Code No.: CS-PCC-322 | R18 | H.T.No. | | | R | 0 | | | | | | |

CMR INSTITUTE OF TECHNOLOGY: HYDERABAD

UGC AUTONOMOUS

III-B.Tech. II-Semester End Examinations (SUPPLY) – MAY– 2023

MACHINE LEARNING AND DATA SCIENCES

(CSE)

[Time: 3 Hours] **[Max. Marks: 70]**

Note:
1. This question paper contains two parts A and B.
2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
3. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have i, ii, iii as sub questions.
4. Illustrate your answers with NEAT sketches wherever necessary.

PART-A **10 X 2M = 20 M**

S.No	*Question*	*Blooms Taxonomy Level*	*CO*	*PO*
1	What is meant by p-hacking?	**I**	**1**	**2,3,6,12,13**
2	Define continuous random variable and state one example.	**I**	**1**	**2,3,6,12,13**
3	Mention the key difference between supervised and unsupervised learning.	**II**	**2**	**2,3,6,12,13**
4	Define multiple linear regression.	**I**	**2**	**2,3,6,12,13**
5	List types of Neural Networks.	**I**	**3**	**2,3,6,12,13**
6	What is Data Science?	**I**	**3**	**2,3,6,12,13**
7	Mention the purpose of NumPy in Python.	**I**	**4**	**2,3,6,12,13**
8	How do you rescale data in Python?	**I**	**4**	**2,3,6,12,13**
9	Name the types of hybrid recommendation system?	**I**	**5**	**2,3,6,12,13**
10	What is meant by opinion mining?	**I**	**5**	**2,3,6,12,13**

PART-B **5 X 10M = 50 M**

11.A	Write and explain the central limit theorem in statistics.	**II**	**1**	**2,3,6,12,13**
	OR			
11.B	i. Let u = (–1, 4, 3) and v = (–2, –3, 1) be elements of R3. Find u + v and 3u. ii. Let A be a real orthogonal n×n matrix. Prove that the length (magnitude) of each eigenvalue of A is 1.	**III**	**1**	**2,3,6,12,13**

12.A	Explain k-nearest neighbor learning algorithm with an example.	**II**	**2**	**2,3,6,12,13**
	OR			
12.B	i. Can an SVM classifier outputs a confidence score when it classifies an instance? What about a probability? ii. What are different types of errors in machine learning? Brief them.	**II**	**2**	**2,3,6,12,13**

13.A	i. What kind of a neural network will we use in deep learning regression via Keras-TensorFlow? ii. Explain data science concepts in brief.	**II**	**3**	**2,3,6,12,13**
	OR			
13.B	How do you find the maximally specific hypothesis? Explain.	**II**	**3**	**2,3,6,12,13**

14.A	List Toolkits in Python. Explain any two with examples.	**IV**	**4**	**2,3,6,12,13**
	OR			
14.B	How do you analyze data in Python? Illustrate.	**IV**	**4**	**2,3,6,12,13**

15.A	How does a recommender system work? Which algorithms are used in recommender systems?	**II**	**5**	**2,3,6,12,13**
	OR			
15.B	Why Is Sentiment Analysis important? Mention Sentiment Analysis applications & Examples.	**II**	**5**	**2,3,6,12,13**

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