

BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION SP/2023)

CLASS: B.TECH.
BRANCH: CSE

SEMESTER : VI
SESSION : SP/23

SUBJECT: IT340 MACHINE LEARNING

TIME: 02 Hours

FULL MARKS: 25

INSTRUCTIONS:

1. The question paper contains 5 questions each of 5 marks and total 25 marks.
 2. Attempt all questions.
 3. The missing data, if any, may be assumed suitably.
 4. Tables/Data handbook/Graph paper etc., if applicable, will be supplied to the candidates
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Q.1(a)	Explain the importance of machine learning in complex real-world problem solving.	[2]	CO1	BL4
Q.1(b)	With a suitable representation explain the relationship between the following terms: Data, Information, Knowledge, and Intelligence	[3]	CO1	BL4
Q.2(a)	Enumerate the importance of central tendency and dispersion based statistical measures in machine learning.	[2]	CO1	BL2
Q.2(b)	Explain in detail the machine learning process model for problem solving.	[3]	CO1	BL4
Q.3(a)	Outline the differences between labelled and unlabeled data with appropriate examples.	[2]	CO1	BL2
Q.3(b)	Give a detailed discussion on classification of various types of machine learning algorithms and their features in detail.	[3]	CO2	BL4
Q.4(a)	Explain the significance of data preprocessing? Enumerate the different approaches for data cleaning.	[2]	CO2	BL1
Q.4(b)	Discuss how the bias-variance trade off influences the effectiveness of machine learning algorithms.	[3]	CO2	BL2
Q.5(a)	Explain the importance of feature engineering in machine learning based problem solving.	[2]	CO2	BL4
Q.5(b)	Describe the process of principal component analysis and its applicability towards feature reduction.	[3]	CO2	BL1

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