Reg. No.												

Question Paper Code	12271

MBA - DEGREE EXAMINATIONS, NOV / DEC 2023

Third Semester

Master of Business Administration

20MBS303 - ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING FOR DECISION MAKING

(Regulations 2020)

Duration: 3 Hours Max. Marks: 100

PART - A (10 × 2 = 20 Marks)

Answer ALL Questions

		Marks, K-Level, CO
1.	Compare the scope of AI and data science.	*2,K2,CO1*
2.	Differentiate supervised learning and unsupervised learning.	*2,K2, CO1*
3.	Define prior probability.	*2,K1,CO2*
4.	Identify the semantics of Bayesian network.	*2,K2, CO2*
5.	Infer Hierarchical Bayes model.	*2,K2, CO3*
6.	Define Logistic Regression.	*2,K1, CO3*
7.	Report Gradient descent approach.	*2,K2, CO4*
8.	Express the two functions in Neural network's Activation functions.	*2,K2, CO4*
9.	Describe RNN in short.	*2,K1, CO5*
10.	Summarize your learning on ARIMA model.	*2,K2, CO5*

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

11.	a)	Explain the machine learning process in detail.	*13,K2,CO1*
		OR	
	b)	Discuss reinforcement learning with reference to one practical example.	*13,K2,CO1*
12.	a)	Demonstrate the various types of Discrete Probability distributions with appropriate illustrations.	*13,K2,CO2*
		OR	
	b)	Explain Gaussian discriminate analysis in machine learning.	*13,K2,CO2*
13.	a)	Analyze how Bayesian Decision Theory is applied in the context of machine learning.	*13,K4,CO3*
		OR	

b) Compare the different types of Logistic Regression with applications. *13,K4,CO3*

14. a) Sketch the history of Artificial Intelligence and also describe the motivation behind AI approach. *13,K2,CO4*

OR

b) Discuss about the Back-propagation algorithm with illustrations. *13,K2,CO4*

15. a) Evaluate the recurrent neural networks and their working. *13,K5,CO5*

OR

b) Critique the Latest artificial intelligence applications. *13,K5,CO5*

PART - C (1 × 15 = 15 Marks)
Case Study (Compulsory)

16. a) **Tesco:-** *15,K5,CO1*

Back in 1995—long before internet shopping was harvesting our data at the click of a button—Tesco launched a new rewards scheme called Tesco Club card. The idea was simple enough: for each transaction the customer carried out, they'd present their Club card and earn points to spend in-store. In exchange, Tesco collected a record of the sale, associated with the customer's name and postcode.

By today's standards, the data Tesco collected was pretty limited, but it provided incredible insights. Using data analytics, Tesco learned that a few loyal customers accounted for most of their sales. They also figured out how far people were willing to travel to their stores. Armed with these insights, Tesco created tailored coupons and offers to nudge customer behavior, rewarding high spenders and encouraging casual customers to engage more with the store. Within months of launching, Club card customers were spending 4% more than non-Club card customers.

Over time, Tesco began collecting more detailed data about customer buying habits, favorite products, and so on. While the digital era has made data collection far easier, we still think Tesco is worthy of a mention. The pioneering Club card helped put rewards schemes on the map and supported Tesco in becoming the UK's largest grocery store chain, beating all of its competitors. A master class in using data to transform your fortune!

Question:

1. Outline your learning for using analytics in the above case.
2. Given the situation, what data would Tesco collect currently to stay in the competition?