

First Semester 2022-2023
COMPREHENSIVE EXAMINATION

Course No. : CS ZG530/ DS MV543

Course Title : Data Science

Nature of Exam : Closed Book

Weightage : 40%

Duration : 2½ Hours

Date of Exam : Sunday, 27/11/2022 (FN)

No. of Pages = 2

No. of Questions = 3

Q.1 Answer the following questions related to Data Science Fundamentals:

- (a) What are the key differences between structured and unstructured data?
- (b) Explain the significance of data cleaning in analytics. Provide techniques.
- (c) Discuss the importance of feature engineering in predictive modeling.
- (d) What is the role of big data technologies in data science?
- (e) Explain how deep learning is applied in image recognition.

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Q.2 Answer the following questions on Advanced Data Science Techniques:

- (a) Discuss the challenges of deploying machine learning models in production.
- (b) What is transfer learning? How does it benefit model training?
- (c) Explain the use of anomaly detection in fraud detection systems.
- (d) How does reinforcement learning differ from supervised learning?
- (e) Describe how data visualization improves decision-making in businesses.

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Q.3 State True or False providing due justification for your answers:

- (a) Data augmentation is only useful in text-based models.
- (b) Time-series forecasting models do not require feature selection.
- (c) Overfitting is always a sign of a good model.
- (d) Data normalization improves model accuracy.
- (e) Neural networks require labeled data for training.

[10]