


(M) 9/15/23

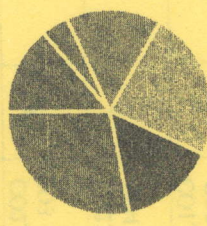
 ARKAJAIN University Jharkhand		END TERM EXAMINATION School of Engineering & IT	
Branch	CS & IT	Program	BCA
Subject Name	Internet of Things	Semester	4th
		Year	2023/ Even
Time: 3 Hour Max. Marks : 70	• Start writing from 2nd page onwards; don't Write on the 1st Page Backside • Answer all Questions of Section A (Compulsory) • Answer Any Four out of Six of Section B • Answer Any Three out of Five of Section C • Graf Paper/ Drawing Sheet/ Log Book/ Ledger (please Mention if any) • Possession of Mobile Phones or any kind of Written Material, Arguments with the Invigilator or Discussing with Co-Student will comes 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 Q1-x) – 20 Marks			
Q. N I	QUESTIONS	Marks	COs
i	Which of the following is false about IoT devices? a) IoT devices use the internet for collecting and sharing data b) IoT devices need microcontrollers c) IoT devices use wireless technology d) IoT devices are completely safe	2	CO1, CO3
ii	In TCP, sending and receiving data is done as a) Stream of bytes b) Sequence of characters c) Lines of data d) Packets Full form of LPWAN: a) Low Power Wide Area Network b) Lower Power Wide Area of Network c) Low Protocol Wide Area of Network d) Long Protocol Wider Area Network	2	CO2, CO4
iii	The size of an IP address in IPv6 is _____ a) 4bytes b) 128bits c) 8bytes d) 100bits	2	CO1, CO2
iv		2	CO1, CO4
			PO1
			PO2
			PO3

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 & Sensor Networks
CO3	Understand building blocks of Internet of Things and characteristics.
CO4	Design some IOT based prototypes

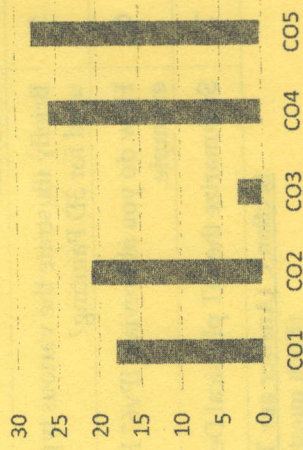
GRAFICAL REPRESENTATION

Bloom's Level wise Marks Distribution



■ K1 ■ K2 ■ K3 ■ K4 ■ K5 ■ K6

Course Outcome Wise Marks Distribution



v	Which of the following layers provides end-to-end communication in IoT? a) Logical layer b) Data link layer c) Transport layer d) Session layer	2	CO1, CO2, CO3	K1	PO1
vi	What is the component of an IoT system that executes a program? a) A sensor b) A microcontroller c) An actuator d) A digital to analog converter	2	CO2, CO4	K5	PO1
vii	Which programming language is used by Arduino IDE IoT software for writing codes? a) Python b) Java c) C/C++ d) JavaScript	2	CO2, CO3	K5	PO2
viii	Suppose a TCP connection is transferring a file of 1000 bytes. The first byte is numbered 10001. What is the sequence number of the segment if all data is sent in only one segment? a) 10000 b) 10001 c) 12001 d) 11001	2	CO1, CO4	K2	PO1
ix	Which of the following protocol is used to link all the devices in the IoT? a) HTTP b) UDP c) Network d) TCP/IP	2	CO1, CO2, CO3	K4	PO3
x	Which of the following is false about the MANET IoT network? a) It is a self-configuring network b) It has a low data rate c) It doesn't have any encryption d) Power is readily available for complex security	2	CO1, CO2, CO3	K1	PO1

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

Q. No.	QUESTIONS	Marks	COs	KL	PO
2	Write a short note on : a) Edge analytic b) Network analytic	5	CO2, CO3	K4	PO2
3	Write the given IP Addresses according to Ipv6 address. a) 1:2:1::1023:0:26 b) ffc:0:0:1::1 c) 1926::fd	5	CO1, CO4	K2	PO1
4	List out the Challenges faced by IoT Data Analytics?	5	CO1, CO3	K4	PO3
5	Briefly illustrate the various types of software used for 3D Printing?	5	CO2, CO3	K1	PO1
6	How do you abbreviate IPv6? Explain with an example.	5	CO2, CO4	K5	PO2
7	Summarize the IoT physical Devices in detail.	5	CO1, CO2	K2	PO1

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

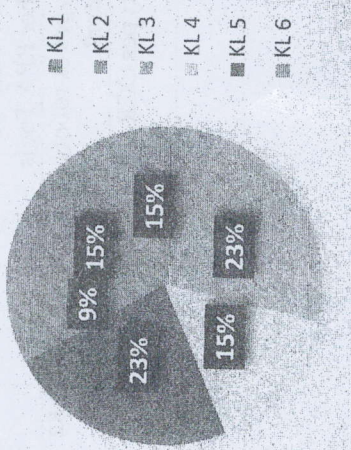
Q. No.	QUESTIONS	Marks	COs	KL	PO
8	What do you mean by UDP? Write its feature and also explain its frame format with the required diagram.	10	CO1, CO3	K1	PO2
9	Explain Laser Cutting? List out the two main Features to be considered for Laser Cutting?	10	CO2, CO4	K5	PO2
10	Write a short note on : a) http ports b) TCP/UDP Ports	10	CO1, CO2	K2	PO1
11	Briefly explain the Tools and Technologies used in Big Data Analytics?	10	CO2, CO4,	K5	PO1
12	What is IPv6? Explain & draw with proper frame format.	10	CO2, CO3	K5	PO2

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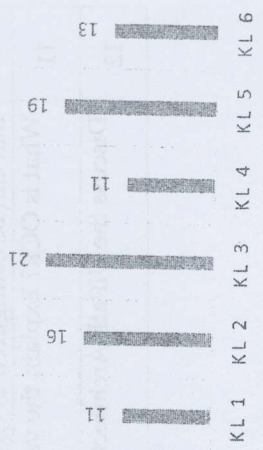
CO- Course Outcomes,	KL- Knowledge Level,	PO - Program Outcome
CO1	Understand the various concepts, terminologies of RPA systems	
CO2	Understand the application areas of RPA	
CO3	Use various techniques of automation and control in Robotics	
CO4	Understand building blocks of RPA and characteristics.	

GRAFICAL REPRESENTATION

Bloom's Level wise Marks Distribution



COURSE OUTCOME WISE MARKS DISTRIBUTION



Branch	CS & IT
Subject Name	Introduction to RPA Tools(AI)
Program	BCA
Semester	4th
Year	2023/ Even
Time: 3 Hour	
Max. Marks : 70	
Knowledge Level (KL)	<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 Graf Paper / Drawing Sheet/ Log Book/ Ledger (please Mention if any) Possession of Mobile Phones or any kind of Written Material, Arguments with the Invigilator or Discussing with Co-Student will comes under Unfair Means and will Result in the Cancellation of the Papers.
	K1 : Remembering
	K2 : Understanding
	K3 : Applying
	K4 : Analysing
	K5 : Evaluating
	K6 : Creating

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

Q. N1	QUESTIONS	Marks	COs	KL	PO
i	Unclear inputs, Social Context, Task, distribution, and Transformation are some of the key attributes which favour __ RPA. a) Autonomous b) Cognitive c) Intellisense d) Assisted	2	CO1	K1	PO2
ii	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	PO4
iii	_____ is used for nesting of sub steps in a job. a) Developer Tools b) Process recorder c) Robot Controller d) None of the options	2	CO1	K1	PO4
iv	_____ provides instructions to robot. a) Process recorder b) Robot Controller c) Developer Tools d) None of the options	2	CO2	K1	PO1

v	The Topmost layer in layered design of RPA is _ a) Process b) Subprocess c) Atoms d) Component layer	2	CO1	K2	PO2
vi	RPA interacts with multiple application at the _ layer. a) Object b) Data c) Presentation d) None of the options	2	CO1	K1	PO6
vii	Blue Prism has the largest trained ecosystem. a) True b) False	2	CO2	K2	PO2
viii	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 CO2	K4	PO3
ix	_ provides open platform for automation. a) Blue prism b) Pega robotics c) UiPath d) Automation Anywhere	2	CO1	K1	PO6
x	RPA with thinking and decision making capabilities are known as _ RPA. a) Autonomous b) Cognitive c) AI-assisted d) Unassisted	2	CO2	K2	PO2

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

Q.No.	QUESTIONS	Marks	COs	KL	PO
2	What is RPA tools? What are the advantages of using RPA tools?	5	CO2	K1	PO1
3	Write down the application of RPA Studio.	5	CO1	K2	PO2
4	Draw and Explain Flow Chart for Extraction of Image Data from PDF.	5	CO1	K1	PO6

5	Explain Arguments and property in UiPath with suitable example.	5	CO2	K2	PO2
6	What is Data Scrapping? Explain with suitable diagram.	5	CO1	K1	PO4
7	What is the primary difference between the Attended & Unattended bot?	5	CO4	K4	PO1

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

Q.No.	QUESTIONS	Marks	COs	KL	PO
8	Write down the differences between basic and desktop recording?	10	CO2	K1	PO5
9	What are the basic features of UiPath? Why we prefer UiPath studio rather than other RPA Tools.	10	CO1	K1	PO6
10	What is orchestrator? Explain the types of robots that can be configured in Orchestrator?	10	CO2	K2	PO2
11	What is OCR? Explain the various types OCR.	10	CO3	K1	PO5
12	Discuss the UiPath Architecture.	10	CO4	K4	PO2

5/21



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END TERM EXAMINATION
School of Engineering & IT

Branch	CS & IT	Program	BCA
Subject Name	R Programming Language (DS)	Semester	4TH
		Year	2023/ Even

Time: 3 Hour
Max. Marks : 70

- Start writing from 2nd page onwards; don't write on the 1st Page Backside
- Answer all Questions of Section A (Compulsory)
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- Answer Any Three out of Five of Section C
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Knowledge Level (KL)	K1 : Remembering	K3 : Applying	K5 : Evaluating
	K2 : Understanding	K4 : Analysing	K6 : Creating

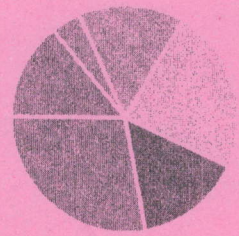
Section A (Each question Carry 02 Marks from Q1-i to Q1-x) - 20 Marks					
Q. N1	QUESTIONS	Marks	COs	KL	PO
i	What is Lazy Function in R	2	CO1	K3	PO2
ii	Write code to explain the use of sprint() in R.	2	CO1	K2	PO1
iii	Write code in R to display reverse of numbers from 1 to 20 with a difference of 2.	2	CO2	K3	PO2
iv	What is recycling in R. Explain	2	CO1	K5	PO4
v	Write code to get multiple columns in Matrix.	2	CO1	K3	PO5
vi	Write code to find Arithmetic mean of Three vectors.	2	CO2	K5	PO6
vii	Write code to illustrate Missing values in R vector.	2	CO1	K1	PO4
viii	Explain with example how we can modify and delete components from a List.	2	CO1	K2	PO7
ix	Write code to get a number is even or odd in R.	2	CO3	K4	PO6
x	Explain typeof() and class() in R	2	CO3	K2	PO4

O- 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 technology
CO4	Minimize and maximize implementations using R
CO5	Plotting using R
CO6	Use and program in the programming language R
CO7	Use R to solve statistical problems

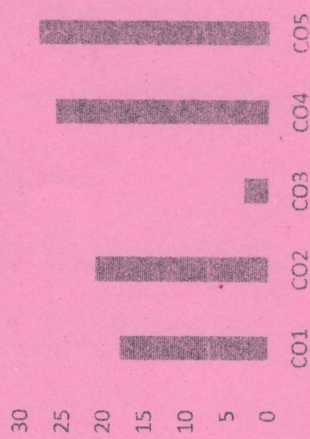
GRAFICAL REPRESENTATION

Bloom's Level wise Marks Distribution



■ K1 ■ K2 ■ K3 ■ K4 ■ K5 ■ K6

Course Outcome Wise Marks Distribution



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

Q. No.	QUESTIONS	Marks	Cos	KL	PO
2	Explain various string operations performed in R with suitable examples	5	CO4	K2	PO1
3	Explain Vector and various operations performed on it.	5	CO1	K3	PO3
4	Write a program to display reverse of a user entered three digit Number	5	CO3	K5	PO4
5	Write a program to check greatest number among three.	5	CO2	K2	PO2
6	Explain DataFrame. Mention various operations performed on it.	5	CO2	K4	PO3
7	Write program to illustrate return and next statement in R.	5	CO3	K6	PO1

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

Q. No.	QUESTIONS	Marks	Cos	KL	PO
8	Explain Matrix and various operations performed on it.	10	CO1	K4	PO4
9	Write a program to create two 3X3 matrix in R and perform multiplication of both and find the transpose of the resultant matrix obtained.	10	CO2	K5	PO5
10	Write a program in R to find reverse of a three digit user entered number.	10	CO2	K3	PO9
11	Explain various operators supported in R with proper example of each of them	10	CO3	K5	PO8
12	Write program to plot marks obtained by a student in various subjects using Pie chart and Histogram. Apply every Features.	10	CO5	K6	PO2

M/S



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END TERM EXAMINATION
School of Engineering & IT

Branch	CS & IT	Program	BCA
Subject Name	Introduction to Data Science	Semester	4th
		Year	2023/ Even
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</u> in the <u>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 Q1-x) - 20 Marks		QUESTIONS	Marks	COs	KL	PO
Q. N1	i	Classification and regression are the properties of... a) Data analysis b) Data manipulation c) Data mining d) None of these	2	CO5	K4	PO1
	ii	How many steps are there in KDD process a) 3 b) 4 c) 9 d) 10	2	CO1	K2	PO2
	iii	Hierarchical clustering should be primarily used for exploration. a) True b) False	2	CO3	K5	PO3
	iv	Which of the following clustering requires merging approach? a) Partitional b) Hierarchical c) Naive Bayes d) None of the mentioned	2	CO2	K2	PO4
	v	Which of the following is true for Classification? a) A subdivision of a set b) A measure of the accuracy c) The task of assigning a classification	2	CO1	K4	PO5

9	Draw a Road Map on Pattern Mining Research	10	CO5	K2	PO1
10	Write short notes on - a) Unsupervised Learning b) Decision Tree c) Linear Regression d) Web Mining e) Clustering	10	CO1	K1	PO4
11	Write the algorithm for K- Means. Solve where K = 2	10	CO2, CO3, CO5	K5, K6	PO5

Height	Weight
185	72
170	56
168	60
179	68
182	72
188	77
180	71

12	Explain in details about Complex data types used for Mining	10	CO3	K1	PO2
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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

Bloom's Level wise Marks Distribution

Course Outcome Wise Marks Distribution

Course Outcome	Marks
CO1	17%
CO2	34%
CO3	20%
CO4	17%
CO5	12%

■ K1 ■ K2 ■ K3 ■ K4 ■ K5 ■ K6

vi	Which of the following refers to the problem of finding abstracted patterns (or structures) in the unlabeled data? a) Supervised learning b) Unsupervised learning c) Hybrid learning d) Reinforcement learning	2	CO2	K5	PO1
vii	What is KDD in data mining? a) Knowledge Discovery Database b) Knowledge Discovery Data c) Knowledge Data definition d) Knowledge data house	2	CO1	K4	PO4
viii	What are the functions of Data Mining? a) Association and correctional analysis classification b) Prediction and characterization c) Cluster analysis and Evolution analysis d) All of the above	2	CO1	K3	PO2
ix	Which one of the clustering technique needs the merging approach? a) Partitioned b) Naïve Bayes c) Hierarchical d) Both A and C	2	CO4	K2	PO4
x	In data mining, how many categories of functions are included? a) 5 b) 4 c) 2 d) 3	2	CO3	K1	PO2

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

(Each question Carry 5 Marks)

Q. No.	QUESTIONS	Marks	Cos	KL	PO
2	Explain the KDD Process with the neat labelled diagram.	5	CO4, CO5	K2	PO5
3	What is Data Mining? What are the requirements of clustering in data mining?	5	CO4	K4	PO3

4	Solve using bayesian classification. <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Car no.</th> <th>Color</th> <th>Type</th> <th>Origin</th> <th>Stolen</th> </tr> </thead> <tbody> <tr><td>1</td><td>Red</td><td>Sports</td><td>Domestic</td><td>Yes</td></tr> <tr><td>2</td><td>Red</td><td>Sports</td><td>Domestic</td><td>No</td></tr> <tr><td>3</td><td>Red</td><td>Sports</td><td>Domestic</td><td>Yes</td></tr> <tr><td>4</td><td>Yellow</td><td>Sports</td><td>Domestic</td><td>No</td></tr> <tr><td>5</td><td>Yellow</td><td>Sports</td><td>Imported</td><td>Yes</td></tr> <tr><td>6</td><td>Yellow</td><td>Suv</td><td>Imported</td><td>No</td></tr> <tr><td>7</td><td>Yellow</td><td>Suv</td><td>Imported</td><td>Yes</td></tr> <tr><td>8</td><td>Yellow</td><td>Suv</td><td>Domestic</td><td>No</td></tr> <tr><td>9</td><td>Red</td><td>Suv</td><td>Imported</td><td>No</td></tr> <tr><td>10</td><td>Red</td><td>Sports</td><td>Imported</td><td>Yes</td></tr> </tbody> </table> Find the value of Sample (Red,Suv,Domestic). What are the major issues in Data Mining? Explain Supervised algorithm.	Car no.	Color	Type	Origin	Stolen	1	Red	Sports	Domestic	Yes	2	Red	Sports	Domestic	No	3	Red	Sports	Domestic	Yes	4	Yellow	Sports	Domestic	No	5	Yellow	Sports	Imported	Yes	6	Yellow	Suv	Imported	No	7	Yellow	Suv	Imported	Yes	8	Yellow	Suv	Domestic	No	9	Red	Suv	Imported	No	10	Red	Sports	Imported	Yes	5	CO4	K3	PO4
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6	Solve using Apriori Algorithm (MIN.CONF-50%, MIN SUPPORT-50%) <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>TRANSACTION</th> <th>ITEM OCCURRENCE</th> </tr> </thead> <tbody> <tr><td>T1</td><td>A,B</td></tr> <tr><td>T2</td><td>A,C,D</td></tr> <tr><td>T3</td><td>A,B,C,D</td></tr> <tr><td>T4</td><td>A,D,E</td></tr> <tr><td>T5</td><td>B,C</td></tr> </tbody> </table>	TRANSACTION	ITEM OCCURRENCE	T1	A,B	T2	A,C,D	T3	A,B,C,D	T4	A,D,E	T5	B,C	5	CO2, CO3, CO5	K5, K6	PO1																																											
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7	What is data classification? How does data classification works?	5	CO4	K3	PO4																																																							

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

Q. No.	QUESTIONS	Marks	Cos	KL	PO																				
8	Apply KNN classification on the following dataset and predict the quality of paper_5 having Acid Durability = 3 and Strength = 7 for K= 3 (Nearest Neighbor). <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Sample Paper</th> <th>Acid durability</th> <th>Strength</th> <th>Quality</th> </tr> </thead> <tbody> <tr><td>Paper_1</td><td>7</td><td>7</td><td>BAD</td></tr> <tr><td>Paper_2</td><td>7</td><td>4</td><td>BAD</td></tr> <tr><td>Paper_3</td><td>3</td><td>4</td><td>GOOD</td></tr> <tr><td>Paper_4</td><td>1</td><td>4</td><td>GOOD</td></tr> </tbody> </table>	Sample Paper	Acid durability	Strength	Quality	Paper_1	7	7	BAD	Paper_2	7	4	BAD	Paper_3	3	4	GOOD	Paper_4	1	4	GOOD	10	CO2, CO3, CO5	K5, K6	PO3
Sample Paper	Acid durability	Strength	Quality																						
Paper_1	7	7	BAD																						
Paper_2	7	4	BAD																						
Paper_3	3	4	GOOD																						
Paper_4	1	4	GOOD																						