MIT-ADT UNIVERSITY
PUNE, INDIA
A leap towards World Class Education
(Established by MIT Art, Design and Technology University Act, 2015
(Maharashtra Act No. XXXIX of 2015)

MIT Art Design and Technology University

MIT School of Computing, Pune

Department of Computer Science and Engineering

Theory Assignments

Subject - Artificial Intelligence & Machine Learning

Class - T.Y. (SEM-I),

Name of the Course Coordinator

Prof. Swati Powar

Team Members

Dr. Suvarna Pawar
Dr. Rajendra Pawar
Prof. Vijaya Patil
Prof. Shilpa Dhopate

AY 2025 - 2026

Unit-wise Question Bank Index

Prepared by – TTT Coordination Committee

Prof. Dr. Shraddha Phansalkar
Head - Dept. of CSE (Core)

Prof. Dr. Ganesh Pathak
Head - Dept. of CSE (ISA)

Prof. Dr. Rajneeshkaur Sachdeo
Director, School of Computing

Prof. Dr. Ramachandra V. Pujeri
Dean, MIT School of Computing

Instructions

Follow bloom's Taxonomy for prepari
bank.

Frame 6 (3 Questions per Unit) unan
unique and balanced Questions.

Match the questions to the content

Frame questions in such a way that
will not repeat in TA1, TA2 or Endsem

Map each of the questions to some learn

The questions' level of difficulty shoul
for all learner types (above average, below

MI

REVISED Bloom's Taxonomy Action Verbs

Definitions	I. Remembering	II. Understanding	III. Applying	IV. Analyzing	V. Evaluating	VI. Creating
Bloom's Definition	Exhibit memory of previously learned material by recalling facts, terms, basic concepts, and answers.	Demonstrate understanding of facts and ideas by organizing, comparing, translating, interpreting, giving descriptions, and stating main ideas.	Solve problems to new situations by applying acquired knowledge, facts, techniques and rules in a different way.	Examine and break information into parts by identifying motives or causes. Make inferences and find evidence to support generalizations.	Present and defend opinions by making judgments about information, validity of ideas, or quality of work based on a set of criteria.	Compile information together in a different way by combining elements in a new pattern or proposing alternative solutions.
Verbs	• Choose • Define • Find • How • Label • List • Match • Name • Omit • Recall • Relate • Select • Show • Spell • Tell • What • When • Where • Which • Who • Why	• Classify • Compare • Contrast • Demonstrate • Explain • Extend • Illustrate • Infer • Interpret • Outline • Relate • Rephrase • Show • Summarize • Translate	• Apply • Build • Choose • Construct • Develop • Experiment with • Identify • Interview • Make use of • Model • Organize • Plan • Select • Solve • Utilize	• Analyze • Assume • C • C • C • C • I • I • Distinguish • Divide • Examine • Function • Inference • Inspect • List • Motive • Relationships • Simplify • Survey • Take part in • Test for • Theme	• Agree • Appraise • A • Decide • Deduct • Defend • Determine • Disprove • Estimate • Evaluate • Explain • Importance • Influence • Interpret • Judge • Justify • Mark • Measure • Opinion • Perceive • Prioritize • Prove • Rate • Recommend • Rule on • Select • Support • Value	• Adapt • Build • C • Delete • Design • Develop • Discuss • Elaborate • Estimate • Formulate • Happen • Imagine • Improve • Invent • Make up • Maximize • Minimize • Modify • Original • Originate • Plan • Predict • Propose • Solution • Solve • Suppose • Test • Theory

Theory Assignmen

Unit-III

MIT Art Design and Technology University

MIT School of Computing, Pune

Department of Computer Science and Engineering

Third Year B. Tech

Academic Year 2025-2026. (SEM-I)

Subject: Artificial Intelligence & Machine Learning

Theory Assignment-3

Date: / / 2025 **Marks – 10**

Q. 1	a)	Define machine learning and explain its types with suitable real-life applications.	<L2/CO3>
	b)	Illustrate the differences between overfitting and underfitting. How can regularization and cross-validation help mitigate them?	<L4/CO3>
Q. 2	a)	Given a model with high bias and low variance, what problems might arise during prediction? Explain using bias–variance tradeoff	<L3/CO3>
	b)	Explain the role of the confusion matrix, precision, recall, and accuracy in evaluating model performance. When is precision more important than recall?	<L4/CO3>
Q. 3	a)	Compare feature extraction and feature selection with examples. How do they impact model performance and training efficiency?	<L4/CO3>
	b)	Define classification and regression tasks. Mention two real-world applications of each, and identify whether the following are classification or regression problems: a) Predicting house price b) Diagnosing cancer c) Predicting exam score out of 100 d) Classifying emails as spam/non-spam e) Predicting temperature	<L2/CO3>
Q. 4	a)	A student is building a machine learning model to detect fraudulent credit card transactions. After training the model, the evaluation metrics show high precision but low recall. What does this result indicate about the model's behaviour?	<L4/CO3>
	b)	Suppose a student trains a classification model using a simple train-test split and achieves an accuracy of 98% on the test set. Later, the student applies 10-fold cross-validation and observes that the average accuracy drops to 90%. (a) What might explain this drop in	<L4/CO3>

		performance? (b) How would you interpret these results? (c) What actions or improvements would you suggest based on this observation?	

Prepared By : **Swati Powar**

Name of the Course Coordinator : **Swati Powar**