map them into physical actions. The task is split into two phases: **acquisition** of the task, when the user builds a mental representation of the task; **execution** of the task using the system's facilities.		
7	**What are the socio-organizational issues and stakeholder requirements?** - There are several organizational issues that affect the acceptance of technology by users and that must therefore be considered in system design: – systems may not take into account conflict and power relationships – those who benefit may not do the work – not everyone may use systems. In addition to generic issues, designers must identify specific stakeholder requirements within their Organizational context. Socio-technical models capture both human andtechnical requirements.		
8	**Define Cooperation or conflict?** The term 'computer-supported *cooperative* work' (CSCW) seems to assume that groups will be acting in a cooperative manner. This is obviously true to some extent; even opposing football teams cooperate to the extent that they keep (largely) within the rules of the game, but their cooperation only goes so far. People in organizations and groups have conflicting goals, and systems that ignore this are likely to fail spectacularly.		
9	**What is Changing power structures ?** The identification of stakeholders will uncover information transfer and power relationships that cut across the organizational structure. Indeed, all organizations have these informal networks that support both social and functional contacts. However, the official lines of authority and information tend to flow up and down through line management. New communications media may challenge and disrupt these formal managerial structures. The physical layout of an organization often reflects the formal hierarchy: each department is on a different floor, with sections working in the same area of an office. If someone from sales wants to talk to someone from marketing then one of them must walk to the other's office.		
10	**What is Free rider problem** Even where there is no bias toward any particular people, a system may still not function symmetrically, which may be a problem, particularly with shared communication systems. One issue is the *free rider problem*. Take an electronic conferencing system. If there is plenty of discussion of relevant topics then there are obvious advantages to subscribing and reading the contributions. However, when considering writing a contribution, the effort of doing so may outweigh any benefits. The total benefit of the system for each user outweighs the costs, but for any particular decision the balance is overturned.		

11	**Define lotus notes :** Lotus Notes can be used to implement workflow systems in a straightforward manner. The sales executive fills in an electronic form which is automatically emailed to the accounts department. When it is approved the order form is automatically emailed to stores, and so on.		
12	**How requirements are captured :** Problems can arise when a system is introduced without a full understanding of all the people who will be affected by it. But how can we better understand and support complex organizational structures, workgroups and potentially conflicting stakeholder needs? We begin by capturing and analyzing requirements, but we need to do this within the work context, taking account of the complex mix of concerns felt by different stakeholders and the structures and processes operating in the workgroups.		
13	**Define competence model.** Competence models tend to be ones that can predict legal behaviour sequences butgenerally do this without reference to whether they could actually be executed by users.In contrast, performance models not only describe what the necessary behaviour sequences are but usually describe both what the user needs to know and how this is employed in actual task execution.		
14	**Compare the different Types of stake holders**. **NOV/DEC 2018** It can be useful to distinguish different categories of stakeholder, and the following categorization from the CUSTOM approach (see [200]) is helpful for this: **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 (for example, someone who receives a report produced by the system).		
	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 (for example, a director whose profits increase or decrease depending on the success of the system). **Facilitating** stakeholders are people who are involved with the design, development and maintenance of the system		
15	**What are the different activities that occur within a problem space** - goal formulation -operation selection - operation application and goal completion.		
16	**What is PUM?** . knowledge is encoded in the problemspace architecture of Soar, producing a 'programmed' user model (the PUM) to accomplish the goal of performing the task. By executing the PUM, the stacking and un stacking of problem spaces needed to accomplish the goal can be analyzed to measure the cognitive load of the intended procedure.		

17	**What is ICS?** . ICS provides a model of perception, cognition and action, but unlike other cognitive architectures, it is not intended to produce a description of the user in terms of sequences of actions that he performs. ICS provides a more holistic view of the user as an information-processing machine. The emphasis is on determining how easy particular procedures of action sequences become as they are made more automatic within the user.		
18	**What is unit task?** abstract task is referred to as the *unit task*. The unit task does not require any problem-solving skills on the part of the user, though it frequently demands quite sophisticated problem-solving skills on the part of the designer to determine them		
19	**Define validation** Validation is a much more subjective exercise than verification, mainly because the disparity between the language of the requirements and the language of the design forbids any objective form of proof. In interactive system design, the validation against HCI requirements is often referred to as evaluation and can be performed by the designer in isolation or in cooperation with the customer.		
20	**What is CCT** CCT as an engineering tool giving one a rough measure of learnability and difficulty combined with a detailed description of user behavior. This can then be used by analysts employing their professional expertise		
21	**What is TAG <u>NOV/DEC 2018</u>** *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		
22	**What is Ethnography :** Ethnography is based on very detailed recording of the interactions between people and between people and their environment. It has a special focus on social relationships and how they affect the nature of work. The ethnographer does not enter actively into the situation, and does not see things from a particular person's viewpoint. However, an aim is to be encultured, to understand the situation from within its own cultural framework. Culture here means that of the particular workgroup or organization, rather than that of society as a whole. Ethnographers try to take an unbiased and open-ended view of the situation. They report and do not like to speculate, so it is often unclear how well their approach can contribute to the design of new systems.		
23	**What is communication and collaboration models**. 1. We need to understand normal human–human communication: – face-to-face communication involves eyes, face and body – conversation can be analyzed to establish its detailed structure. 2. This can then be applied to text-based conversation, which has: – reduced feedback for confirmation – less context to disambiguate utterances – slower pace of interaction but is more easily reviewed. 3. Group working is more complex than that of a single person: – it is influenced by the physical environment – experiments are more difficult to control and record – field studies must take into account the social situation.		

PART-B

Q.No	Questions		
1	Explain about Cognitive models & its classifications. **Page no: 420 APR/MAY 2017**		
2	Explain about Socio organization issues and stake holder Requirements. **Page no: 452**		
3	Explain about Communication and Collaboration Models **Page no: 513**		
4	Decide how the 'golden rules' and heuristic help interface designers take account of cognitive psychology? Illustrate your answer with the design of Microsoft office word. **Page no: 282 NOV/DEC2017**		
5	Explain the concept of key stake level model. **Page no: 522520 NOV/DEC2018**		
6	Write note on dynamic web content **Page no: 520 NOV/DEC2018**		
7	Define a stakeholder? Analyse the types & appraise the stakeholder for an airline booking system? **Page no: 458 APR/MAY 2017**		
8	Explain the stages involved in CUSTOM methodology analysis? **Page no: 460 APR/MAY 2017**		
9	Consider the case of preparing a group presentation for a software project. Elaborate the stages in specifying and designing UI for the same. **Page no: 260 NOV/DEC2017**		
10	n some of the organizational issues that affect the acceptance and relevance of information and communication system in detail? **Page no: 450APR/MAY 2018**		
11	n the problem space model and interacting cognitive subsystem in detail **Page no: 555 APR/MAY 2018**		
12	n the stages of open system task analysis(OSTA) **Page no: 445 NOV/DEC2018**		

13	What are the four types of textual communication? **Page no: 516** **NOV/DEC2018**		
14	Example about the organizational issues in detail **Page no: 450**		
15	Example about multimedia in detail **Page no: 520**		

UNIT-4

MOBILE HCI **9**

Mobile Ecosystem: Platforms, Application frameworks- Types of Mobile Applications: Widgets, Applications, Games- Mobile Information Architecture, Mobile 2.0, Mobile Design: Elements of Mobile Design, Tools.

PART-A

Q.No	Questions		
1	**What is mobile Platforms?** A mobile platform's primary duty is to provide access to the devices. To run software and services on each of these devices, you need a platform, or a core programming language in which all of your software is written. Like all software platforms, these are split into three categories: licensed, proprietary, and open source.		
2	**What are the licensed platforms?** Java Micro Edition (Java ME) Binary Runtime Environment for Wireless (BREW)		
	Windows Mobile LiMo		

3	**What are the Proprietarys?** Palm Palm uses three different proprietary platforms. Their first and most recognizable is the Palm OS platform based on the C/C++ programming language; this was initially developed for their Palm Pilot line, but is now used in low-end smartphones such as the Centro line. As Palm moved into higher-end smartphones, they started using the Windows Mobile-based platform for devices like the Treo line. The most recent platform is called webOS, is based on the WebKit browser framework, and is used in the Prē line. BlackBerry Research in Motion maintains their own proprietary Java-based platform, used exclusively by their BlackBerry devices. iPhone Apple uses a proprietary version of Mac OS X as a platform for their iPhone and iPod touch line of devices, which is based on Unix.		
4	**What are the Operating Systems used in mobile?** ● Symbian ● Windows Mobile ● Palm OS ● Linux ● Mac OS X ● Android		
5	**What is Cocoa Touch? <u>APR/MAY 2018</u>** Cocoa Touch is the API used to create native applications for the iPhone and iPod touch. Cocoa Touch applications must be submitted and certified by Apple before being included in the App Store. Once in the App Store, applications can be purchased, downloaded, and installed over the air or via a cable-connected computer.		
6	**What is Android SDK?** The Android SDK allows developers to create native applications for any device that runs the Android platform. By using the Android SDK, developers can write applications in C/C++ or use a Java virtual machine included in the OS that allows the creation of applications with Java, which is more common in the mobile ecosystem. **execution** of the task using the system's facilities.		
7	**What is WebKit** With Palm's introduction of webOS, a mobile platform based on WebKit, and given its predominance as a mobile browser included in mobile platforms like the iPhone, Android, and S60, and that the vast majority of mobile web apps are written specifically for WebKit, I believe we can now refer to WebKit as a mobile framework in its own right.		

8	**What is Web Runtimes (WRTs)** WRTs are very interesting and provide access to some device functions using mobile web principles, I've found them to be more complex than just creating a simple mobile web app, as they force the developer to code within an SDK rather than just code a simple web app. And based on the number of mobile web apps written for the iPhone versus the number written for other, more full- featured WRTs.		
9	**What is Android SDK?** The Android SDK allows developers to create native applications for any device that runs the Android platform. By using the Android SDK, developers can write applications in C/C++ or use a Java virtual machine included in the OS that allows the creation of applications with Java, which is more common in the mobile ecosystem.		
10	**What is Cocoa Touch?** Cocoa Touch is the API used to create native applications for the iPhone and iPod touch. Cocoa Touch applications must be submitted and certified by Apple before being included in the App Store. Once in the App Store, applications can be purchased, downloaded, and installed over the air or via a cable-connected		
11	**What is Windows Mobile?** Applications written using the Win32 API can be deployed across the majority of Windows Mobile-based devices. Like Java, Windows Mobile applications can be downloaded and installed over the air or loaded via a cable-connected computer.		
12	**What is BREW?** Applications written in the BREW application framework can be deployed across the majority of BREW-based devices, with slightly less cross-device adaption than other frameworks. However BREW applications must go through a costly and timely certification process and can be distributed only through an operator.		
13	**What is Flash Lite** Adobe Flash Lite is an application framework that uses the Flash Lite and		
	Action Script frameworks to create vector-based applications. Flash Lite applications can be run within the Flash Lite Player, which is available in a handful of devices around the world. Flash Lite is a promising and powerful platform, but there has been some difficulty getting it on devices. A distribution service for applications written in Flash Lite is long overdue.		

14	**What are the set of rules for mobile?** 1: Forget What You Think You Know 2: Believe What You See, Not What You Read 3: Constraints Never Come First 4: Focus on Context, Goals, and Needs 5: You Can't Support Everything 6: Don't Convert, Create 7: Keep It Simple		
15	**What are the the problems of mobile websites? <u>NOV/DEC2017</u>** • They are easy to create, maintain, and publish. • They can use all the same tools and techniques you might already use for desktop sites. • Nearly all mobile devices can view mobile websites		
16	**What are the conditions of mobile websites ?** • They can be difficult to support across multiple devices. • They offer users a limited experience. • Most mobile websites are simply desktop content reformatted for mobile devices. • They can load pages slowly, due to network latency		
17	**What ate the problems of SMS applications ?** • They work on any mobile device nearly instantaneously. • They're useful for sending timely alerts to the user. • They can be incorporated into any web or mobile application. • They can be simple to set up and manage.		
18	**What are the cons of SMS applications ?** • They're limited to 160 characters. • They provide a limited text-based experience. • They can be very expensive.		
19	**What are the types of Mobile Application?** ● SMS ● Mobile Websites ● Mobile Web Widgets ● Mobile Web Applications ● Native Applications		
	● Games ● Mobile Application Media Matrix ● Application Context ● Utility Context ● Locale Context ● Informative Applications		

20	**What are the types of mobile architecture?** **Information architecture** The organization of data within an informational space. In other words, how the user will get to information or perform tasks within a website or application. **Interaction design** The design of how the user can participate with the information present, either in a direct or indirect way, meaning how the user will interact with the website of application to create a more meaningful experience and accomplish her goals. **Information design** The visual layout of information or how the user will assess meaning and direction given the information presented to him. **Navigation design** The words used to describe information spaces; the labels or triggers used to tell the users what something is and to establish the expectation of what they will find. **Interface design** The design of the visual paradigms used to create action or understanding.		

PART-B

Q.No	Questions		
1	**Explain about Mobile Ecosystem and its types .Page no 661**		
2	**Explain the types of Mobile applications with example. Page no 654 APR/MAY 2017** .		
3	**Elaborate the Mobile Information Architecture. Page no 635 NOV/DEC2017, NOV/DEC2018**		
4	**Elaborate the process of Mobile 2.0 in detail. Page no 635**		
5	**Explain and list the Elements of Mobile Interface Design in detail. Page no 678 APR/MAY2017, NOV/DEC2017, APR/MAY2018**		

6	**Explain the process of platform application frameworks Page no 655**		
7.	**Discuss various elements of mobile design with step by step method to explain how to design a registration page for movie ticket booking. Page no 655<u>APR/MAY2018</u>**		
8	**Explain about layers of mobile eco system .Page no 661**		
9	**Explain about application Framework in mobile eco system. Page no 677**		
10	**Discuss about the mobile applications medium types. Page no 657 <u>NOV/DEC2018</u>**		
11	**Explain about mobile web applications Page no 690**		
12	**Explain about mobile design elements Page no 678**		
13	**Explain different layouts for different devices in detail Page no 661**		
14	**Explain the various mobile design tools and interface kits Page no 690 <u>NOV/DEC 2018</u>**		
15	**Explain the role of major mobile OS Page no 635 <u>NOV/DEC 2018</u>**		

UNIT-5

WEB INTERFACE DESIGN **9**

Designing Web Interfaces – Drag & Drop, Direct Selection, Contextual Tools, Overlays, Inlays and Virtual Pages, Process Flow. Case Studies

PART-A

Q.No	Questions		
1	**What is drag and drop?** Just grab an object and drop it somewhere.		
2	**What is auto complete pattern? APR/MAY 2017** Auto-complete transforms a recall problem into one of recognition. As you type into the search box, it tries to predict your query based on the characters you have entered. Like a human interpreter mediating between two people speaking different languages, auto-complete facilitates the dialogue between the user and the search application.		
3	**What are the page elements available to include drop?** • Page (e.g., static messaging on the page)		
	• Cursor • Tool Tip • Drag Object (or some portion of the drag object, e.g., title area of a module) • Drag Object's Parent Container • Drop Target Apple uses a proprietary version of Mac OS X as a platform for their iPhone and iPod touch line of devices, which is based on Unix.		
4	**What are the Purpose of Drag and Drop? APR/MAY2018** ● Drag and Drop Module Rearranging modules on a page. ● Drag and Drop List Rearranging lists. ● Drag and Drop Object Changing relationships between objects. ● Drag and Drop Action Invoking actions on a dropped object. ● Drag and Drop Collection Maintaining collections through drag and drop		

5	**What is Drag and Drop Module?** One of the most useful purposes of drag and drop is to allow the user to directly place objects where she wants them on the page. A typical pattern is Drag and Drop Modules on a page.		
6	**What are two common approaches to targeting a drop?** ● Placeholder target ● Insertion target		
7	**What is Boundary-based placement.?** Placeholder targeting drag the module in its original size, targeting is determined by the boundaries of the dragged object and the boundaries of the dragged-over object. The mouse position is usually ignored because modules are only draggable in the title (a small region).		
8	**What is Insertion target?** Placeholder positioning is a common approach, but it is not the only way to indicate droptargeting. An alternate approach is to keep the page as stable as possible and only move around an insertion target (usually an insertion bar).		
9	**What are the types of overlays? <u>APR/MAY 2017</u>** o Dialog overlay o Detail overlay		
	o Input overlay		
10	**What are the two ways to move objects around that supported by drag and drop?** ● Edit the row number and then p • ress the "Update DVD Queue" button. ● Click the "Move to Top" icon to pop a movie to the top.		
11	**What is Hinting at drag and drop?** When the user clicks the "Move to Top" button, Netflix animates the movie as it moves up. But first, the movie is jerked downward slightly and then spring-loaded to the top.		
12	**What is drag lens?** A drag lens provides a view into a different part of the list that can serve as a shortcut target.		

13	**What is Drag and Drop Object?** ➢ Drag and Drop Object is used to rearrange members of the organization. ➢ Normal display state ➢ Invitation to drag ➢ Dragging ➢ Dropped		
14	**When will a drop action l be will be invalid ?** ● The dragged object's icon becomes a red invalid sign. ● If over an invalid folder, the folder is highlighted as well		
15	**When will a drop be valid**? • The dragged object's icon changes to a green checkmark. • The drop target highlights		
16	**Define A good rule of thumb on drag initiation.** Your application should provide drag feedback as soon as the user drags an item at least three pixels. If a user holds the mouse button down on an object or selected text, it should become draggable immediately and stay draggable as long as the mouse remains down		
17	**Define non-obvious** Requires some additional instructions to "Drag the DVDs into the boxes below" in order for the user to know how to rate the movies		
18	**Define the term 'Too much effort'.** Requires too much user effort for a simple task. The user needs to employ mouse gymnastics to simply rate a movie. Drag and drop involves these discrete steps: target, then drag, then target, and then drop. The user has to carefully pick		
	the movie, drag it to the right bucket, and release.		
19	**What is Drag and Drop Collection?** A variation on dragging objects is collecting objects for purchase, bookmarking, or saving into a temporary area. This type of interaction is called Drag and Drop Collection.		
20	**List out some of the best practices to keep in mind during the design of input overlay? <u>NOV/DEC2017</u>** ● Clear focus ● Display Vs editing ● Anti-pattern		

PART-B

Q.No	Questions		
1	Explain various drag and drop methods in detail with examples. **Page no 711**		
2	Categorize the principles for designing rich web interface **Page no 722** **APR/MAY 2017**.		
3	Explain various contextual tools in detail with examples. How are they used in design of rich web UI? Illustrate and compare with example? **Page no 745 NOV/DEC2017, APR/MAY 2018,NOV/DEC2018**		
4	Explain types of overlays in detail with examples. **Page no 756 NOV/DEC2018**		
5	Explain types of inlays in detail with examples. **Page no 745**		
6	Explain the concept of virtual paging. How are virtual pages used in the design of rich web UI? Illustrate and compare with example? **Page no 737NOV/DEC2017**		
7	Explain the concept of dynamic invitation in detail. **Page no 769**		
8	Design a web interface for a "library mgmt system". State the functional requirements you are considering? **Page no 790** **APR/MAY 2017**		
9	Write in brief the process of web interface design **Page no 722** **APR/MAY 2018, NOV/DEC2018**		
10	Explain the following contextual tools **Page no 745** 1. Always visible tool 2. Hover reveal tools 3. Toogle reveal tools 4. Multi level tools 5. Secondary menu		

11	Explain about Virtual Panning and Zoomable User Interface **Page no 729**		
12	Discuss about Configurator Process, Overlay Process and Static		
	Single-Page Process **Page no 798**		
13	Explain about Interactive Single-Page Process **Page no 705**		
14	Explain in detail about Virtual Panning **Page no 651**		
15	Explain about various types of selection patterns **Page no 659**		