



UNIVERSITY

UNIVERSITY EXAMINATIONS

**FOURTH YEAR EXAMINATION FOR THE AWARD OF
BACHELOR OF SCIENCE IN COMPUTER SCIENCE AND BACHELOR OF SCIENCE
IN APPLIED COMPUTE SCIENCE**

COSC 435: USER INTERFACE DESIGN

ACSC 435: HUMAN COMPUTER INTERFACE

STREAMS: Y4S1

TIME: 2 HOURS

DAY/DATE: WEDNESDAY 22 /09/ 2021

11.30 AM – 1.30 PM

INSTRUCTIONS

1. Answer question **ONE** and any other **TWO** questions
2. Marks are awarded for clear and concise answers

SECTION A- COMPULSORY

QUESTION ONE [30 Marks]

- (a) You are tasked with designing and developing a web based application for use in a small Company. Describe **TWO** benefits of employing ethnographic **approach** in the design **[4 marks]**
- (b) In the context of Graphical User Interfaces (GUIs), describe what is meant by the following terms
- (i) Windows **[2 Marks]**
 - (ii) Icons **[2 Marks]**
 - (iii) Menus **[2 Marks]**

- (c) Discuss how the following cognitive psychology aspects affect human memory
 - i. Attention [2 Marks]
 - ii. Rehearsal [2 Marks]
- (d) When building information systems, HCI experts recommend prototyping of the system first. There are a lot of gains to be made by using prototyping in the design stage of a project. Discuss **FOUR** such benefits [4 Marks]
- (e) Give **TWO** differences between formative and summative evaluation [4 Marks]
- (f) While describing external consistency, explain how Microsoft has applied the concept in the design of its products [4 Marks]
- (g) Command line interfaces were the first form of direct human computer interaction. They still remain powerful for some situations. Briefly describe **TWO** advantages associated with this type of interface [4 Marks]

Question TWO [20 Marks]

- (a) Look at the following user interface feature and answer the questions that follow



- (i) Explain what this design feature does in relation to user interface design [2 Marks]
 - (ii) Does this feature increase the gulf of evaluation or does it reduce it? Give **THREE** reasons to support your answer [6 Marks]
- (b) User Centered design is an iterative process involving **THREE** core activities. Briefly describe each [6 Marks]

- (c) Tasks analysis is an analysis technique which models the steps involved in completing a task. Describe **THREE** tools/techniques that can employed to collect this information \

[6 Marks]

Question THREE [20 Marks]

Jane is a student of religious studies and is working on an essay in ms-word on indian architecture and how it has been influenced by religious practices. She wants to copy some key points to a powerpoint presentation in preparation for a presentation she intends to make later in the day. For her to do so, she must exchange data between the two applications: ms-word and Powerpoint. For her to exchange this data between the two applications that are all currently running, she must use copy and paste commands. Jane knows the following options of applying copy and paste commands from where she has to make a decision on which option to use.

- Highlight Text->Click Copy ICON on Tool bar->Click on a Powerpoint slide->Click Paste ICON on Tool bar.
- Highlight Text->Press CTRL+C->Click on a Powerpoint slide->Click Paste ICON on Tool bar
- Highlight Text->Press CTRL+C->Click on a Powerpoint slide->Press CTRL+V
- Highlight Text-> Right click->Click Copy on context menu ->Click on a Powerpoint slide->Press CTRL+V
- Highlight Text-> Right click->Click Copy on context menu ->Click on a Powerpoint slide ->Click Paste ICON on Tool bar.
- Highlight Text-> Right click->Click Copy on context menu -> Right Click on a Powerpoint slide-> Click paste on context menu
- Highlight Text->Press CTRL+C-> Right Click on a Powerpoint slide-> Click paste on context menu.

- (a) In relation to **GOMS** model:

(i) Identify **ONE** goal and **ONE** subgoal in this scenario [2 Marks]

(ii) Identify **SIX** operators in this scenario [6 Marks]

(iii) Identify **FOUR** Methods in this scenario [4 Marks]

(b) Describe **FOUR** Basic user Interface Evaluation Techniques [8 Marks]

Question FOUR [20 Marks]

(a) Analytic evaluation involves modeling and analysis of a system's feature and their implications for use. Briefly describe How the following analytic evaluation techniques are used to evaluate a user interface.

(i) Usability expert [4 Marks]

(ii) Usability inspection [4 Marks]

(iii) Cognitive walkthrough [4 Marks]

(b) Briefly explain what is meant by the terms **Perception and Cognition** and the role that each plays in user interface design [8 Marks]

Question FIVE [20 Marks]

(a) One important design consideration in the design of user interfaces is internal consistency.

(i) Briefly describe what internal consistency means [4 Marks]

(ii) Identify **THREE** aspects of windows operating System that adhere to this principle [6 Marks]

(b) Describe **THREE** design principles/techniques that designers of user interfaces can employ to overcome the problems of Short-Term Memory [6 Marks]

(c) Using Norman's s model, explain how the following design principles can be used to address the issue of gulf of evaluation

(i) Good Mappings [2 Marks]

(ii) Feedback [2 Marks]

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