

ARKA JAIN University
Jharkhand

NAAC GRADE A
ACCREDITED UNIVERSITY

END SEM EXAMINATION
School of Engineering & IT

Program	Bachelor of Computer Application	
Subject Name	Internet of things	Semester Year
		IV April 2024

- Start writing from 2nd page onwards; don't write on the 1st Page Backside
- Answer all Questions of Section A (Compulsory)
- Answer Any Four out of Six of Section B
- Answer Any Three out of Five of Section C
- Possession of Mobile Phones or any kind of Written Material, Arguments with the Invigilator or Discussing with Co-Student will come under Unfair Means and will result in the Cancellation of the Papers.

Time: 3 Hour
Max. Marks : 70

Knowledge Level (KL)	K1 : Remembering	K3 : Applying	K5 : Evaluating
	K2 : Understanding	K4 : Analysing	K6 : Creating

Section A (Each question Carry 02 Marks from Q1-i to x) - 20 Marks			
Q. N1	QUESTIONS	Marks	COs
i	What do you mean by industry 4.0?	2	CO1
ii	The IoT operates at _____ scale.	2	CO1
iii	What is a RPi?	2	CO1
iv	IaaS stands for _____.	2	CO2
v	What is IoT Cloud?	2	CO2
vi	Write down the primary difference between Arduino and Raspberry Pi.	2	CO4
vii	What is Sensor?	2	CO1
viii	IoT devices are naturally vulnerable to _____ threats.	2	CO2
ix	What is an Arduino?	2	CO1
x	How power supply is done to RPi?	2	CO3

CO- Course Outcomes, KL- Knowledge Level, PO - Program Outcome

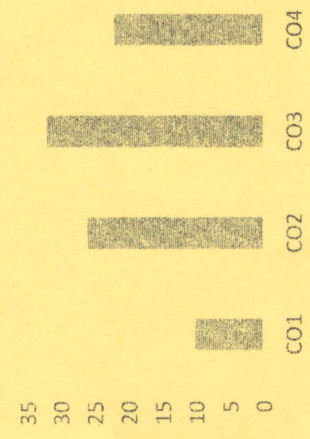
CO1	Understand the application areas of IOT
CO2	Realize the revolution of Internet in Mobile Devices, Cloud & Senso- Networks
CO3	Under. and building blocks of Internet of Things and characteristics.
CO4	Design some IOT based prototypes

GRAPHICAL REPRESENTATION

Bloom's Level wise Marks Distribution



Course Outcome Wise Marks Distribution



* K1 = K2 = K3 = K4 = K5 = K6

Section B (Answer any FOUR out of SIX) – 20 Marks
(Each question Carry 5 Marks)

Q.No.	QUESTIONS	Marks	COs	KL
2	With the help of generic block diagram of an IoT device, Explain 'Things' in IoT.	5	CO3	K3
3	Explain Laser Cutting? List out the two main Features to be considered for Laser Cutting? Which software does people use for software cutting?	5	CO2	K2
4	How do Packet Routes over the Internet use a set of routers between source and destination? Show diagrammatically.	5	CO4	K4
5	Discuss on Endpoints in IoT.	5	CO4	K1
6	Briefly, explain the non-digital methods used in Physical Designs?	5	CO3	K3
7	Briefly give an overview of IoT Data Analytics.	5	CO2	K4

Section C (Answer any THREE out of FIVE) – 30 Marks-
(Each question Carry 10 Marks)

Q.No.	QUESTIONS	Marks	COs	KL
8	What is Arduino? What are the factors need to be considered for developing the Arduino Board?	10	CO4	K4
9	What is Internet of Things (IoT). What are components required to design IoT Device and which device we called IoT device explain with example.	10	CO3	K6
10	Describe the relative strength and limitation of Building IOT with RASPBERRY PI.	10	CO3	K5
11	Explain the limitations of IPV4. Compare the Features of IPV4 and IPV6.	10	CO2	K4
12	Explain the following term in brief: a) HTTP b) HTTPS c) FTP d) Telnet e) CoAP	10	CO2	K3

Program	Bachelor of Computer Application		
Subject Name	Introduction to Data Science		
	Semester	Year	IV April 2024
Time: 3 Hour Max. Marks : 70	<ul style="list-style-type: none"> Start writing from 2nd page onwards; don't write on the 1st Page Backside Answer all Questions of Section A (Compulsory) Answer Any Four out of Six of Section B Answer Any Three out of Five of Section C Possession of Mobile Phones or any kind of Written Material, Arguments with the Invigilator or Discussing with Co-Student will come under Unfair Means and will result in the Cancellation of the Papers. 		

Knowledge Level (KL)	K1 : Remembering	K3 : Applying	K5 : Evaluating
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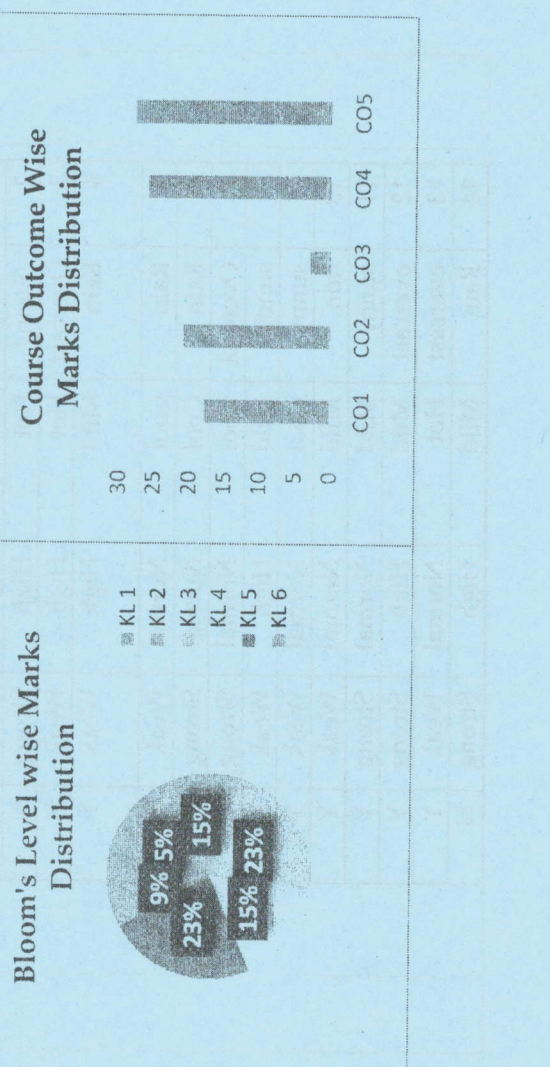
Section A (Each question Carry 02 Marks from Q1-i to x) - 20 Marks			
Q. N1	QUESTIONS	Marks	COs
i	Which of the following is a good alternative to the star schema? a) Snow flake schema b) Star schema c) Star snow flake schema d) fact constellation	2	CO1 K1
ii	Heterogeneous databases referred to as a) A set of databases from different vendors, possibly using different database paradigms b) An approach to a problem that is not guaranteed to work but performs well in most cases c) Both a and b d) None of these	2	CO5 K2
iii	Information content is a) The amount of information with in data as opposed to the amount of redundancy or noise b) Restriction that requires data in one column of a database table to the subset of another-column c) One of the defining aspects of a data warehouse d) None of these	2	CO4 K5
iv	A definition of a concept is----if it recognizes all the instances of that concept a) Complete b) Consistent c) Constant d) None of these	2	CO3 K3
v	Which of the following function is used for k-means clustering? a) K-means b) K-mean	2	CO2 K5

10	Differentiate between Classification and clustering with one algorithm each.	10	CO3	K3
11	Explain the algorithm of Naïve Bayesian in details.	10	CO1	K1
12	What is market basket analysis? Solve using KNN algorithm	10	CO3	K3

Query - X (Maths = 6, CS = 8), K = 3

Maths	CS	Result
4	3	Fail
6	7	Pass
7	8	Pass
5	5	Fail
8	8	Pass

CO- Course Outcomes,	KL- Knowledge Level,	PO – Program Outcome
CO1	Analyse the data and carry out supervised, unsupervised learning processes.	
CO2	Students will develop relevant programming	
CO3	Students will demonstrate proficiency with statistical analysis of data.	
CO4	Students will develop the ability to build and assess Data based models.	
CO5	Students can design more complex algorithms involving more complex data structures, and can implement their solutions in multiple languages.	



vi	c) Heatmap Hierarchical clustering should be primarily used for exploration. a) True b) False	2	CO5	K5
vii	Operational database is a measure of the desired maximal complexity of data mining algorithms c) Relational database management system d) None of these	2	CO1	K2
viii	Which of the following clustering requires merging approach? a) Partitional b) Hierarchical c) Naive Bayes d) None of the mentioned	2	CO5	K4
ix	Data can be store, retrieve and updated in ... a) SMTOP b) OLTP c) FTP d) OLAP	2	CO4	K2
x	Classification and regression are the properties of... a) Data analysis b) Data manipulation c) Data mining d) None of these	2	CO4	K5

Section B (Answer any FOUR out of SIX) - 20 Marks
(Each question Carry 5 Marks)

Q. No.	QUESTIONS	Marks	COs	KL												
2	Write short notes on - a) Unsupervised Learning b) Decision Tree c) Logistic Regression d) Web Mining	5	CO4	K6												
3	What is Data Mining? What are the requirements of clustering in data mining?	5	CO5	K5												
4	Solve using Apriori Algorithm (MIN.CONF=75%, MIN SUPPORT=2)	5	CO3	K2												
	<table border="1"> <thead> <tr> <th>Transaction</th> <th>Itemset</th> </tr> </thead> <tbody> <tr> <td>T1</td> <td>I1, I3, I4</td> </tr> <tr> <td>T2</td> <td>I2, I3, I5, I6</td> </tr> <tr> <td>T3</td> <td>I1, I2, I3, I5</td> </tr> <tr> <td>T4</td> <td>I2, I5</td> </tr> <tr> <td>T5</td> <td>I1, I3, I5</td> </tr> </tbody> </table>	Transaction	Itemset	T1	I1, I3, I4	T2	I2, I3, I5, I6	T3	I1, I2, I3, I5	T4	I2, I5	T5	I1, I3, I5			
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T5	I1, I3, I5															
5	Explain support vector machine with proper labeled diagram.	5	CO1	K3												

6	Perform Agglomerative algorithm on the following data and plot a dendrogram using single Linkage approach.	5	CO2	K6																																																	
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7	What are the different features of Data Mining?	5	CO1	K5																																																	

Section C (Answer any THREE out of FIVE) - 30 Marks
(Each question Carry 10 Marks)

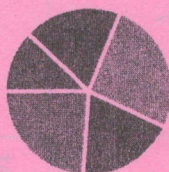
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CO- Course Outcomes, **KL- Knowledge Level,** **PO - Program Outcome**

CO1	Use and program in the programming language R
CO2	Use R to solve statistical problems
CO3	Implement and describe Monte Carlo the technology
CO4	Minimize and maximize functions using R

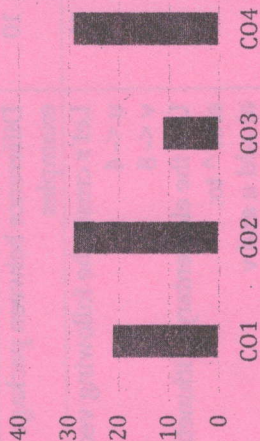
GRAFICAL REPRESENTATION

Bloom's Level wise Marks Distribution



■ K1 ■ K2 ■ K3 ■ K4 ■ K5 ■ K6

Course Outcome wise Marks Distribution



Program	Bachelor of Computer Application (DS Specialization)	
Subject Name	R Programming Language	Semester Year IV April 2024
Time: 3 Hour Max. Marks : 70	<ul style="list-style-type: none"> Start writing from 2nd page onwards; don't Write on the 1st Page Backside Answer all Questions of Section A (Compulsory) Answer Any Four out of Six of Section B Answer Any Three out of Five of Section C Possession of <u>Mobile Phones</u> or any kind of <u>Written Material, Arguments with the Invigilator or Discussing with Co-Student</u> will come under <u>Unfair Means</u> and will <u>Result in the Cancellation of the Papers.</u> 	
Knowledge Level (KL)	K1 : Remembering K2 : Understanding	K3 : Applying K4 : Analysing K5 : Evaluating K6 : Creating

Section A (Each question Carry 02 Marks from Q1-i to x) - 20 Marks

Q. N1	QUESTIONS	Marks	COs	KL
i	$x <- c(3, 7, NA, 4, 7)$ $y <- c(5, NA, 1, 2, 2)$ $x + y$ a) Symbol c) 5 b) Missing Data d) 8 NA NA 6 9	2	CO3	K4
ii	What is the mode of 'b' in the following R code? $b <- c(TRUE, TRUE, 1)$ a) Numeric c) Integer b) Character d) Logical	2	CO4	K5
iii	What will be the output of the following R code? $x <- ("a", "b")$ $as.logical(x)$ a) a b c) 1 1 b) "a" "b" d) Error	2	CO2	K4
iv	What will be the output of the following R code? $a <- ("a", "b")$ $mode(a)$ a) Character c) Complex b) Numeric d) Integer	2	CO1	K5
v	How do you create a variable named x with the numeric value 5? a) $x : 5$ c) $int x = 5$ b) $x <- 5$ d) All of the above	2	CO3	K3

vi	What is R? a) A statistical programming program b) A spreadsheet language c) A web development language d) An operating system	2	CO2	K1
vii	Which of the following is a base package for R language? a) util b) lang c) tools d) All of the above	2	CO1	K2
viii	Which of the following is the correct syntax for assigning a value to a variable in R? a) var = 10 b) 10 = var c) var == 10 d) var := 10	2	CO3	K3
ix	Which of the following is a valid way to select the first row of a data frame named df in R? a) df[0,] b) df[1,] c) df[,1] d) df[,0]	2	CO4	K3
x	Which of the following functions in R can be used to generate a random sample from a vector? a) mean() b) median() c) var() d) sample()	2	CO1	K2

Section B (Answer any FOUR out of SIX) – 20 Marks

(Each question Carry 5 Marks)

Q. No.	QUESTIONS	Marks	COs	KL
1	Explain main features to write R code that runs faster?	5	CO3	K21
2	Write a program using: a) grep() b) type() c) class() d) readline() e) trunc()	5	CO2	K5
3	Write a program to take the input of Name, Age, Course of 3 students while running and display those.	5	CO1	K4
4	The price of one kg of rice is Rs. 40.75 and one kg of sugar is Rs. 30. Write an R program to get the total amount of 2kg rice and 5kg sugar purchase.	5	CO4	K5
5	Differentiate between a) print() and cat() with an example. b) round() and trunc() c) class() and typeof()	5	CO1	K4

7	What are R data types? Classify and explain with an example.	5	CO4	K1
Section C (Answer any THREE out of FIVE) – 30 Marks- (Each question Carry 10 Marks)				
Q. No.	QUESTIONS	Marks	COs	KL
8	What are Reserved words? Make a list & explain.	10	CO2	K2
9	Write an R program to create three vectors numeric data, character data and logical data. Display the content of the vectors and their type.	10	CO4	K3
10	Difference between package and library. With examples	10	CO1	K3
11	Let's create the following vectors: u <- 4 v <- 8 Use the elementary arithmetic operators +, -, *, /, and ^ to: a) add u and v b) subtract v from u c) multiply u by v d) divide u by v e) raise u to the power of v	10	CO4	K4
12	Create a Matrix using R and do the following: a) Access Matrix Items b) Access More Than One Row c) Add Rows and Columns d) Remove Rows and Columns e) Matrix Length	10	CO2	K5



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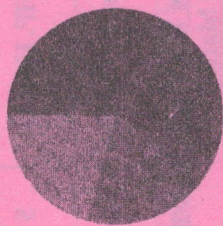
END SEM EXAMINATION
School of Engineering & IT

CO- Course Outcomes, KL- Knowledge Level, PO – Program Outcome

CO1	Create static HTML pages.
CO2	Create well-structured and easily maintained CSS code to present HTML pages in different ways.
CO3	Use JavaScript to add dynamic content to pages.
CO4	Create dynamic web pages using PHP and My SQL.

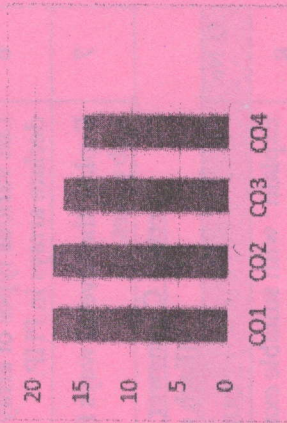
GRAFICAL REPRESENTATION

Bloom's Level wise Marks Distribution



■ K1 ■ K2 ■ K3 ■ K4

Course outcome wise marks distribution



Program Bachelor of Computer Application (AI Specialization)

Subject Name Web Programming

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Section A (Each question Carry 02 Marks from Q1-i to x) – 20 Marks

Q. N 1	QUESTIONS	Marks	COs	KL
i	Which of the following is used to read an HTML page and render it? a) Web server b) Web network c) Web browser d) Web matrix	2	CO1	K1
ii	Which element is used to get highlighted text in HTML5? a) <u> b) <mark> c) <highlight> d) 	2	CO1	K2
iii	Which of the following is the correct syntax to write a PHP code? a) <?php ?> b) < php > c) < ? php ?> d) <? ?>	2	CO4	K1
iv	How to define a function in PHP? a) function Name(parameters) {function body} b) function {function body} c) function function Name(parameters) {function body} d) data type function Name(parameters) {function body}	2	CO4	K2

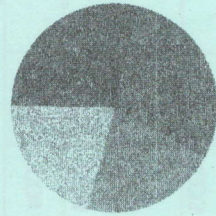
v	Which attribute specifies a unique alphanumeric identifier to be associated with an element? a) type b) article c) id d) class	2	CO2	K1
vi	Which of the following has introduced text, list, box, margin, border, color, and background properties? a) HTML b) PHP c) CSS d) Ajax	2	CO2	K2
vii	Where is Client-side JavaScript code is embedded within HTML documents? a) A URL that uses the special javascript:code b) A URL that uses the special javascript:protocol c) A URL that uses the special javascript:encoding d) A URL that uses the special javascript:stack	2	CO3	K2
viii	Arrays in JavaScript are defined by which of the following statements? a) It is an ordered list of values b) It is an ordered list of objects c) It is an ordered list of string d) It is an ordered list of functions	2	CO3	K1
ix	Which of the following CSS property defines the different properties of all four sides of an element's border in a single declaration? a) border-collapse b) border-width c) padding d) border	2	CO3	K1
x	What is DOM in HTML? a) Language dependent application programming b) Hierarchy of objects in ASP.NET c) Application programming interface d) Convention for representing and interacting with objects in html documents	2	CO2	K2

Section B (Answer any FOUR out of SIX) – 20 Marks (Each question Carry 5 Marks)				
Q. No.	QUESTIONS	Marks	COs	KL
2	Explain the basic table tags with the different attributes.	5	CO1	K1
3	What is selector class? Explain the pseudo class selector in CSS with example.	5	CO2	K2
4	What are the different types of Java script errors? With an example.	5	CO3	K3
5	Differentiate XHTML and HTML.	5	CO1	K1
6	List various types of arrays supported by PHP. How to declare arrays in PHP.	5	CO4	K2
7	Explain the several ways for positioning elements on the web pages.	5	CO3	K3
Section C (Answer any THREE out of FIVE) – 30 Marks- (Each question Carry 10 Marks)				
Q. No.	QUESTIONS	Marks	COs	KL
8	Explain : with suitable example a) MIME b) WWW c) DNS d) HTTP	10	CO1	K1
9	Explain various datatypes used in Javascript. Write a Javascript to find factorial of a number.	10	CO3	K2
10	Explain the predefined and user defined functions in PHP with an example.	10	CO4	K3
11	Explain database connectivity in PHP with reference to MYSQL.	10	CO4	K1
12	Design a form using HTML and JavaScript that asks the user to enter his date of birth and on clicking the Calculate Button it calls the function that calculates how many days are left in your birthday?	10	CO1	K2

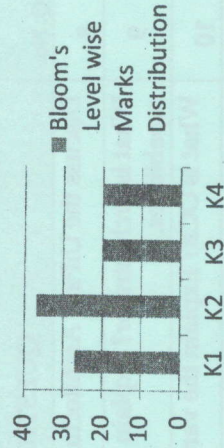
CO1	Understand the various concepts, terminologies of RPA systems	Program Outcome
CO2	Understand the application areas of RPA	
CO3	Use various techniques of automation and control in Robotics	
CO4	Understand building blocks of RPA and characteristics.	

GRAFICAL REPRESENTATION

Course Outcome wise Marks Distribution



Bloom's Level wise Marks Distribution



Program Bachelor of Computer Application (AI Specialization)

Subject Name Introduction to RPA Tools Semester IV Year April 2024

- Start writing from 2nd page onwards; don't Write on the 1st Page Backside
- Answer all Questions of Section A (Compulsory)
- Answer Any Four out of Six of Section B
- Answer Any Three out of Five of Section C

Time: 3 Hour
Max. Marks : 70

- Possession of Mobile Phones or any kind of Written Material, Arguments with the Invigilator or Discussing with Co-Student will come under Unfair Means and will Result in the Cancellation of the Papers.

Knowledge Level (KL)	K1 : Remembering	K3 : Applying	K5 : Evaluating
	K2 : Understanding	K4 : Analysing	K6 : Creating

Section A (Each question Carry 02 Marks from Q1-i to x) – 20 Marks

Q. No	QUESTIONS	Marks	COs	KL
i	Sequence of step by step instructions is known as a ____ a) Process b) Job c) Both of the options d) None of the options	2	CO1	K1
ii	____ provides open platform for automation. a) Blue prism b) Pega robotics c) UiPath d) Automation Anywhere	2	CO1	K1
iii	Re-engineering the entire underlying process is part of ____ a) RPA b) BPM c) Both of the options d) None of the options	2	CO1	K1
iv	RPA is not suitable for processes that are ____ a) Consistent b) Require constant human intervention c) Repetitive d) Repetitive and consistent	2	CO2	K1
v	____ is used for nesting of sub steps in a job. a) Developer Tools	2	CO1	K2

	b) Process recorder c) Robot Controller d) None of the options				
vi	In RPA process layered approach, _____ factors make up being strong determinants of scalability and reliability. a) Categorization b) Abstract c) Re-usability d) Parameterization	2	CO1	K1	
vii	RPA will be able to handle operations such as — a) Claims processing and writing emails b) Writing emails c) Claims processing d) Document classification	2	CO2	K2	
viii	RPA interacts with multiple application at the _____ layer. a) Object b) Data c) Presentation d) None of the options	2	CO2	K4	
ix	RPA with thinking and decision making capabilities are known as _ RPA. a) Autonomous b) Cognitive c) AI-assisted d) Unassisted	2	CO1	K1	
x	What are the business benefits of Robotic Process Automation includes? a) Flexibility and Scalability b) Improved Accuracy c) Improved Employee Morale d) All	2	CO2	K2	

Section B (Answer any FOUR out of SIX) – 20 Marks
(Each question Carry 5 Marks)

Q. No.	QUESTIONS	Marks	COs	KL
2	Differentiate among UiPath, Blueprism and Automation Anywhere.	5	CO1	K1
3	What is Data Scrapping? Explain with suitable diagram.	5	CO3	K2

4	Write down the application of RPA Studio.	5	CO2	K3
5	What is the primary difference between the Attended & Unattended bot?	5	CO2	K2
6	Draw and Explain flow chart for extraction of Image data from PDF.	5	CO3	K3
7	What are the basic features of UiPath? Why we prefer UiPath studio rather than other RPA Tools?	5	CO4	K4

Section C (Answer any THREE out of FIVE) – 30 Marks
(Each question Carry 10 Marks)

Q. No.	QUESTIONS	Marks	COs	KL
8	Discuss the UiPath Architecture with neat diagram.	10	CO4	K4
9	What is orchestrator? Explain the orchestrator capabilities.	10	CO2	K1
10	What is OCR? Explain the various types of OCR.	10	CO3	K2
11	Discuss the various loop activity in UiPath. Explain variable and data type in UiPath.	10	CO1	K3
12	Write down the differences between basic and desktop recording?	10	CO4	K2

CO1	Acquire data through web-scraping and data APIs
CO2	Clean and reshape messy datasets
CO3	Use exploratory tools such as clustering and visualization tools to analyse data.
CO4	Use methods such as logistic regression, nearest neighbours, decision trees, and support vector machines to build a classifier.
CO5	Apply dimensionality reduction tools such as principle component analysis

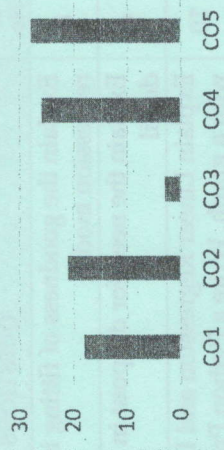
GRAFICAL REPRESENTATION

Bloom's Level wise Marks Distribution



■ K1 ■ K2 ■ K3 ■ K4 ■ K5 ■ K6

Course Outcome Wise Marks Distribution



Program	Bachelor of Computer Application (DS Specialization)	
Subject Name	Python for Data Science	
Time: 3 Hour	Semester	IV
Max. Marks : 70	Year	April 2024
Knowledge Level (KL)	K1 : Remembering K2 : Understanding	K3 : Applying K4 : Analysing K5 : Evaluating K6 : Creating

- Start writing from 2nd page onwards; don't Write on the 1st Page Backside
- Answer all Questions of Section A (Compulsory)
- Answer Any Four out of Six of Section B
- Answer Any Three out of Five of Section C
- Possession of Mobile Phones or any kind of Written Material, Arguments with the Invigilator or Discussing with Co-Student will come under Unfair Means and will Result in the Cancellation of the Papers.

Section A (Each question Carry 02 Marks from Q1-i to x) - 20 Marks					
Q. N	QUESTIONS	Marks	COs	KL	PO
i	The result of an operation between unaligned Series will have the _____ of the indexes involved. a) Intersection b) Union c) Total d) All of the mentioned	2	CO1	K2	PO1
ii	All panda's data structures are _____ mutable but not always _____ mutable. a) Size, value b) Semantic, size c) Value, size d) None of the mentioned	2	CO2	K3	PO2
iii	Which of the following library is similar to Pandas? a) NumPy b) RPy c) OutPy d) None of the mentioned	2	CO2	K5	PO3
iv	Which of the following is prominent python "statistics and econometrics library"? a) Bokeh b) Seaborn c) Statsmodels d) None of the mentioned	2	CO4	K2	PO4

vi	Which of the following is used for machine learning in python? a) Scikit-learn b) Seaborn-learn c) Stats-learn d) None of the mentioned	2	CO3	K1	PO2
vii	Which of the following thing can be data in Pandas? a) A python dict b) An array c) A scalar value d) All of the mentioned	2	CO4	K5	PO6
viii	Which of the following input can be accepted by Data Frame? a) Structured and array b) Series c) Data Frame d) All of the mentioned	2	CO5	K6	PO5
ix	Data that summarize all observations in a category are called _____ data. a) Frequency b) Summarized c) Raw d) None of the mentioned	2	CO5	K6	PO1
x	Which of the following object you get after reading CSV file? a) Data Frame b) Character Vector c) Panel d) All of the mentioned	2	CO5	K3	PO2
	Point out the correct statement. a) Data has only qualitative value b) Data has only quantitative value c) Data has both qualitative and quantitative value d) None of the mentioned	2	CO4	K3	PO6
Section B (Answer any FOUR out of SIX) – 20 Marks (Each question Carry 5 Marks)					
Q. No.	QUESTIONS	Marks	COs	KL	PO
2	How do you create a DataFrame in Pandas?	5	CO1	K5	PO1

3	What is the purpose of 'xlabel()', 'ylabel()', and 'title()' functions in Matplotlib?	5	CO2	K4	PO1		
4	What is variance and standard deviation?	5	CO4	K6	PO5		
5	How do you generate random numbers following a normal distribution in Python?	5	CO5	K5	PO2		
6	What do you mean by statistical hypothesis testing?	5	CO5	K7	PO3		
7	What is cross-validation and why is it important in machine learning?	5	CO2	K6	PO3		
Section C (Answer any THREE out of FIVE) – 30 Marks (Each question Carry 10 Marks)							
Q. No.	QUESTIONS	Marks	COs	KL	PO		
8	Explain the goodness of fitting in the multiple regression model.	10	CO2	K3	PO7		
9	Explain the need for dropout in neural networks in detail	10	CO5	K4	PO7		
10	Explain Linear Regression and Logistic Regression with a graph. Write a Python Program to Remove the Characters of Odd Index Values in a String.	10	CO4	K5	PO5		
11	What is a p-value and its significance in hypothesis testing?	10	CO5	K5	PO3		
12	Find out the Mean, Median, and Mode of the given series using the shortcut method.	10	CO5	K4	PO4		
		Marks	4	5	6	7	8
		No. of Students	12	10	18	20	24