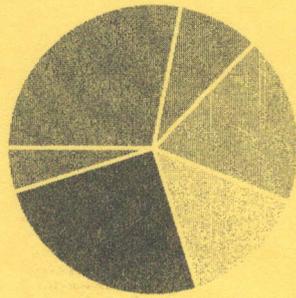


CO- Course Outcomes, KL- Knowledge Level, PO – Program Outcome

CO1	For a given algorithm student will be able to analyze the algorithms to determine the time and computation complexity and justify the correctness.
CO2	For a given Search problem (Linear Search and Binary Search) student will be able to implement it
CO3	For a given problem of Stacks, Queues and linked list student will be able to implement it and analyse the same to determine the time and computation complexity.
CO4	understand the use of complexity analysis to determine which data structure is most efficient and appropriate for use in a particular application
CO5	Student will be able to implement Graph search and traversal algorithms and determine the time and computation complexity.

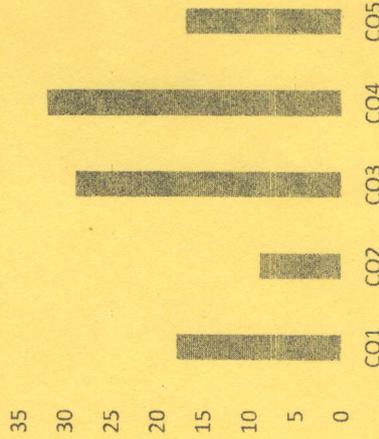
GRAPHICAL REPRESENTATION

Bloom's Level wise Marks Distribution



■ K1 ■ K2 ■ K3 ■ K4 ■ K5 ■ K6

Course Outcome wise Marks Distribution



ARKAJAIN University
Jharkhand

END TERM EXAMINATION
School of Engineering & IT

Branch	Computer Science & Engineering	Program	Diploma
Subject Name	Data Structure	Semester	3rd
		Year	2023/Odd
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	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	Illustrate the problems with Array that lead to the introduction of Linked List.	2	CO1	K1	PO2
ii	Compare LIFO and FIFO.	2	CO2	K1	PO3
iii	If $f(n)=n^2$ and $g(n)=2^n$, which grows faster? Justify?	2	CO1	K4	PO3
iv	What is a Binary Tree? Show with an example.	2	CO3	K1	PO2
v	What is a Digraph? Show with an example.	2	CO5	K1	PO3
vi	Create a Linked List having 5 nodes representing head, NULL, address of each node.	2	CO2	K2	PO3
vii	What is big-O notation? Explain its significance.	2	CO1	K3	PO2
viii	Write an algorithm/ snippet to check Overflow condition.	2	CO3	K3	PO2
ix	What is AVL tree? Give example.	2	CO4	K2	PO5
x	What is theta notation?	2	CO1	K4	PO3

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

(Each question Carry 5 Marks)

2.No.	QUESTIONS	Marks	COs	KL	PO
2	What is Infix, Prefix, and Postfix notation? Give example of each.	5	CO2	K6	PO3
3	What is an Algorithm? Mention the characteristics of a good algorithm.	5	CO1	K2	PO3
4	What is a Binary Search Tree (BST)? Show the structure of the binary search tree after adding each of the following values in that order: 10, 25, 2, 4, 7, 13, 11, 22. What is the height of the created binary search tree?	5	CO4	K5	PO2
5	Convert the following infix expression into prefix expression using stack: (A-B/C) * (D*E-F)	5	CO3	K1	PO2
6	<p>For the above Directed Graph, Find the root vertex. Also show the indegree and outdegree of each vertex.</p>	5	CO5	K3	PO3
7	What is Time and Space complexity? Give example of both.	5	CO1	K1	PO3

Section C (Answer any THREE out of FIVE) – 30 Marks-

(Each question Carry 10 Marks)

No.	QUESTIONS	Marks	COs	KL	PO
8	Create a Graph having self-loop. Also show a complete Graph having 4 vertices. Evaluate the following expression: $2^4 + 6 \cdot 2^2 - 12/4$.	10	CO5	K1	PO3
9	Write short notes on following: degree of a tree, degree of a node, level, edge, height.	10	CO4	K3	PO3
0	Using stack translate the infix expression to postfix expression: $X*(Y+Z)/A-B*(C+D/E)$.	10	CO3	K5	PO2
1	Write down the algorithm for the following: i) PUSH ii) POP Also explain the working of a Circular Queue with proper example.	10	CO3	K4	PO3

Construct a tree from the following traversal:

Preorder: GBQACKFPDERH

Inorder: QBKCFAGPEDHR

12

10

CO4

K5

PO3

CO- Course Outcomes,

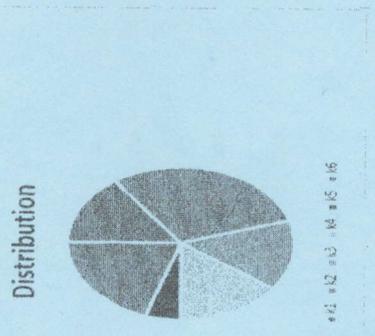
KL- Knowledge Level,

PO – Program Outcome

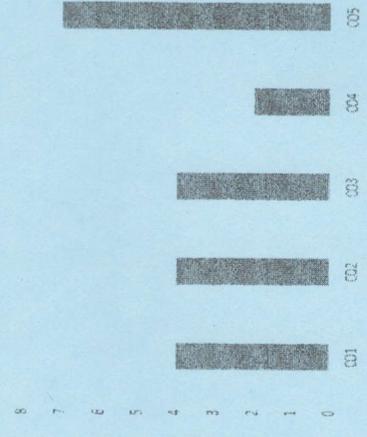
CO1	For a given algorithm student will be able to analyze the algorithms to determine the time and computation complexity and justify the correctness.
CO2	For a given Search problem student will be able to implement it.
CO3	For a given problem of Stacks, Queues and linked list student will be able to implement it and analyze the same to determine the time and computation complexity.
CO4	Student will be able to write an algorithm Selection Sort, Bubble Sort, Insertion Sort, Quick Sort, Merge Sort, Heap Sort and compare their performance in term of Space and Time complexity.
CO5	Student will be able to implement Graph search and traversal algorithms and determine the time and computation complexity.

GRAFICAL REPRESENTATION

Bloom's Level wise Marks Distribution



Course Outcome Wise Marks Distribution



ARKAJAIN University
Jharkhand

END TERM EXAMINATION
School of Engineering & IT

Branch	Computer Science & Engineering	Program	Diploma
Subject Name	Algorithms	Semester	3rd
		Year	2023/Odd
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 comes 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

Q. N1	QUESTIONS	Marks	COs	KL	PO
i	Define Algorithm.	2	CO1	K1	PO2
ii	Explain time and space Complexity.	2	Co1	K2	PO2
iii	How many operations are there in Stack?	2	Co3	K4	PO2
iv	What is the time complexity of Insertion Sort?	2	Co4	K3	PO2
v	What is the necessary criteria for Binary Search?	2	Co2	K2	PO2
vi	Explain In-degree and out-degree of a node with example.	2	Co5	K3	PO2
vii	What is the time complexity of Linear search?	2	Co2	K3	PO2
viii	What data structure is used in Depth First Search?	2	Co5	K3	PO2
ix	What is Bridge in a graph?	2	Co5	K2	PO2
x	What is Time space trade off?	2	Co1	K2	PO2

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

(Each question Carry 5 Marks)

QUESTIONS

Q. No.	QUESTIONS	Marks	COs	KL	PO
2		5	Co5	K6	PO2
3	Delete the node 54 from the Binary Search Tree & Draw the tree.	5	Co5	K1	PO2
4	Define Articulation point, Parallel edges, Cycle of a graph.	5	Co1	K2	PO2
5	Explain Big-Oh notation with proper diagram.	5	Co3	K1	PO2
6	What is FIFO data structure? Define QUEUE.	5	Co5	K6	PO2
7	How do you create Spanning Tree? Define shortest path with example.	5	Co3	K2	PO2
7	What is Circular queue explain with diagram.	5	Co3	K2	PO2

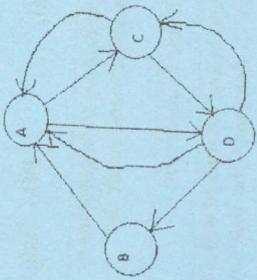
Section C (Answer any THREE out of FIVE) - 30 Marks-

(Each question Carry 10 Marks)

QUESTIONS

No.	QUESTIONS	Marks	COs	KL	PO
8	Analyse Linear Search with example.	10	C02	K4	PO2
9	Convert the expression into postfix notation (A+B)/(C-D). Show each steps.	10	Co3	K6	PO2
0	Explain Selection Sort with example and analysis its time complexity.	10	Co4	K4	PO2

11



Draw the adjacency matrix and incidence matrix for the given directed un-weighted graph.
Evaluate following postfix expression using stack
7,2,-,1,3,+,-/ show each steps.

12

10

Co5

K6

Co2

K5

PO2

CO- Course Outcomes,

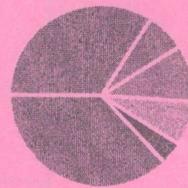
KL- Knowledge Level,

PO – Program Outcome

CO1	Makes students gain a broad perspective about the uses of computers in engineering industry.
CO2	Develops basic understanding of computers, the concept of algorithm and algorithmic thinking.
CO3	Develops the ability to analyze a problem, develop an algorithm to solve it.
CO4	Develops the use of the C programming language to implement various algorithms, and develops the basic concepts and terminology of programming in general.
CO5	Introduces the more advanced features of the C language.

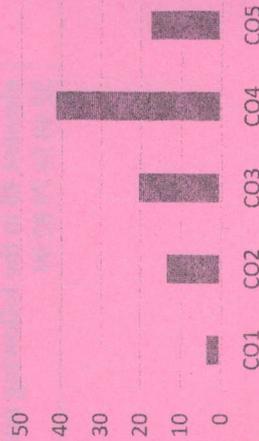
GRAFICAL REPRESENTATION

Bloom's Level wise Marks Distribution



■ K1 ■ K2 ■ K3 ■ K4 ■ K5 ■ K6

Course Outcome wise Marks Distribution



ARKAJAIN University
Jharkhand

END TERM EXAMINATION
School of Engineering & IT

Branch	Computer Science & Engineering	Program	Diploma
Subject Name	Computer Programming	Semester	3rd
		Year	2023/Odd
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 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. 		
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.N 1	QUESTIONS	Marks	COs	KL	PO
i	What will be output when you will execute following c code? void main() { int fruit=1; switch(fruit+2) { default:printf("apple"); case 4: printf(" banana"); case 5: printf(" orange"); case 8: printf(" grape"); } }	2	CO3	K5	PO4
ii	Explain the advantages of functions.	2	CO5	K2	PO3
iii	How switch case works without break statement.	2	CO3	K4	PO3
iv	Differentiate between post-increment and pre-increment.	2	CO2	K4	PO3
v	Differentiate between Actual parameter and Formal parameter.	2	CO5	K4	PO4

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

Q. No.	QUESTIONS	Marks	COs	KL	PO
8	What is recursion? Write a program in C to find out factorial of a given number using recursion.	10	CO4	K6	PO5
9	Explain the following string handling functions a) strcmp() b) strstr() c) strlen() d) strstr() e) strcpy()	10	CO5	K1	PO3
10	Write a C program to find the factorial of given number using function.	10	CO4	K6	PO5
11	List the basic data types with byte specification.	10	CO2	K1	PO2
12	Write the steps involved in performing binary search operation to search an element 48 in the following numbers. 32 48 56 79 82 99	10	CO4	K3	PO3

vi	Write a program in C to find out the greatest among three numbers using function.	2	CO5	K6	PO5
vii	Illustrate the declaration and initialization of two dimensional array	2	CO4	K1	PO2
viii	What is the output of the following program main() { int i; for(i=1;i<5;i++) { if(i==3) continue; Printf("%d", i); } }	2	CO3	K5	PO4
ix	Give the differences between library functions and user-defined functions.	2	CO5	K1	PO3
x	Why the return statement is required in a function body?	2	CO2	K4	PO3

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

Q. No.	QUESTIONS	Marks	COs	KL	PO
2	Write a C program to read and display a 3 by 3 matrix.	5	CO4	K6	PO5
3	Write a C program to search an element in an array	5	CO4	K6	PO5
4	Explain nested for loop with general syntax and example.	5	CO3	K1	PO2
5	Illustrate the switch statement with syntax and example.	5	CO3	K1	PO2
6	Write a flowchart to compute addition of given two numbers.	5	CO1	K2	PO1
7	Write an algorithm to find the maximum in an array	5	CO3	K6	PO4

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

CO1	Explain the organization of basic computer, its design and the design of control unit.
CO2	Demonstrate the working of central processing unit and RISC and CISC Architecture
CO3	Describe the operations and language for the register transfer, micro operations and input-output organization
CO4	Understand the organization of memory and memory management hardware.

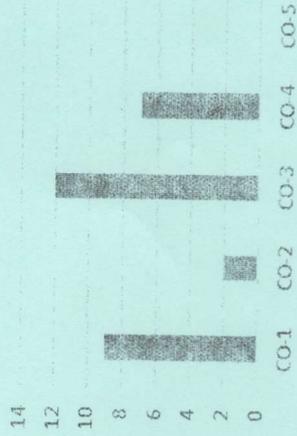
GRAFICAL REPRESENTATION

Bloom's level wise Marks Distribution



■ level-1 ■ level-2 ■ level-3
■ level-4 ■ level-5 ■ level-6

Course Outcome wise Marks Distribution



 ARKAJAIN University Jharkhand		END TERM EXAMINATION School of Engineering & IT				
				Branch	Diploma	
Subject Name		Program	Semester	Year		
Computer Science & Engineering		3rd	2023/	Odd		
Computer System Organization		<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 <u>Unfair Means</u> 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 Q1-x) – 20 Marks						
Q.N1	QUESTIONS		Marks	COs	KL	PO
i	Draw a structure of single-bus structure?		2	CO1	K1	PO2
ii	What is Memory system?		2	CO1	K2	PO3
iii	Normalize the number -197 into binary form?		2	CO4	K3	PO1
iv	What is microprocessor?		2	CO3	K2	PO4
v	What is microcontroller?		2	CO2	K3	PO3
vi	What are addressing modes?		2	CO4	K3	PO2
vii	Define the term cache memory?		2	CO2	K2	PO3
viii	List different types of addressing modes?		2	CO4	K2	PO3
ix	What is data transparency?		2	CO3	K1	PO1
x	Write short notes on conditional branching?		2	CO4	K2	PO4

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

(Each question Carry 5 Marks)

Q. No.	QUESTIONS	Marks	COs	KL	PO
2	Convert (1277.143) ₁₀ into Single and Double Precision.	5	CO2	K3	PO3
3	Perform Arithmetic Micro operations -For Add, Subtract, Complement.	5	CO4	K2	PO2
4	Explain Types of Interrupts with an example for each.	5	CO3	K2	PO3
5	What are the types of micro operations?	5	CO4	K2	PO2
6	Explain the architecture of a basic Computer.	5	CO3	K3	PO1
7	Discuss about Memory Reference Instructions.	5	CO2	K2	PO4

Section C (Answer any THREE out of FIVE) - 30 Marks-

(Each question Carry 10 Marks)

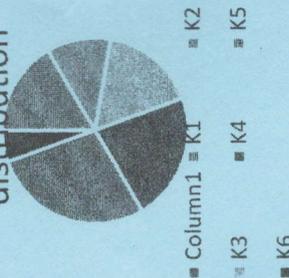
Q. No.	QUESTIONS	Marks	COs	KL	PO
8	What are the 7 differences between RAM and ROM?	10	CO1	K3	PO3
9	What do you mean by virtual memory?	10	CO4	K2	PO2
10	Discuss any six ways of improving the cache performance.	10	CO1	K2	PO3
11	Discuss about priority interrupt.	10	CO4	K3	PO3
12	Explain the Differences between CISC and RISC.	10	CO1	K1	PO1

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

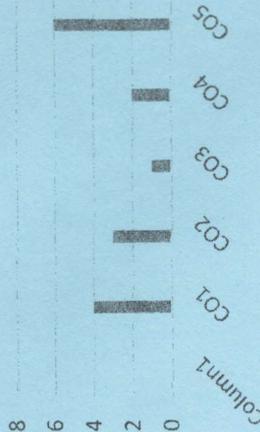
CO1	To facilitate the students with the concepts of Indian traditional knowledge and to make them understand the importance of roots of knowledge system.
CO2	To promote fundamental to protecting and promoting indigenous peoples' cultures and identifies among the students
CO3	To facilitate students with the concept of sustainability of livelihoods, resilience to human-made and natural disasters and sustaining culturally appropriate economic development.
CO4	To understand and develop moral values among the students
CO5	Familiarize with the principles of Yoga and its benefits

GRAFICAL REPRESENTATION

Bloom's taxonomy Wise distribution



Course Outcome Wise Marks Distribution





ARKAJAIN University
Jharkhand

END TERM EXAMINATION
School of Engineering & IT

Branch	Computer science & Engineering	Program	Diploma
Subject Name	Essence of Indian Knowledge Tradition	Semester	3rd
		Year	2023/Odd
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 comes under Unfair Means and will Result in the Cancellation of the Papers. 		
Knowledge Level (KL)	K1 : Remembering K2 : Understanding	K3 : Applying K4 : Analysing	K5 : Evaluating K6 : Creating

Q.N1	QUESTIONS	Marks	COs	KL	PO
i	Write a few lines about the Vedas.	2	CO2	K1	PO1
ii	Mention two tips to lead a Satvik life	2	CO3	K3	PO1
iii	What do you mean by holistic health? Explain in your own words.	2	CO5	K2	PO2
iv	Why is Aryabhata famous in science?	2	CO4	K5	PO1
v	Which Indian scientist's work is considered to be the earliest research towards a binary system?	2	CO4	K5	PO2
vi	What are Doshi in the Ayurvedic sense?	2	CO1	K1	PO6
vii	Who is the father of Yoga? Mention his famous work in Yoga philosophy.	2	CO5	K1	PO2
viii	Why are the Upanishads famous?	2	CO5	K5	PO2
ix	Give your views on Gandharvaveda.	2	CO1	K3	PO1
x	How important is it to have a balanced diet?	2	CO5	K4	PO6

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

Q. No.	QUESTIONS	Marks	COs	KL	PO
2	Write a short note on the Vedas.	5	CO1	K2	PO2
3	What is the importance of moral values in modern times? Give your views	5	CO4	K5	PO6
4	Who is called the father of linguistics? Elucidate his contribution to the development of literature & science.	5	CO3	K1	PO2
5	Explain the 6 Vedangs.	5	CO1	K4	PO6
6	What are the steps you would take to lead a healthy lifestyle?	5	CO5	K3	PO6
7	Describe the Dhanurveda.	5	CO2	K5	PO2

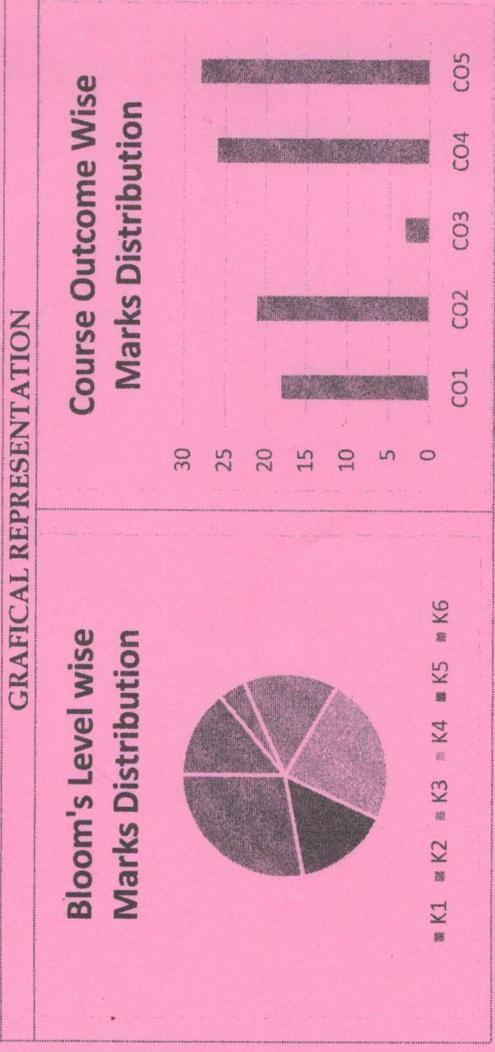
Section C (Answer any THREE out of FIVE) - 30 Marks-**(Each question Carry 10 Marks)**

Q. No.	QUESTIONS	Marks	COs	KL	PO
8	What does Yoga say about spirit, body & mind? Discuss the importance of Yoga in today's life.	10	CO5	K5	PO1
9	Name five ancient Indian scholars & scientists. What is their contribution to modern science?	10	CO2	K4	PO6
10	Create a plan to keep yourself healthy by following the principles of the Yoga philosophy.	10	CO5	K6	PO1
11	Elucidate the importance of the four Vedas	10	CO1	K4	PO1
12	What is the meaning of Upveda?	10	CO1	K3	PO1

(35)

 ARKAJAIN University Jharkhand		END TERM EXAMINATION School of Engineering & IT	
Branch	Computer Science & Engineering	Program	Diploma
Subject Name	Python Programming	Semester	3rd
		Year	2023 / Odd
<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 <u>Unfair Means</u> and will <u>Result in the Cancellation of the Papers.</u> 			
Time: 3 Hour Max. Marks : 70			
Knowledge Level (KL)	K1 : Remembering	K3 : Applying	K5 : Evaluating
	K2 : Understanding	K4 : Analysing	K6 : Creating

CO- Course Outcomes,	KL- Knowledge Level,	PO – Program Outcome
CO1	Demonstrate the basic techniques used to create scripts for automating system administrative tasks.	
CO2	Demonstrate the use of regular expressions in processing text.	
CO3	Construct web scraping scripts to programmatically obtain data and content from web Pages.	
CO4	Design, code, and test applications using Python scripts.	
CO5	Frame work with different scripting language.	



Section A (Each question Carry 02 Marks from Q1-i to Q1-x) – 20 Marks					
Q. N1	QUESTIONS	Marks	COs	KL	PO
i	Give an examples of loop statement?	2	CO1	K1	PO2
ii	Give an examples of do- while condition?	2	CO1	K2	PO3
iii	Write a function to find a factorial of a number?	2	CO4	K3	PO1
iv	Name the different types of operators?	2	CO3	K2	PO4
v	Find type of data structure using type() function?	2	CO2	K3	PO3
vi	What is Mutable and Immutable?	2	CO4	K3	PO2
vii	Give an example of dictionary in Python?	2	CO2	K2	PO3
viii	Give an example of Empty tuple?	2	CO4	K2	PO3
ix	Create a Python Tuple With one Element?	2	CO3	K1	PO1
x	Name the different Data types which we use in python?	2	CO4	K2	PO4

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

(Each question 5 Marks)

Q.No.	QUESTIONS	Marks	COs	KL	PO
2	Define list, Tuple, Dictionaries.	5	CO2	K3	PO3
3	Write a program that read a Data as an integer in the format add (ddmmYYYY), the program will call a function that print out the Data. <DATA > <MONTH NAME> <YEAR>	5	CO4	K2	PO2
4	Write a program to print a Palindrome Number. Take input by user side.	5	CO3	K2	PO3
5	Write a program to print a Fibonacci Series.	5	CO4	K2	PO2
6	Write a python program to sort a list of tuples alphabetically?	5	CO3	K3	PO1
7	Check if an Item Exists in the Python Tuple?	5	CO2	K2	PO4

Section C (Answer any THREE out of FIVE) – 30 Marks-

(Each question Carry 10 Marks)

Q.No.	QUESTIONS	Marks	COs	KL	PO
8	Check whether a given key already exists in a dictionary?	10	CO1	K3	PO3
9	Create nested dictionary using given list?	10	CO4	K2	PO2
10	Find the size of a Tuple in python?	10	CO1	K2	PO3
11	Write a python program to test if a variable is a list or tuple or a set?	10	CO4	K3	PO3
12	Write a python program to sort a list of tuples by the second item?	10	CO1	K1	PO1