Batch 2024-2025

TILAK MAHARASHTRA VIDYAPEETH, PUNE

MASTER OF COMPUTER APPLICATIONS (MCA)

EXAMINATION : DECEMBER - 2025

SEMESTER – III

Sub : Data Analytics using Python (MCA24-302)

Date :24/12/2025 **Total Marks : 60** **Time: 2.00 pm To 4.30 pm**

Instruction:

1. *All questions are compulsory unless and otherwise stated.*
2. *Bold figures to the right of every question are the maximum marks for that question.*
3. *Candidates are advised to attempt questions in order.*
4. *Answers written illegibly are likely to be marked zero.*
5. *Use of scientific calculators, Log tables, Mollier Charts is allowed.*
6. *Draw neat and labelled diagram wherever necessary.*

Q. 1. Answer the following in 2 - 3 lines. (Any 5) **(10)**

1. What do you mean by Epoch?
2. Define missing data.
3. What is reinforcement learning?
4. What is the purpose of a confusion matrix?
5. What is a neuron?
6. Define the terms histogram and activation function.?
7. What is Descriptive Analytics? Give one example.

Q. 2. Answer the following in short. (Any 4) **(20)**

1. Describe the steps involved in data cleaning.
2. Explain mean and median imputation with examples.
3. Describe how to compile and train a TensorFlow/Keras model.
4. Explain scaling and normalization in data preprocessing.
5. Explain K-means clustering with an example.
6. Explain the six major steps of data preprocessing.

Q. 3. Answer the following in detail. (Any 3) **(30)**

1. Explain the Data Analytics Life Cycle in detail and discuss the importance of each phase.
2. Discuss the complete data analysis workflow using Pandas.
3. Explain the architecture, components, and applications of CNNs.
4. Explain in detail how missing values affect dataset quality and describe all major techniques to fix them.
5. Explain any four types of regression models with diagrams.