5E1757

Total No. of Questions : 22 Total No. of Pages : 04

Roll No. : .....

5E1757

B.Tech. V-Sem. (Main/Back) Exam. - 2024

COMPUTER SCIENCE AND ENGINEERING (IOT)

5CIT4-12 / Human-Computer Interaction (Elective-II)

CS, CSD, CIT

Time : 3 Hours **Maximum Marks : 70**

Instructions to Candidates :

Attempt all ten questions from Part-A, five questions out of seven questions from Part-B and three questions out of five questions from Part-C.

Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used / calculated must be stated clearly.

Use of following supporting material is permitted during examination. (Mentioned in Form No. 205)

1. ..... 2. .....

PART-A *[10×2=20]*

(Answer should be given up to 25 words only)

All questions are compulsory

Q.1. Define usability.

Q.2. What is the role of user research in interactive system design?

Q.3. What is model-based design and evaluation?

Q.4. State Fitts' Law.

Q.5. What are the benefits and limitations of heuristic evaluation?

Q.6. Define Concur Task Tree.

Q.7. What are the benefits and limitations of using FSMs in dialog design?

Q.8. Describe the key components of an HTA model.

Q.9 What is a Cognitive Architecture?

Q.10. Define ANOVA.

PART-B [5x4=20]

(Analytical/Problem Solving questions)

Attempt any five questions

Q.1. What is CMN-GOMS, and how does it differ from KLM?

Q.2. What is a cognitive walkthrough, and explain how is it used to evaluate the usability of a product or system?

Q.3. Describe the Finite State Machine method and explain how it is used to design and evaluate user interfaces. Discuss the benefits and limitations also.

Q.4. Discuss the implications of HCI for software engineering methodologies.

Q.5. Describe the process of applying OOM to UI design, including the identification of objects, classes, and relationships.

Q.6. Compare OOM with other modeling approaches, including structured analysis and design, and human-computer interaction (HCI) design patterns.

Q.7. Describe the Statechart method and explain how it is used to design and evaluate user interfaces. Discuss the benefits and limitations of using Statecharts.

PART-C

[3x10=30]

(Descriptive/Analytical/Problem Solving/Design questions)

Attempt any three questions

Q.1 Discuss the role of aesthetics in GUI design, including the use of color, typography, and imagery.

Q.2. State Fitts' Law and explain its significance in model-based design and evaluation. Describe Hick-Hyman's Law and its application in model-based design and evaluation.

Q.3. Explain Norman's model of interaction and discuss how it can be used to inform design decisions. Describe the different stages of the model and explain how designers can use the model to identify potential usability problems.

Q.4. Describe the Petri Net method and explain how it is used to design and evaluate user interfaces. Discuss the benefits and limitations of using Petri Nets in dialog design.

Q.5. Describe the MHP model and its components. Explain how MHP is used to model human cognition and behavior.

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