Reg. No.	R	A	2	2	3	1	2	4	2	0	3	0	0	0	4

BCA DEGREE EXAMINATION, NOVEMBER 2023

Third Semester

UDS21301J – INRODUCTION TO DEEP LEARNING

(For the candidates admitted during the academic year 2020-2021 to 2022-2023)

Time: Three Hours Max. Marks: 100

Answer **ALL** Questions

		Marks	BL	CO	PO
	PART – A (10 × 2 = 20 Marks)				
1.	What is overfitting? How to avoid it?	2	3	1	1
2.	How Deep learning works?	2	3	1	4
3.	Mention any four differences between machine learning and deep learning.	2	2	2	8
4.	What are the types of Gradient descent?	2	3	2	2
5.	Define tune hyper parameters.	2	3	3	1
6.	What is subsampling?	2	3	3	1
7.	Differentiate CNN and RNN.	2	3	4	3
8.	What is Hypothesis testing?	2	2	4	1
9.	Explain gates with its equation.	2	2	5	8
10.	Differentiate batches, epochs and iteration.	2	3	5	8
	PART – B (5 × 16 = 80 Marks)				
11.a.	Explain the principle of gradient descent algorithm and its types.	16	3	1	4
	(OR)				
b.	Explain in detail about the different type of Deep learning Algorithms.	16	5	1	4

12.a.	Explain the ANN training process with suitable diagram.	16	3	2	3
	(OR)				
b.	Write the steps for implementation in Deep learning.	16	3	2	2
13.a.	What do you mean by RNN? Explain with the help of a diagram. In which cases this model is suitable.	16	3	3	1
	(OR)				
b.	Elaborate on challenges in deep learning fundamentals.	16	2	3	5
14.a.	Explain the concept of different layers in Neural network, what do you mean by the term of convolution layer, pooling layer, loss layer, dense layer. Describe each one in brief.	16	3	4	1
	(OR)				
b.	Analyze various data collection techniques.	16	3	4	5
15.a.	Discuss the application of machine learning in computer vision.	16	2	5	2
	(OR)				
b.	Explain the requirements on software and hardware for the development of deep learning.	16	3	5	4

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Reg. No. 8 A 2 2 3 1 2 4 2 0 3 0 0 0 4

BCA DEGREE EXAMINATION, NOVEMBER 2023

Third Semester

UDS21302J – ADVANCED COMPUTING WITH PYTHON AND GCP

(For the candidates admitted during the academic year 2020-2021 to 2022-2023)

Time: Three Hours Max. Marks: 100

Answer **ALL** Questions

PART – A (10 × 2 = 20 Marks)

		Marks	BL	CO	PO
1.	What are the types of programming?	2	3	1	10
2.	What is scalability and redundancy?	2	1	1	1
3.	What is serverless computing?	2	1	2	1
4.	What are the advantage of cloud computing?	2	2	2	1
5.	What are differences between Front and back end tools?	2	4	3	1
6.	What are the challenges of near-memory computing?	2	1	3	1
7.	What are the roles of In-memory computing in AI applications?	2	3	4	2
8.	Define Real – Time event processing usecases.	2	1	4	1
9.	What is different between NoSQL and SQL?	2	4	5	8
10.	What is Google Natural Language API?	2	1	5	1

PART – B (5 × 16 = 80 Marks)

11.a.	Explain the soft computing overview, benefits, challenges and applications of the soft computing.	16	4	1	2
	(OR)				
b.	Briefly explain the business challenges and benefits of advanced computing.	16	4	1	8
12.a.	Explain the serverless for micro services Architecture.	16	4	2	4
	(OR)				
b.	Briefly explain Business Drivers for adopting cluster and cloud computing.	16	4	2	8
13.a.	Briefly explain i. In memory computing framework and architecture ii. Business benefits and challenges of In-memory computing	16	4	3	8
	(OR)				
b.	Write short notes on serverless computing framework and Architecture.	16	2	3	1
14.a.	Briefly explain Real-Time computing overview and framework.	16	4	4	8
	(OR)				
b.	Write short notes on: i. Near-Real time event processing overview ii. Batch processing overview	16	4	4	1
15.a.	Explain the working role of SQL database.	16	4	5	8
	(OR)				
b.i.	Write a python program to check if the number is an Armstrong number (or) not.	5	3	5	10
ii.	Write a Python program to print the reverse of the number.	5	3	5	10
iii.	Write a python program to solve quadratic equation.	6	3	5	10

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Reg. No.	R	A	2	2	3	1	2	4	2	0	3	0	0	0	4

BCA DEGREE EXAMINATION, NOVEMBER 2023

Third Semester

UDS21303J – INTRODUCTION TO NATURAL LANGUAGE PROCESSING

(For the candidates admitted during the academic year 2020-2021 to 2022-2023)

Time: Three Hours Max. Marks: 100

Answer **ALL** Questions

PART – A (10 × 2 = 20 Marks)

		Marks	BL	CO	PO
1.	Define NLP.	2	1	1	1
2.	List any four popular NLP frameworks.	2	1	1	1
3.	Differentiate hypernyms and hyponyms with example.	2	2	2	1
4.	How to generate a list of bigrams using NLTK.	2	2	2	2
5.	What do you mean by test data?	2	2	3	2
6.	Give an example for index based encoding technique.	2	1	3	1
7.	What is corpus?	2	1	4	1
8.	What do you mean by validiation data?	2	2	4	2
9.	Differentiate BERT and XLNET.	2	2	5	2
10.	Define target system.	2	1	5	1

PART – B (5 × 16 = 80 Marks)

		Marks	BL	CO	PO
11.a.	Summarize the application areas of NLP in detail.	16	3	1	3
	(OR)				
b.	Compare stemming and lemmatization. Distinguish between semantic, pragmatics and discourse.	16	2	1	2
12.a.	Explain the text pre-processing steps in detail.	16	2	2	2
	(OR)				
b.i.	Explain word sense disambiguation with example.	8	2	2	2
ii.	Write short notes on exploratory data analysis.	8	2	2	2
13.a.	Analyse the feature engineering pipeline by taking twitter dataset.	16	3	3	3
	(OR)				
b.i.	Explain task orchestration.	8	2	3	2
ii.	Write short notes on NLP models.	8	2	3	2
14.a.	Illustrate data structures in NLP.	16	4	4	4
	(OR)				
b.	How to extract topics from any text of your choice using non-negative matrix factorization.	16	4	4	4
15.a.	Compare and discuss about GPU, CPU and TPU in detail.	16	3	5	3
	(OR)				
b.	Summarize the requirements for building NLP hardware and software system.	16	3	5	3

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Reg. No. R A 2 2 3 1 2 4 2 0 3 0 0 0 4

BCA DEGREE EXAMINATION, NOVEMBER 2023

Third Semester

UDS21S03J – DATA ENGINEERING FOR ENTERPRISE

(For the candidates admitted during the academic year 2020-2021 to 2022-2023)

Time: Three Hours | Max. Marks: 100

Answer **ALL** Questions

PART – A (10 × 2 = 20 Marks)

		Marks	BL	CO	PO
1.	Why data engineering is important?	2	1	1	1
2.	What is No SQL?	2	1	1	1
3.	Define MDM.	2	1	2	1
4.	List out different formats of data.	2	1	2	1
5.	What is source and target system?	2	1	3	1
6.	Define the purpose of KAA.	2	1	3	1
7.	List out any four features of Apache spark.	2	2	4	1
8.	What are the business challenges of data integrations?	2	1	4	1
9.	Differentiate master data and reference data.	2	2	5	2
10.	Define static data system.	2	2	5	2

PART – B (5 × 16 = 80 Marks)

11.a.i.	Discuss about data analytics key challenges.	8	2	1	1
ii.	Differentiate data engineering and data warehouse.	8	2	1	1
	(OR)				
b.	Articulate the role of Data engineering in Data analytics and Data analysis.	16	2	1	2

12.a.	Explain ETL data pipeline architecture.	16	3	2	3
	(OR)				
b.	Describe snowflake schema in detail.	16	2	2	2
13.a.	Describe Hadoop architecture in detail.	16	2	3	2
	(OR)				
b.	Discuss the essential tasks involved in data identification.	16	3	3	2
14.a.	Describe the following:				
	i. Data profiling	6	2	4	2
	ii. Data cleansing	6	2	4	2
	iii. Data Transformation	4	2	4	2
	(OR)				
b.	Discuss your understanding about different data formats.	16	2	4	2
15.a.	Discuss the following:				
	i. Data modelling	8	3	5	3
	ii. Data Access path	8	3	5	3
	(OR)				
b.	Explain various types of data systems.	16	2	5	2

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