

**TILAK MAHARASHTRA VIDYAPEETH, PUNE**  
**MASTER OF COMPUTER APPLICATIONS**  
**(Specialization in Artificial Intelligence & Machine Learning)**  
**EXAMINATION : JANUARY - 2025**  
**SEMESTER - III**

**Sub: Advance Machine Learning (MCAI 23-303)**

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**Date : 09/01/2025**

**Total Marks :60**

**Time: 10.00 am to 12.30 pm**

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**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.

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

1. Define TensorFlow.
2. Define Bootstrap.
3. Define Reinforcement Learning.
4. Define model validation.
5. What are the types of estimators.
6. Define K-fold cross validation.
7. Define fitted Q-learning.

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

1. Write some commands of TensorFlow operations.
2. Name some activation functions and how they are implemented in TensorFlow.
3. What are the advantages and disadvantages of Bootstrap Aggregating.
4. Differentiate between bootstrapping and jackknife.
5. How can you serialize and deserialize a scikit-learn model using pickle?
6. What are the key concepts of Reinforcement Learning?

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

1. Write the steps to evaluate a model. Explain briefly.
  2. Write down on how to set up an SQLite database.
  3. Write the steps to turn a classifier into a web application using flask.
  4. Write a short note on Random Forest.
  5. Write a short note on Grid Search.
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