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

BCA DEGREE EXAMINATION, MAY 2024

Fourth Semester

UDS21401J – DEEP LEARNING 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.	Define Neural Network.	2	1	1	1
2.	What are the three layers of deep learning?	2	1	1	1
3.	List out the primary components of deep learning workflow.	2	1	2	1
4.	What do you mean by zero padding?	2	1	2	1
5.	Define pickling and unpickling.	2	1	3	1
6.	Write down the recurrence formula at every time step.	2	2	3	2
7.	What are GANs?	2	1	4	3
8.	Define Eigen value decomposition?	2	1	4	1
9.	Compare GAN with CNN.	2	1	5	5
10.	What is the difference between auto encoders and generative models?	2	2	5	4

PART – B (5 × 16 = 80 Marks)

11.a.i.	Write short notes on the types of deep learning algorithms.	8	1	1	1
ii.	What are the challenges of deep learning algorithms?	8	1	1	1
	(OR)				
b.	Explain about Convolutional Neural Network (CNN) in detail.	16	2	1	1
12.a.	Write short notes on the following: i. Deep reinforcement learning ii. Classical Neural Network iii. Auto encoders	16	1	2	1
	(OR)				
b.	Explain the various optimization algorithms for training neural network.	16	2	2	1
13.a.	Explain about recurrent Neural Network in detail.	16	1	3	1
	(OR)				
b.	Discuss in detail about LSTM with example.	16	2	3	1
14.a.	Write the types of regularization techniques with examples.	16	2	4	2
	(OR)				
b.	What is autoencoder? List out the applications of Autoencoders. Give examples and explain.	16	1	4	1

15.a.	What is GAN? Draw the architecture of GAM. How does a GAN work?	16	1	5	1
	(OR)				
b.	List out the applications of Generative Adversarial Network and explain with example.	16	1	5	1

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

BCA DEGREE EXAMINATION, APRIL 2024

Fourth Semester

UDS21402J – INTRODUCTION TO COMPUTER VISION

(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 primary challenges of computer vision?	2	1	1	1
2.	Give an example of biometric recognition in computer vision.	2	1	1	2
3.	Define the term "iterative process" in the context of computer vision workflow.	2	1	2	4
4.	How does data ingestion differ from data pre-processing in computer vision workflow?	2	2	2	1
5.	Write some features of a Good computer vision frame work.	2	1	3	1
6.	Define Filtering Technique in image processing.	2	1	3	3
7.	What does MNIST stand for?	2	1	4	2
8.	Write importance of validation data in training computer vision models.	2	1	4	1

9.	Why is it important to carefully select hardware components like GPU or TPU for a computer vision project?	2	1	5	1
10.	How does image segmentation differ from other types of computer vision problems?	2	2	5	2
	PART – B (5 × 16 = 80 Marks)				
11.a.	Explain the role of computer vision in medical imaging and highlight one significant application.	16	2	1	2
	(OR)				
b.	Describe the process of Optical Character Recognition (OCR) and its significance.	16	1	1	1
12.a.	Compare and contract the architecture of two different computer vision systems used in the oil and gas industry and the automobile industry.	16	3	2	2
	(OR)				
b.	Evaluate the importance of data transformation in enhancing the performance of a computer vision algorithm.	16	3	2	3
13.a.	Describe the difference between linear and non-linear fittering technique in image processing.	16	2	3	5
	(OR)				
b.	Compare and contrast the applications of object detection, object recognition and object classification in computer vision. Give examples of real – world scenarios for each task.	16	3	3	2

14.a.	Describe the process of edge detection using the canny edge detector. Discuss its advantages and limitations.	16	1	4	4
	(OR)				
b.	Compare and contrast the performance of Convolutional Neural Networks (CNN) and Support Vector Machines (SVMs) in image classification tasks.	16	2	4	2
15.a.	Develop a high-level plan for a data pipeline in a computer vision project, outline key stages for data collection to model deployment.	16	3	5	2
	(OR)				
b.	Compare and contrast different model selection approaches for a customer image segmentation problem.	16	2	5	2

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

BCA DEGREE EXAMINATION, MAY 2024
Fourth Semester

UDS21403J – WORKING WITH BIG DATA
(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.	Define Hadoop.	2	1	1	1
2.	What is Data Mining?	2	1	1	1
3.	Expand YARN and write its importance.	2	1	2	1
4.	List any four business challenges of mapreduce.	2	1	2	1
5.	Write the importance of HDFS.	2	1	3	3
6.	What is MLib?	2	1	3	1
7.	Define topic.	2	1	4	3
8.	Write the uses of Data Frame.	2	1	4	1
9.	What is Data Visualization?	2	1	5	2
10.	Define Model Engineering.	2	1	5	1
	PART – B (5 × 16 = 80 Marks)				
11.a.	Briefly explain Big Data tools overview.	16	1	1	1
	(OR)				
b.	Explain the following:				
	i. In memory analytics	8	1	1	1
	ii. Predictive analytics	8	1	1	1
12.a.	Explain in detail about MapReduce architecture and its challenges.	16	1	2	7
	(OR)				
b.	Explain in detail about the components and benefits of Pyspark.	16	2	2	2
13.a.	Explain the following:				
	i. Data Engineering	4	1	3	3
	ii. Data pipeline	4	1	3	3
	iii. Model selection	4	1	3	3
	iv. Problem type	4	1	3	3
	(OR)				
b.	Write a brief note on NoSQL.	16	2	3	2
14.a.	What is data frame? Discuss all the sources of spark data frame and its features.	16	2	4	2
	(OR)				
b.	Explain the following with example.				
	Select()	4	2	4	10
	With column()	4	2	4	10
	Filter()	4	2	4	10
	OrderBy()	4	2	4	10
15.a.	Draw and explain the Kafka architecture and list various steps to setup Kafka Environment.	16	2	5	2
	(OR)				
b.	Explain the IIOT Technologies, communication protocols and Data services.	16	1	5	6

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

BCA. DEGREE EXAMINATION, MAY 2024
Fourth Semester

UDS21404J – DATA SCIENCE 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. Define Bias and Variance.	2	2	2	3
2. Differentiate underfitting and overfitting.	2	2	2	2
3. How dimensionality reduction works with PCA?	2	3	2	3
4. What is Regression Analysis?	2	2	1	1
5. Mention two business benefits and the challenges of Machine learning model analysis.	2	2	2	2
6. List out SW's with any two examples.	2	2	2	1
7. Define HDFS and its usability.	2	1	1	2
8. Illustrate the common techniques used for analyzing the data.	2	3	4	3
9. What are Data visualization techniques? Give two examples.	2	2	5	4
10. Mention the component of Time series analysis.	2	2	5	3

PART – B (5 × 16 = 80 Marks)

11.a. Discuss Principal Component Analysis and Linear Discriminant Analysis with suitable examples.	16	2	2	4
(OR)				
b. Explain Machine Learning Tree model with suitable application.	16	2	2	3
12.a. Elucidate various regression techniques in detail.	16	3	2	4
(OR)				
b. How to select right regression model? Explain.	16	3	3	4
13.a. Discuss about Apache Sqoop architecture with neat diagram.	16	2	3	3
(OR)				
b. Explain the concept of Apache flume with suitable example.	16	2	3	2
14.a. Discuss about the Text Analytic Processing in detail.	16	2	4	4
(OR)				
b. Describe brief about Air flow and mention the reasons to choose airflow.	16	2	4	4
15.a. Elaborate stationary and non-stationary timeseries with suitable example.	16	3	5	3
(OR)				
b. Illustrate date visualization in Tableau for bar chart and scatter plot.	16	3	5	3

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