

**BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)**

**CLASS: M.Sc(BI)
BRANCH: B&CB**

**SEMESTER : II
SESSION : SP/2025**

SUBJECT: BIZ03 ARTIFICIAL INTELLIGENCE & MACHINE LEARNING

TIME: 3 Hours

FULL MARKS: 50

INSTRUCTIONS:

1. The question paper contains 5 questions each of 10 marks and total 50 marks.
 2. Attempt all questions.
 3. The missing data, if any, may be assumed suitably.
 4. Before attempting the question paper, be sure that you have got the correct question paper.
 5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
-

		CO	BL
Q.1(a)	What do you mean by AI? Discuss the all types of agents	[5] 1	2
Q.1(b)	What is the machine learning? Why it is needed? Explain the decision tree.	[5] 2	3
Q.2(a)	What do you mean by supervised learning? Discuss the concepts of underfitting and pruning in detail	[5] 2	1
Q.2(b)	Explain the concepts about SVM and Kernel in detail.	[5] 3	3
Q.3(a)	Write and explain the architecture of neural network.	[5] 1	2
Q.3(b)	Explain the backpropagation method in detail.	[5] 2	3
Q.4(a)	What do you mean by unsupervised learning? Write and explain the clustering.	[5] 2	1
Q.4(b)	Explain the Semi-supervised learning with EM using labeled and unlabeled data.	[5] 3	3
Q.5(a)	Discuss the ensemble learning with help an example.	[5] 4	3
Q.5(b)	Discuss the all ensemble learning methods in brief.	[5] 5	2

:::::28/04/2025 E:::::