MASTER OF COMPUTER APPLICATION

ASSIGNMENTS

MCA – 3rd SEMESTER

(SESSON 2024-2025)

Directorate of Distance Education
Guru Jambheshwar University of Science & Technology
Hisar - 125001

GURU JAMBHESHWAR UNIVERSITY OF SCIENCE & TECHNOLOGY, HISAR
DIRECTORATE OF DISTANCE EDUCATION

Programme: Master of Computer Application

Course Name: Machine Learning **Semester: 3rd**
Code: MCA-31 **Total Marks: 30**

Important Instructions

1. Attempt all questions from each assignment given below.
2. Each assignment carries 15 marks.
3. All questions are to be attempted in legible handwriting on plane white A-4 size paper and upload the scanned copy of the assignments on student's portal.

ASSIGNMENT-I

Q1. What do you mean by unsupervised learning? Explain about various types of unsupervised learning.

Q2. What is regression? Explain linear regression through suitable example.

Q3. What is Principal Component Analysis? Explain.

ASSIGNMENT-II

Q1. Explain Neural Network Learning through an appropriate problem.

Q2. Explain Deep Learning in detail.

Q3. What is a Support vector machine? How does a support vector machine work?

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GURU JAMBHESHWAR UNIVERSITY OF SCIENCE & TECHNOLOGY, HISAR

DIRECTORATE OF DISTANCE EDUCATION

Programme: Master of Computer Application

Course Name: Advance Operating System **Semester: 3rd**

Code: MCA-32 **Total Marks: 30**

Important Instructions

1. Attempt all questions from each assignment given below.

2. Each assignment carries 15 marks.

3. All questions are to be attempted in legible handwriting on plane white A-4 size paper and upload the scanned copy of the assignments on student's portal.

ASSIGNMENT-I

Q1 what is operating system? Also explain its types of operating system in detail.

Q2.Explain operating system services and system calls.

Q3. Write short note on:

1) NOS (Network operating system)
2) Cloud OS
3) Directory structure

ASSIGNMENT-2

Q1. What do you understand by deadlock? What are the necessary conditions for deadlock?

Q2. What are the different methods to access the information from a file? Discuss their advantages and disadvantages.

Q3.Write short note on:

1) Thrashing
2) Virtual memory
3) UNIX OS

Prepared By:

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GURU JAMBHESHWAR UNIVERSITY OF SCIENCE & TECHNOLOGY, HISAR
DIRECTORATE OF DISTANCE EDUCATION

Programme: Master of Computer Application

Course Name: Data Analytics **Semester: 3rd**
Code: MCA-33 **Total Marks: 30**

Important Instructions

1. Attempt all questions from each assignment given below.
2. Each assignment carries 15 marks.
3. All questions are to be attempted in legible handwriting on plane white A-4 size paper and upload the scanned copy of the assignments on student's portal.

ASSIGNMENT-I

Q1. What are different data types in R? How are vectors, matrices, and data frames implemented in R?

Q2. Explain in detail the various packages used for data manipulation and transformations.

Q3. What is data visualization? Explain data visualization with the help of various plots and charts.

ASSIGNMENT-II

Q1. Explain the concept of predictive modelling. What is the trade-off between model accuracy, prediction accuracy, and model interpretability?

Q2. Describe the process of building a Multiple Linear Regression model. Discuss the methods used to evaluate the overall model.

Q3. What are the key steps in classification modelling? Explain the working of Decision Tree. How would you evaluate the accuracy of a classification model using confusion matrix, and ROC curve?

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GURU JAMBHESHWAR UNIVERSITY OF SCIENCE & TECHNOLOGY, HISAR
DIRECTORATE OF DISTANCE EDUCATION

Programme: Master of Computer Application

Course Name: Cyber Security **Semester: 3rd**
Code: MCA-34 **Total Marks: 30**

Important Instructions

1. Attempt all questions from each assignment given below.
2. Each assignment carries 15 marks.
3. All questions are to be attempted in legible handwriting on plane white A-4 size paper and upload the scanned copy of the assignments on student's portal.

ASSIGNMENT-I

Q1. What do you mean by network security? Explain types and services of network security.

Q2. What is a Radio Frequency Identification (RFID). Write its applications, advantages and disadvantages.

Q3. What is Ethics in Cyber Security, Its consequences and positive impacts?

ASSIGNMENT-2

Q1. Describe Cyber Laws of India, its importance, need, area and benefits.

Q2. What do you mean by Social Computing? What are challenges and tools of social computing?

Q3. Explain Cyber Space, Cyber Attacks and Cyber Weapons.

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Course: Theory of Computations **Semester: 3rd**

Paper Code: MCA-35 **Total Marks=30**

Important Instructions

I. **Attempt all questions from each assignment given below.**
II. **Each assignment carries 15 marks.**
III. **All questions are to be attempted in legible handwriting on plane white A-4 size paper.**

ASSIGNMENT-I

Q1. Explain the concept of Non-Deterministic Finite Automata (NDFA) and provide an example. How does it differ from Deterministic Finite Automata (DFA)?

Q2. What is the significance of the Pumping Lemma for Regular Sets? Explain how it can be used to prove that a language is not regular.

Q3. What are Moore and Mealy Machines? Discuss their equivalence and provide an example of each.

ASSIGNMENT-II

Q1. Define Context-Free Grammar (CFG) and Context-Sensitive Grammar (CSG). Discuss the concept of ambiguity in context-free grammar and how it can be resolved.

Q2. Explain the Chomsky Normal Form (CNF) and Griebach Normal Form (GNF) for context-free grammars. Discuss the process of converting a context-free grammar to CNF and GNF.

Q3. What is a Turing Machine (TM)? Explain the difference between a Deterministic Turing Machine (DTM) and a Non-Deterministic Turing Machine (NDTM).

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