Model Question Paper-I with effect from 2022

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Sixth Semester B.E Degree Examination
Data Science and its Applications
(21AD62)

TIME: 03 Hours **Max. Marks: 100**

Note: Answer any **FIVE** full questions, choosing at least **ONE** question from each module.

		Module -1	Marks
Q.01	a	Explain Data Visualization and recognize its use. Sketch Python code segment to visualize line chart and scatterplot with example	**06**
	b	Summarize dispersion. Using Python code snippet explain the various measures of dispersion	**07**
	c	Briefly summarize the difference between variance and covariance. Write Python code for finding covariance	**07**
		OR	
Q.02	a	Describe vectors in Data Science and explain any three operations on vectors with Python routine for each operation.	**06**
	b	Describe Normal Distribution with a Python routine for PDF and CDF	**07**
	c	Explain Simpson's paradox with an example	**07**
		Module-2	
Q. 03	a	Interpret the importance of *power* and *significance* in Statistical Hypothesis Testing with suitable Python routine.	**10**
	b	Sketch the use of csv.reader, csv.DictReader and csv.writer in processing Delimited Files	**10**
		OR	
Q.04	a	Articulate the role of BeautifulSoup in Web scraping using Python snippet	**10**
	b	Summarize Stochastic and Minbatch Gradient Descent.	**10**
		Module-3	
Q. 05	a	Explain K-Nearest Neighbors Algorithm using Iris dataset	**10**
	b	Summarize the concept of overfitting and underfitting with example and explain how it can be resolved?	**10**
		OR	
Q. 06	a	Explain Naïve Bayes Algorithm in the context of classification with functions	**10**
	b	Explain the various parameters used in checking the correctness of prediction of Machine Learning Model	**10**
		Module-4	
Q. 07	a	Describe Decision Tree. Interpret with Python routine the process of creating Decision Tree.	**10**
	b	Illustrate the importance of perceptron in Artificial Neural Network	**10**

		OR	
Q. 08	a	Describe the basic idea behind clustering algorithm using color quantization as example	**10**
	b	Explain Neural Network as a sequence of Layers with functions	**10**
		Module-5	
Q. 09	a	One of the recent advances in NLP is representing words as low-dimensional vectors .How word vectors helps to accomplish this task?	**10**
	b	Paraphrase bigram, trigram and ngram language models used in Natural Language Processing	**10**
		OR	
Q. 10	a	Summarize Topic Modeling with reference to topic -word distribution and document-topic distribution	**10**
	b	Explain Word cloud approach in data visualization using Python code snippet	**10**

Table showing the Bloom's Taxonomy Level, Course Outcome and Program Outcome				
Question		**Bloom's Taxonomy Level attached**	**Course Outcome**	**Program Outcome**
Q.1	(a)	L3	CO 01	PO03
	(b)	L2	CO 01	PO 02
	(c)	L2	CO 01	PO 02
Q.2	(a)	L3	CO 01	PO 03
	(b)	L2	CO 01	PO 02
	(c)	L1	CO 01	PO 01
Q.3	(a)	L3	CO 02	PO 03
	(b)	L2	CO 02	PO 02
Q.4	(a)	L2	CO 02	PO 02
	(b)	L1	CO 02	PO 01
Q.5	(a)	L2	CO 03	PO 02
	(b)	L1	CO 03	PO 01
Q.6	(a)	L2	CO 03	PO 02
	(b)	L1	CO 03	PO 01
Q.7	(a)	L3	CO 04	PO 03
	(b)	L1	CO 04	PO 01
Q.8	(a)	L2	CO 04	PO 02
	(b)	L2	CO 04	PO 02
Q.9	(a)	L3	CO 05	PO 03
	(b)	L1	CO 05	PO 01
Q.10	(a)	L2	CO 05	PO 02
	(b)	L3	CO 05	PO 03

Bloom's Taxonomy Levels	**Lower order thinking skills**		
	Remembering (knowledge): L_1	Understanding (Comprehension): L_2	Applying (Application): L_3
	Higher order thinking skills		
	Analyzing (Analysis):L_4	Valuating (Evaluation): L_5	Creating (Synthesis): L_6