MAKERERE UNIVERSITY

COLLEGE OF COMPUTING AND INFORMATION SCIENCES
SCHOOL OF COMPUTING AND INFORMATICS TECHNOLOGY

ACADEMIC YEAR 2011/2012, SEMESTER ONE, **TEST ONE**.
COURSE NAME: **USER INTERFACE DESIGN**
COURSE CODE: CSC3103

Instructions: Answer all questions.
Duration: 1hour. Date sat. ……..
Test was **out of 40marks**.
REVISION GUIDE:

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1. a) Define Usability 1mk

A measure of satisfaction on use of a given piece of S/W or H/W.

b) Briefly explain at least four dimensions of usability
2mks

Learnability
Efficiency
Memorability
Satisfaction

c) Briefly explain the following in relation to Usability
3mks

i) Domain experience

Professional experience gained through school, it could be skill gained as a result of being an apprentice, which is not software/hardware oriented (particularly for the tool being designed). One could be an economist:- his/her domain experience in economics gives him a fair ground on understanding an accounting application software system better than one who is a civil engineer.
On the contrary a civil engineer would find it easier to understand a CAD tool like AUTOCAD faster than an economist.

ii) Application experience

This looks at ability to use a piece of an application S/W basing on previous excellency in use. It grows with frequency of use.

iii) Feature experience

The experience one gains from using a particular section/module/feature of a software. Eg:- Considering a school Management Information System, there are features/sections/modules which are for accounts, academics, Research and etc.

d) How important are the following in the User Interface Design process?
3mks

i) Heuristic evaluation

it involves an expert review together with a relevant user sample. The review is based on guiding principles.

ii) Predictive evaluation

Due to cost of sample tools and sometime lack of real users, a human behavioral prediction system is adopted. For the case of user interface design, the Human Model Processor is used as a simulative environment

iii) Empirical evaluation

In environments with real users, evaluation is done by deploying the tools on a real test bed. The evaluation results from an empirical evaluation therefore give higher levels of truth when a tool is deployed.

2. a) Why is the spiral model considered fit for the User Interface Design process?

3mks

Its design attracts a higher level of user involvement.

(You also need to state the flaws in the Waterfall model when it comes to user involvement)

b) Give a brief on the Model-View-Controller abstraction in User Interface Architecture.

3mks

You need to explain the

- *Model,*
- *View and*
- *Controller relevance/relationship*

in the abstraction

An illustration of the MVC is an added advantage.

c) Where would you place the concept of perceptual fusion in the GUI development process?

2mks

- Aids view of discrete continuous events like motion graphics which must be separated by milli seconds.

- Fusion eases Learning of GUI's

d) State and briefly describe any two kinds of events.

2mks

Raw Events

Translated Events

e) How does time stamping relate to with the auto repeat mechanism in the input model.

3mks

For an event X with a time stamp(y,z) where y is the start time and z is the expected stop time, if X is invoked at time y and the duration between y and z is exceeded, then the process of redoing/repeating the event as if the event has been re-invoked is what is referred to as the auto repeat. An example is when a key is pressed contionusly without releasing it.

3. a) Briefly, state and describe the relationship between the three processor components eminent in the Human Model Processor

3mks

Perceptual processor
Cognitive processor
Motor processor

An illustration would also be good here.

b) Describe the Bottom- up and Bottom Down approaches of perception.

2mks

In bottom up, features are used to identify stimuli
In bottom down the context is used to identify the stimuli

c) What is a metaphor? 1mk

A descriptive image, picture , sculpture, idea which without human explanation is definitve.
For the case of software user interfaces, pictures and images are used.

d) Why is the spot light metaphor understanding relevant in interaction design? 1mk

This kind of metaphor helps designers to understand which events can be performed concurrently and those which can not. The reason is because of the magnitude of attention exerted on some event. For example:- Driving while kissing will most likely cause an accident:, on the other side Driving while listening to music may be possible for some kind of users (Recall the fast man and the slow man)

e) Explain the stroop effect in graphical design applications.

2mks

Good side: Causes interference and captures attention especially for online advertisers
Bad side: Most interference are illicit to most users.

d) Briefly explain at least two properties of an input event.

2mks

- Time stamp
- Modifier Key state

e) How do event loops make GUI's work for user control and freedom?

4mks

Because of the asynchronous way of operation
(You need to describe the asynchronous way of operation here).
An illustration of a finite state machine showing an input operation would clearly describe the asynchronous nature of operation.

f) Briefly explain at least three properties of memory.

3mks.

Encoding, Size, Decay

NOTE: Since the focus of this course is user interfaces, your explanations on memory must not be generic. They must be user interface oriented EG: Decay:- Refers to how long a user can remember interface events he/she has operated on to aid issues like learning and reuse.

Good Luck.

I posted notes on User tests:
Take effort to understand what the following are

i) Formative evaluation
ii) Field study
iii) Controlled experiment.