

MILITARY COLLEGE OF SIGNALS
FINAL EXAM
BESE 14 – (A & B)
CSE 476 Human Computer Interfacing

Instructor: A/P Dr. Imran Siddiqi

Time: 150 Minutes

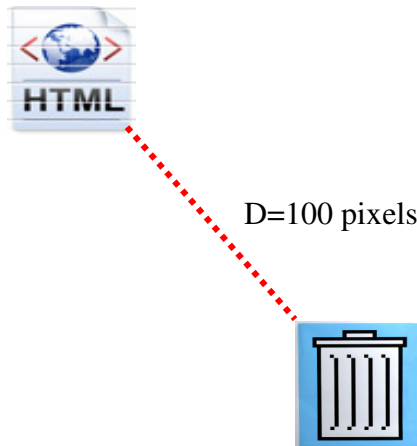
Max Marks: 50

Instructions

- i. Be concise in your description and avoid unnecessary details.
- ii. Understanding the questions is part of the examination.
- iii. The question paper comprises **2** pages.

(3+3+3)

1. **a.** An HTML file icon is to be dragged to the trashcan icon as indicated in the figure below. Both the icons are squares of 10 pixels and the two icons are separated by a distance (corner to corner) of 100 pixels. Applying Fitt's law, predict the time required to move the file icon to the trashcan. You may assume a value of **1** for the constants in Fitt's law.



b. List some of the challenges/difficulties in using handwriting recognition for text input to the computer. Is online recognition easier than recognizing the text written on paper? If yes/no can you elaborate why?

c. What is *Page Description Language* (PDL) and why is it useful. Give an example of a PDL.

(4+4)

2. **a.** Differentiate between *Internationalization* and *Localization*. List some of the challenges associated with *Internationalization*.

b. You have designed a dialog box which will be part of a software that is to be released in English, French and Spanish. The dialog box has only two buttons and the respective variables in your program are: *button1*, *button2*. The buttons will have the following text in different versions:

	English	French	Spanish
<i>button1</i>	Yes	Oui	Si
<i>button2</i>	No	Non	No

- i. Show the three message files for this dialog box?
- ii. Assuming that functions for specifying the message file name, setting the button text and getting a value from the message file are available; show how would you use them in the source code of your dialog.

- (3+2+3)**
3. a. List two presentation issues which you need to address while designing user support (help) systems. Give an example of *Command Assistance* and a *Wizard*.
- b. How the *JSD Diagram* of a system differs from its *hierarchical task analysis*?
- c. Perform a *hierarchical task analysis* of making a call to a friend using your cell phone.

- (3+4+3)**
4. a. List any five of Nielsen's Heuristics for usability evaluation.
- b. Your developers have provided you with an interface and you need to evaluate whether a font size of 8, 10 or 12 in your menu items would make the selection easier for the users. Using empirical evaluation, state the dependent and independent variables, the hypothesis, the experimental design and the way you will actually carry out the evaluation.
- c. What is the difference between client side and server side dynamic web pages? Give two example technologies of each category.

- (4+3+4+4)**
5. a. Design a Petri net for a traffic signal where the lights follow the following sequence: Green – Orange – Red – Green. Assign meaningful names to places and transitions and assume that the signal is initially Red.
- b. Propose a BNF that allows you to generate real numbers. Examples may include number like 0.5, 2.34, 54.65 etc.
- c. Is the expression " $z - (x + y) * x$ " a valid string according to the following BNF:

```
<exp> ::= <exp> + <addpart> | <exp> - <addpart> | <addpart>
<addpart> ::= <addpart> * <mulpart> | <mulpart>
<mulpart> ::= <var> | ( <exp> )
<var> ::= x | y | z
```

- d. Consider the following grammar:

```
<sentence> ::= <subject> <predicate>
<subject> ::= <article> <noun>
<predicate> ::= <verb> <direct-object>
<direct-object> ::= <article> <noun>
<article> ::= THE | A
<noun> ::= MAN | DOG
<verb> ::= BITES | PETS
```

Verify if the following sentences are in the language:

- i. THE DOG BITES A MAN
- ii. MAN BITES DOG

===== Bon Courage ☺ =====