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Total No. of Questions : 08

Total No. of Pages : 01

M.Tech. (CSE) (Sem.–2)
HUMAN AND COMPUTER INTERACTION
Subject Code : MTCS/209/18
M.Code : 76060
Date of Examination : 22-05-2024

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :
1. Attempt any FIVE questions out of EIGHT questions.
2. Each question carries TWELVE marks.

1. What are mental models, and why are they important in interface design?

2. Explain the interaction design process in detail.

3. Explain the cognitive models in detail.

4. Differentiate between Face to face communication and Text based communication.

5. Explain all the components of mobile ecosystem.

6. **Write about :**

    (a) Overlays.

    (b) Inlays and

    (c) Virtual pages.

7. Explain the process of speech recognition.

8. What is the importance of Ergonomics?

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M.Tech. (CSE) (Sem.–2)
COMPUTER VISION
Subject Code : MTCS/208/18
M.Code : 76059
Date of Examination : 18-05-2024

Time : 3 Hrs.

Max. Marks : 60
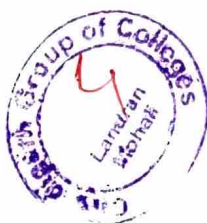
INSTRUCTIONS TO CANDIDATES :
1. Attempt any FIVE questions out of EIGHT questions.
2. Each question carries TWELVE marks.

1. Write a note on Bayes classification model.

2. Differentiate between edge and corner detection.

3. Write a note on Biometrics and Activity Recognition.

4. What is data pre-processing? What are its steps and how it is performed?

5. What is clustering? Explain with an example k-means algorithm.

6. What are various methods of dimension reduction? Explain.

7. Explain in detail computer imaging system. Also describe image formations.

8. How KNN and ANN classifier models work?

M.Tech. (CSE) (Sem.–2)
SOFT COMPUTING
Subject Code : MTCS-202-18
M.Code : 76056
Date of Examination : 11-05-2024

Time : 3 Hrs.   Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :
1. Attempt any FIVE questions out of EIGHT questions.
2. Each question carries TWELVE marks.

1. a) Give the use of Artificial Neural Networks in Soft Computing.s

   b) Discuss the constituents of soft computing.

2. Explain with help of example fuzzy decision making.

3. Describe in detail the working of fuzzy sets, fuzzy relations and fuzzy rules.

4. Differentiate between supervised learning NN, Unsupervised learning NN and Reinforcement learning.

5. Write the Back Propagation Algorithms. Discuss the convergence issues in the back propagation algorithms.

6. Explain in detail Adaptive Resonance Architecture and its components.

7. a) Define the crossover and mutation operator in Genetic Algorithms.

   b) Explain the use of function and file for ANN and fuzzy logic in Python.

8. Write a note on recent trends in deep learning, neural networks and genetic algorithms.

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M.Tech. (CSE) (Sem.–2)
ADVANCE ALGORITHMS
Subject Code : MTCS-201-18
M.Code : 76055
Date of Examination : 08-05-2024

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :
1. Attempt any FIVE questions out of EIGHT questions.
2. Each question carries TWELVE marks.

1. What are the applications of Minimal Spanning tree? Explain any method to find Minimal spanning tree in detail with suitable examples. (12)

2. Discuss matching in a general graph using Edmond's Blossom algorithm. (12)

3. State and explain Strassen's Matrix Multiplication. Give time complexity and Recurrence Relation for Strassen's Matrix Multiplication. (12)

4. Explain any LUP algorithm in detail.

5. a) Explain the geometry of feasibility region. (6)

   b) Explain the concepts of P, NP and NP completeness. (6)

6. Discuss the use of sorting algorithms in solving the latest problems. (12)

7. Explain Schonhage-Strassen Integer Multiplication algorithm. (12)

8. Differentiate the following techniques :

   a) Maximum flows and minimum cuts in a graph (6)

   b) Max flow and min cut. (6)

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