

APPENDIX-III

Question Paper Template (For Online Examination)

K. J. Somaiya Institute of Engineering and Information Technology, Sion, Mumbai-22

(Autonomous College Affiliated to University of Mumbai)

End Semester Exam

Nov – Dec 2021

(B.Tech) Program: Information Technology

Examination: LY Semester: VII

Course Code: **1UITDLC7031** and Course Name: **Machine Learning and Pattern Recognition**

Duration: 03 Hours

Max. Marks: 60

Instructions:

- (1) All questions are compulsory.
- (2) Draw neat diagrams wherever applicable.
- (3) Assume suitable data, if necessary.

		Max. Marks	CO	BT level
Q 1	Solve any six questions out of eight:	12		
i)	Discuss some areas that are influenced by the Machine Learning.	02	CO1	Understand
ii)	Explain linear models for regression.	02	CO2	Understand
iii)	Explain discriminant function.	02	CO3	Understand
iv)	Discuss Hidden Markov Models.	02	CO3	Understand

v)	Discuss cure of dimensionality.	02	CO4	Understand
vi)	Argue on tricks to avoid underfitting.	02	CO2	Evaluate
vii)	Explain classification and regression tree.	02	CO5	Understand
viii)	Discuss the need of ensemble classification.	02	CO6	Understand
Q.2	Solve any four questions out of six.	16		
i)	Describe different types of learning algorithms in Machine Learning.	04	CO1	Understand
ii)	Discuss the concept of regularization with suitable example.	04	CO2	Understand
iii)	Explain with example the difference between likelihood and probability.	04	CO2	Understand
iv)	Explain the concept of PCA with an example.	04	CO3	Understand
v)	Discuss bias and variance trade-off in detail.	04	CO4	Understand
vi)	Explain the need of ensemble classification. Which is widely used ensemble method and why.	04	CO6	Evaluate
Q.3	Solve any two questions out of three.	16		
i)	Explain Fisher Discriminant with suitable example.	08	CO3	Understand
ii)	Support biological relevance of ANN.	08	CO4	Evaluate
iii)	Compare any two methods of ensemble classification.	08	CO6	Analyze
Q.4	Solve any two questions out of three.	16		

i)	Explain singular value decomposition of a matrix with suitable example.	08	CO1	Understand
ii)	Explain Ridge regression and Lasso regression with suitable example.	08	CO2	Understand
iii)	Describe and formulate maximum a posteriori estimation method.	08	CO3	Create

Course Code: IUITDLC7031 and Course Name: ML: Max 2001 and Pattern

Recognition

Duration: 03 Hours

Max. Marks: 80

Instructions:

(i) All questions are compulsory.

(ii) Draw neat diagrams wherever applicable.

(iii) Assume suitable data, if necessary.

Q.No	Question	Max. Marks	CO	BT Level
Q.1	Solve any six questions out of eight:	80		
(i)	Define supervised and unsupervised learning.	12	CO1	Understand
(ii)	Explain linear model for regression.	12	CO2	Understand
(iii)	Explain discriminant function.	12	CO3	Understand
(iv)	Explain hidden Markov models.	12	CO3	Understand