

JGI	ARKA JAIN University Jharkhand	NAAC GRADE A ACCREDITED UNIVERSITY	[30-04-2026] END SEM EXAMINATION School of Engineering & IT
Program	Bachelor of Computer Application [AIDL]		
Subject Name	Predictive Analytics	Session	Even, 2025-26
Semester	IV	Year	April, 2026
Time: 3 Hour Max. Marks : 70	- Start writing from 2nd page onwards; <u>don't Write on the 1st Page Backside</u> - 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 Phone</u> or any kind of <u>Written Material</u>, <u>Arguments with the Invigilator</u> or <u>Discussion with Co-Student</u> will come under <u>Unfair Means</u> and will <u>Result in the Cancellation of the Paper(s)</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 x - 20 Marks)					
Q.N	1	QUESTIONS	Marks	COs	KL
i		What is meant by a node in SPSS Modeler?	02	CO1	K1
ii		Name any two data sources that can be imported into SPSS Modeler.	02	CO3	K4
iii		What is Exploratory Data Analysis (EDA)?	02	CO2	K2
iv		Name any two visualization techniques used in data analysis.	02	CO4	K5
v		Give one example of a classification algorithm.	02	CO2	K3
vi		Name one emerging trend in business analytics.	02	CO4	K5
vii		What is pattern recognition in data analytics?	02	CO5	K1
viii		Expand CRISP-DM and state its purpose.	02	CO6	K3
ix		What are missing values in a dataset?	02	CO5	K5
x		What is the purpose of model evaluation?	02	CO4	K6

Section B (Answer any FOUR out of SIX) - 20 Marks
(Each question Carry 05 Marks)

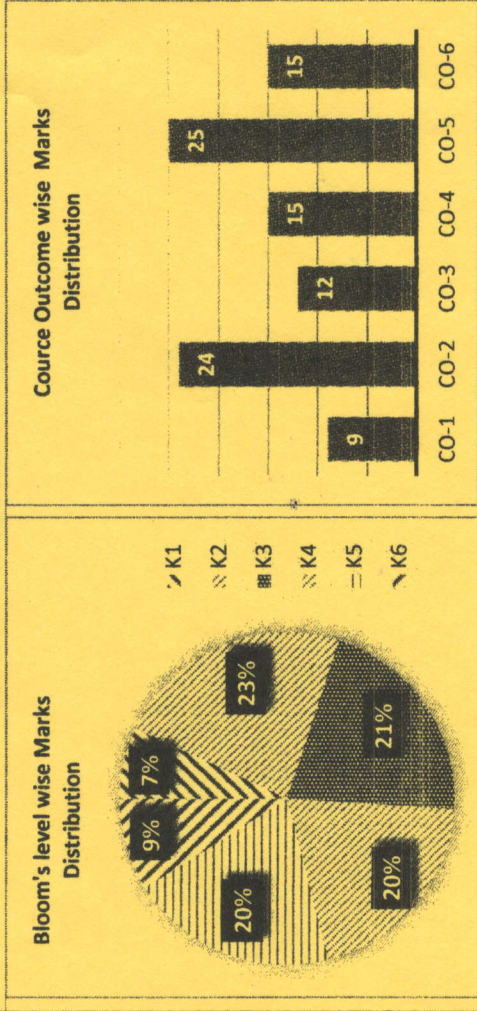
Q. No.	QUESTIONS	Marks	COs	KL
2	Explain the interface and architecture of IBM SPSS Modeler.	05	CO5	K3
3	Explain how data can be imported from different sources into SPSS Modeler.	05	CO2	K1
4	Differentiate between normalization and feature scaling with examples.	05	CO2	K2
5	Discuss various visualization methods available for data exploration.	05	CO6	K5
6	Describe how patterns and trends can be identified through EDA.	05	CO5	K6
7	Explain the concept of predictive modeling and its workflow.	05	CO3	K6

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

Q. No.	QUESTIONS	Marks	COs	KL
8	Explain the process of building a predictive model in SPSS Modeler.	10	CO1	K2
9	Explain how real-world case studies help in understanding predictive analytics.	10	CO2	K3
10	Explain the significance of privacy-preserving techniques in data analytics.	10	CO5	K2
11	Discuss the common evaluation metrics used for predictive models.	10	CO2	K4
12	Differentiate between regression, classification, and clustering.	10	CO3	K2

Course Outcomes	CO1	CO2	CO3	CO4	CO5	CO6
	To Define key terms and concepts related to predictive analytics, machine learning algorithms, and data pre-processing techniques.	To Explain the various applications of predictive analytics across different industries.	To Apply data cleaning, wrangling, and transformation techniques to prepare data for modelling.	To Choose and implement suitable machine learning algorithms for specific prediction tasks.	To Evaluate the performance of predictive models using appropriate metrics and identify potential biases.	To Develop basic predictive models using open-source tools and interpret the results for actionable insights.

GRAPHICAL REPRESENTATION



 ARKA JAIN University Jharkhand				[04-05-2026] END SEM EXAMINATION School of Engineering & IT	
Program	Bachelor of Computer Application [AIDL]				
Subject Name	Computer Network		Session	Even, 2025-26	
Semester	IV		Year	April, 2026	
• Start writing from 2nd page onwards; <u>don't Write on the 1st Page</u> <u>Backside</u> • 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 Phone or any kind of Written Material, Arguments with the Invigilator or Discussion with Co-Student will comes under <u>Unfair Means</u> and will <u>Result in the Cancellation of the</u>					
Knowledge Level (KL)	Time: 3 Hour Max. Marks : 70		Paper(s).		
			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.N	QUESTIONS		Marks	COs	KL
1					
i	Define a computer network.		02	CO1	K1
ii	What is network topology?		02	CO1	K2
iii	Define network security.		02	CO1	K4
iv	What is malware?		02	CO2	K3
v	What is a firewall?		02	CO3	K5
vi	Define IDS.		02	CO3	K4
vii	What is network segmentation?		02	CO4	K1
viii	Define defense-in-depth.		02	CO4	K3
ix	What is incident response?		02	CO3	K2
x	Define risk assessment.		02	CO5	K5

Section B (Answer any FOUR out of SIX) – 20 Marks (Each question Carry 05 Marks)				
Q. No.	QUESTIONS	Marks	COs	KL
2	Explain different types of network topologies.	05	CO1	K3
3	Compare OSI and TCP/IP reference models.	05	CO1	K4
4	Explain common network security threats.	05	CO2	K2
5	Differentiate between virus, worm, and Trojan.	05	CO2	K4
6	Explain types of firewalls.	05	CO3	K3
7	Differentiate IDS and IPS.	05	CO3	K5
Section C (Answer any THREE out of FIVE) – 30 Marks (Each question Carry 10 Marks)				
Q. No.	QUESTIONS	Marks	COs	KL
8	Explain computer network models with diagrams.	10	CO1	K6
9	Explain network security principles and concepts.	10	CO2	K1
10	Explain firewall architecture, types, and configurations.	10	CO4	K3
11	Explain defense-in-depth with suitable architecture.	10	CO4	K2
12	Explain network security monitoring and incident response lifecycle.	10	CO5	K5

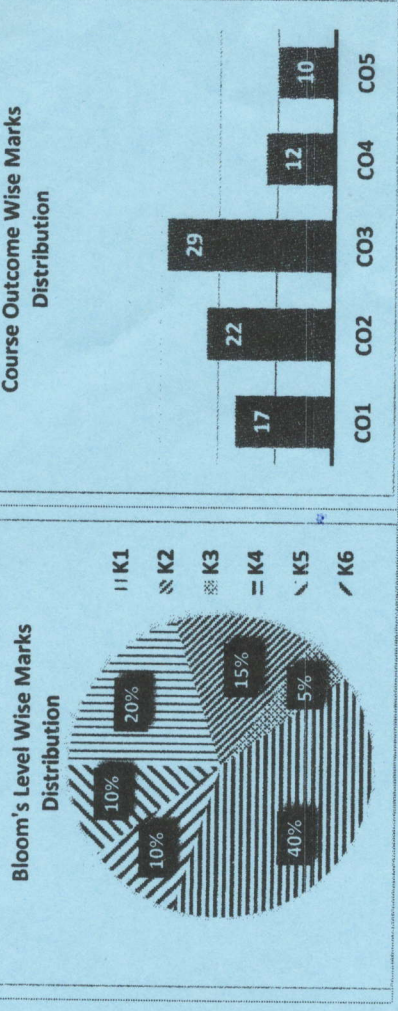
CO- Course Outcomes,		KL- Knowledge Level,	PO – Program Outcome
Course Outcomes	CO1	Understand the basic concepts and principles of computer networks and communication protocols.	
	CO2	Identify common network security threats and vulnerabilities and apply appropriate countermeasures.	
	CO3	Utilize network security tools and techniques for monitoring and securing computer networks.	
	CO4	Design and implement secure network architectures and configurations.	
	CO5	Analyze and evaluate network security policies and practices for compliance and effectiveness.	
GRAPHICAL REPRESENTATION			
Bloom's level wise Marks Distribution		Course Outcome wise Marks Distribution	

	ARKA JAIN University Jharkhand		[08-05-2026] END SEM EXAMINATION School of Engineering & IT		
Program	Bachelor of Computer Application [AIDL]				
Subject Name *	Data Compression	Session	Even, 2025-26		
Semester	IV	Year	April, 2026		
Time: 3 Hour Max. Marks : 70	- Start writing from 2nd page onwards; <u>don't Write on the 1st Page Backside</u> - Answer all Questions of Section A (Compulsory) - Answer Any <u>Four</u> out of Six of Section B - Answer Any <u>Three</u> out of Five of Section C - Possession of Mobile Phone or any kind of <u>Written Material</u>, Arguments with the <u>Invigilator</u> or <u>Discussion</u> with <u>Co-Student</u> will comes under <u>Unfair Means</u> and will <u>Result</u> in the <u>Cancellation of the Paper(s)</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 x - 20 Marks)				
Q.N	1	QUESTIONS	Marks	COs
i		What is data compression?	02	CO1
ii		Define entropy in information theory.	02	CO1
iii		Name one application of Huffman coding.	02	CO1
iv		What is a prefix code?	02	CO1
v		Define quantization.	02	CO1
vi		What is lossy compression?	02	CO2
vii		Name one emerging application of data compression.	02	CO4
viii		Define compression ratio.	02	CO3
ix		What is predictive coding?	02	CO1
x		What is video compression?	02	CO3

CO1	To Define key terms and concepts related to data compression, redundancy, and entropy.
CO2	To Explain the principles and functionalities of different lossless and lossy compression algorithms (e.g., Huffman coding, Run-length encoding, JPEG).
CO3	To Analyze the trade-off between compression ratio and distortion for various compression techniques.
CO4	To Implement basic compression algorithms in a chosen programming language.
CO5	To Assess the suitability of specific compression methods for different data types and applications.

GRAPHICAL REPRESENTATION



Section B (Answer any FOUR out of SIX) - 20 Marks
(Each question Carry 05 Marks)

Q. No.	QUESTIONS	Marks	COs	KL
2	Explain the need for data compression in modern computing systems.	05	CO2	K2
3	Write a short note on construction of a Huffman tree.	05	CO2	K2
4	Discuss advantages and disadvantages of lossy compression.	05	CO2	K4
5	Discuss the role of data compression in network transmission.	05	CO1	K3
6	Explain the compression standards in multimedia systems.	05	CO2	K2
7	Explain arithmetic coding.	05	CO3	K4

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

Q. No.	QUESTIONS	Marks	COs	KL
8	Discuss different types of data redundancy and explain how each can be removed during compression.	10	CO3	K4
9	Discuss the future directions in data compression techniques.	10	CO5	K5
10	Explain the complete JPEG compression and decompression process with diagrams	10	CO2	K4
11	Explain the implementation of a basic compression algorithm.	10	CO4	K6
12	Explain predictive coding techniques and their applications in image and video compression.	10	CO3	K4

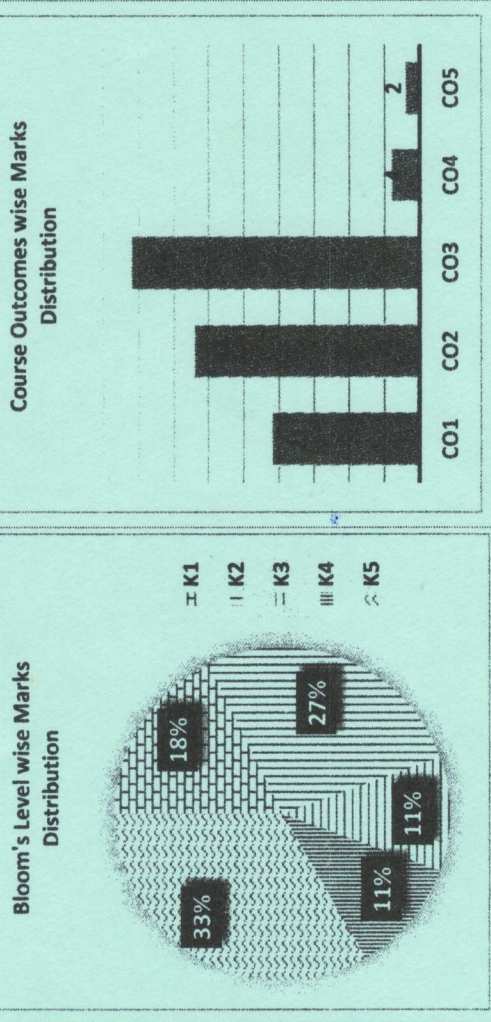
 ARKA JAIN University Jharkhand		 NAAC GRADE A ACCREDITED UNIVERSITY		[11-05-2026] END SEM EXAMINATION School of Engineering & IT	
Program		Bachelor of Computer Application [AIDL]			
Subject Name		Artificial Intelligence		Session	
Semester		IV		Even, 2025-26	
Time: 3 Hour Max. Marks : 70		• Start writing 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 • Possession of <u>Mobile Phone</u> or any kind of <u>Written Material</u> , <u>Arguments with the Invigilator</u> or <u>Discussion with Co-Student</u> will comes under <u>Unfair Means</u> and will <u>Result</u> in the <u>Cancellation of the Paper(s)</u> .			
Knowledge Level (KL)		K1 : Remembering		K3 : Applying	
		K2 : Understanding		K4 : Analysing	
				K5 : Evaluating	
				K6 : Creating	

Section A (Each question Carry 02 Marks from Q1-i to x - 20 Marks)					
Q. N	QUESTIONS		Marks	COs	KL
i	What is meant by a task environment?		02	CO1	K2
ii	Give one example of AI used in daily life.		02	CO3	K1
iii	Give one characteristic of a production system.		02	CO1	K1
iv	What is knowledge representation?		02	CO3	K1
v	Define fuzzy logic.		02	CO3	K1
vi	What is a Cartesian product of a relation?		02	CO5	K1
vii	Define a biological neuron.		02	CO4	K1
viii	What is an artificial neural network (ANN)?		02	CO4	K1
ix	Define state space search.		02	CO1	K1
x	What does DFS stand for?		02	CO2	K2

Section B (Answer any FOUR out of SIX) – 20 Marks (Each question Carry 05 Marks)				
Q. No.	QUESTIONS	Marks	COs	KL
2	Explain the role of AI in engineering with suitable examples.	05	CO1	K2
3	Discuss the limitations of AI.	05	CO1	K3
4	Explain how a problem can be defined as a state space search.	05	CO1	K2
5	Describe the different types of knowledge with examples.	05	CO3	K2
6	Write a short note on AND-OR graphs.	05	CO3	K3
7	Compare hard computing and soft computing.	05	CO3	K2
Section C (Answer any THREE out of FIVE) – 30 Marks (Each question Carry 10 Marks)				
Q. No.	QUESTIONS	Marks	COs	KL
8	Explain in detail the role of AI in daily life with real-world applications.	10	CO2	K4
9	Describe the PEAS (Performance, Environment, Actuators, Sensors) model for designing an intelligent agent with examples	10	CO3	K5
10	Explain various problem characteristics in AI with examples and discuss their importance in selecting a search strategy.	10	CO2	K5
11	Discuss BFS, DFS, and Hill Climbing in detail, comparing their advantages, disadvantages, and applications.	10	CO2	K5
12	Discuss knowledge representation issues in detail and their importance in developing AI systems.	10	CO3	K5

CO1	Analyze the foundation and basic concept of Artificial Intelligence.
CO2	Apply various problem-solving methodology to develop AI enabled system.
CO3	Analyze the concept of representing the knowledge and the process of inference to derive new representations of the knowledge.
CO4	Apply the concept of soft computing notion for Planning, Game playing and NLP in AI and basic techniques in the classical systems.
CO5	Analyze the concept of Fuzzy Logic.

GRAPHICAL REPRESENTATION



	ARKA JAIN University Jharkhand			[30-04-2026] END SEM EXAMINATION School of Engineering & IT
	Program	Bachelor of Computer Application [Cyber Security]		
	Subject Name	Network and System VA/PT		Session Even, 2025-26
	Semester	IV	Year	April, 2026
Time: 3 Hour Max. Marks : 70				
• Start writing from 2nd page onwards; <u>don't Write on the 1st Page.</u> 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 Phone</u> or any kind of <u>Written Material</u> , <u>Arguments with the Invigilator</u> or <u>Discussion with Co-Student</u> will comes under <u>Unfair Means</u> and will <u>Result</u> in the <u>Cancellation of the</u> <u>Paper(s).</u>				
Knowledge Level (KL)	K1 : Remembering		K3 : Applying	K5 : Evaluating
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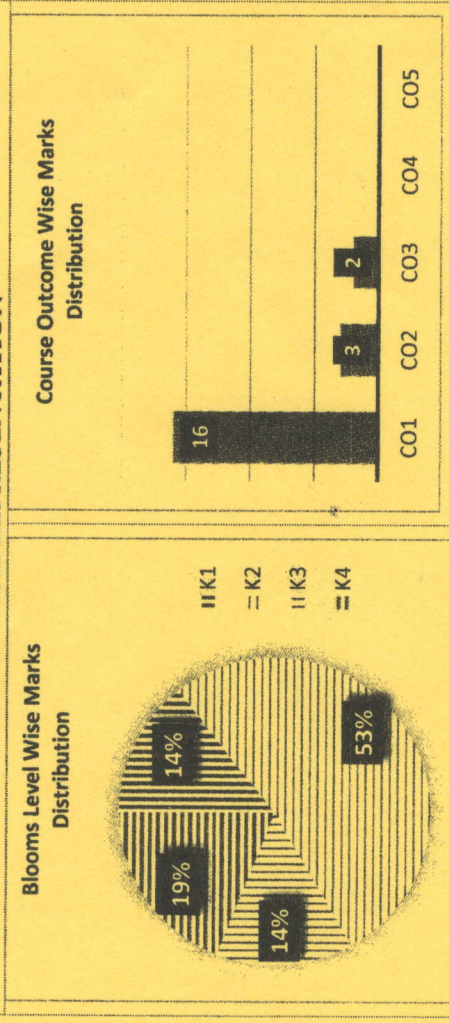
Section A (Each question Carry 02 Marks from Q1-i to x - 20 Marks)				
Q. N	QUESTIONS		Marks	COs
1				KL
i	Define Deep Packet Inspection (DPI).		02	CO1
ii	What is the difference between DPI and shallow packet inspection?		02	CO1
iii	List any two packet types used in networks.		02	CO1
iv	What is network scanning?		02	CO1
v	What is system penetration testing?		02	CO1
vi	Define Active Directory.		02	CO1
vii	List two Windows vulnerabilities.		02	CO1
viii	List two Linux vulnerabilities.		02	CO1
ix	What is Metasploit?		02	CO1
x	What is asset discovery?		02	CO1

Section B (Answer any FOUR out of SIX) – 20 Marks (Each question Carry 05 Marks)				
Q. No.	QUESTIONS	Marks	COs	KL
2	Analyze the role of DPI in load balancing and traffic reduction.	05	CO1	K4
3	Analyze different packet types (HTTP, SMTP) and their vulnerabilities.	05	CO1	K4
4	Explain the concept and importance of system penetration testing.	05	CO2	K2
5	Describe Active Directory and its importance in organizations.	05	CO2	K2
6	Explain post-exploitation strategies used in advanced attacks.	05	CO3	K3
7	Describe techniques for securing and hardening networks.	05	CO2	K3
Section C (Answer any THREE out of FIVE) – 30 Marks (Each question Carry 10 Marks)				
Q. No.	QUESTIONS	Marks	COs	KL
8	Analyze advanced network vulnerabilities and post-exploitation strategies.	10	CO1	K4
9	Discuss security considerations and best practices for cloud networks.	10	CO1	K2
10	Analyze advanced system exploitation techniques with examples.	10	CO3	K4
11	Explain advanced tools used for network and system assessment.	10	CO1	K2
12	Evaluate the impact of automation on VAPT efficiency and accuracy.	10	CO1	K2

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

CO1	Understand fundamental concepts of network vulnerability assessment, packet structures, and Deep Packet Inspection (DPI)
CO2	Analyze different network protocols, packet types, and identify common misconfigurations in network communication.
CO3	Apply network scanning, enumeration, and vulnerability assessment techniques using appropriate tools.
CO4	Understand system penetration testing concepts and identify vulnerabilities in Windows and Linux environments.
CO5	Apply exploitation techniques using frameworks such as Metasploit for system-level attacks.
CO6	Analyze advanced VAPT techniques including post-exploitation, system enumeration, and network hardening.

GRAPHICAL REPRESENTATION



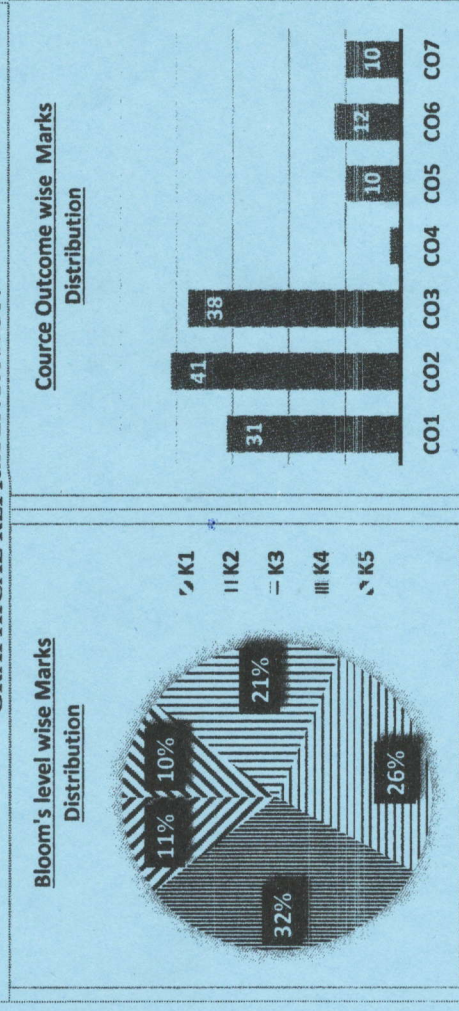
	ARKA JAIN University Jharkhand				[04-05-2026] END SEM EXAMINATION School of Engineering & IT
Program	Bachelor of Computer Application [Cyber Security]				
Subject Name	Post Exploitation and Advanced Techniques		Session	Even, 2025-26	
Semester	IV		Year	April, 2026*	
Time: 3 Hour Max. Marks : 70	• Start writing from 2nd page onwards; <u>don't Write on the 1st Page Backside</u> • Answer all Questions of Section A (Compulsory) • Answer Any <u>Four</u> out of Six of Section B • Answer Any <u>Three</u> out of Five of Section C • Possession of <u>Mobile Phone</u> or any kind of <u>Written Material, Arguments with the Invigilator or Discussion with Co-Student</u> will come under <u>Unfair Means</u> and will <u>Result in the Cancellation of the Paper(s)</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 x - 20 Marks)					
Q. N	QUESTIONS	Marks	COs	KL	
1					
i	Write down the purpose of persistence in post-exploitation.	02	CO1	K2	
ii	Identify key objectives of attackers after gaining access.	02	CO1	K2	
iii	What do you mean by pass-the-hash attack?	02	CO4	K2	
iv	Differentiate data exfiltration and data leakage.	02	CO6	K2	
v	Identify methods used for secure data transfer.	02	CO3	K2	
vi	Identify common privilege escalation vectors.	02	CO2	K2	
vii	Write down the role of encryption in data exfiltration.	02	CO3	K2	
viii	What is the purpose of anti-forensic techniques?	02	CO2	K2	
ix	Compare rootkits and backdoors	02	CO1	K2	
x	Write down the concept of covert channels.	02	CO3	K2	

Section B (Answer any FOUR out of SIX) – 20 Marks (Each question Carry 05 Marks)				
Q. No.	QUESTIONS	Marks	COs	KL
2	Analyze the lifecycle of post-exploitation activities.	05	CO1	K4
3	Discuss different techniques used to gather sensitive information post-exploitation.	05	CO1	K1
4	Compare different types of rootkits and their impact.	05	CO1	K1
5	Describe evasion techniques used to bypass security systems.	05	CO2	K3
6	Explain the use of encryption in secure communication.	05	CO3	K3
7	Describe compression techniques used in data exfiltration.	05	CO3	K3
Section C (Answer any THREE out of FIVE) – 30 Marks (Each question Carry 10 Marks)				
Q. No.	QUESTIONS	Marks	COs	KL
8	Analyze techniques used to cover tracks, including metadata manipulation	10	CO5	K4
9	Evaluate data collection tools and methodologies used post-exploitation.	10	CO1	K5
10	Analyze anti-forensic techniques and methods used to counter forensic investigations.	10	CO7	K4
11	Discuss methods to ensure data integrity and confidentiality during exfiltration	10	CO6	K4
12	Analyze various covert communication techniques used in cyber-attacks.	10	CO3	K3

CO1	Understand the concepts, goals, and importance of post-exploitation, including techniques for maintaining access and collecting information.
CO2	Analyze persistence mechanisms, rootkits, and backdoors used in post-exploitation scenarios.
CO3	Apply privilege escalation, evasion, and anti-forensic techniques to simulate real-world attack scenarios.
CO4	Analyze credential theft techniques such as pass-the-hash and methods for maintaining stealth during attacks.
CO5	Understand and implement file manipulation, metadata alteration, and track-covering techniques.
CO6	Analyze various data exfiltration techniques, including covert channels and secure communication methods.
CO7	Evaluate and implement security measures to protect data integrity, confidentiality, and prevent data exfiltration.

GRAPHICAL REPRESENTATION



	ARKA JAIN University Jharkhand		[06-05-2026] END SEM EXAMINATION School of Engineering & IT
Program	Bachelor of Computer Application [AIDL & Cyber Security]		
Subject Name	Cryptography	Session	Even, 2025-26
Semester	IV	Year	April, 2026
- Start writing from 2nd page onwards; <u>don't Write on the 1st Page</u> <u>Backside</u> - 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 Phone</u> or any kind of <u>Written Material</u>, <u>Arguments with the Invigilator</u> or <u>Discussion with Co-Student</u> will comes under <u>Unfair Means</u> and will <u>Result in the Cancellation of the Paper(s)</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 x - 20 Marks)			
Q.N	QUESTIONS	Marks	COs
1			KL
i	What is meant by a security attack? Give one example.	02	CO1
ii	Define cryptography and its main objectives.	02	CO1
iii	What is the difference between substitution cipher and transposition cipher?	02	CO1
iv	What is steganography? How is it different from cryptography?	02	CO1
v	Define block cipher and stream cipher	02	CO2
vi	What is the role of confusion and diffusion in encryption?	02	CO2
vii	What is DES? Mention one limitation of DES	02	CO2
viii	Define RSA algorithm. What is it used for?	02	CO3
ix	What is a hash function? Give one application.	02	CO3
x	What is digital signature? Why is it important?	02	CO4

Section B (Answer any FOUR out of SIX) – 20 Marks
(Each question Carry 05 Marks)

Q. No.	QUESTIONS	Marks	COs	KL
2	Explain the conventional encryption model with a neat diagram	05	CO1	K2:
3	Describe classical encryption techniques: substitution and transposition ciphers.	05	CO1	K2
4	Explain the structure of DES and its working process.	05	CO2	K3
5	Discuss the principles of public key cryptography with an example.	05	CO3	K2
6	Explain the RSA algorithm with key generation, encryption, and decryption steps	05	CO3	K2
7	Explain message authentication and hash functions. Discuss their security requirements.	05	CO4	K4

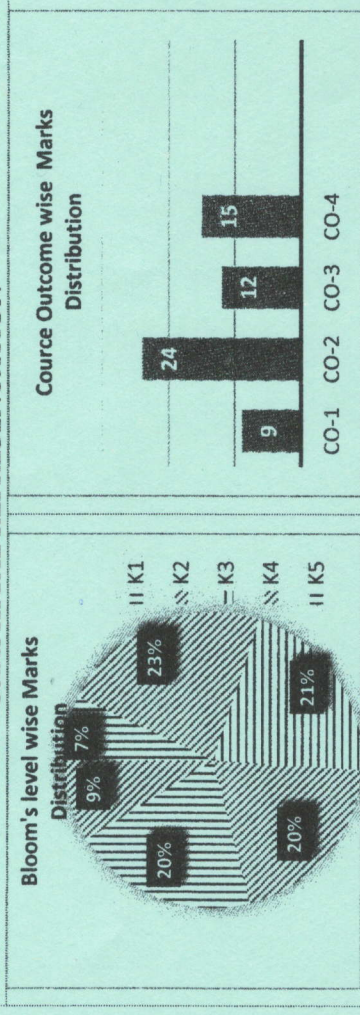
Section C (Answer any THREE out of FIVE) – 30 Marks
(Each question Carry 10 Marks)

Q. No.	QUESTIONS	Marks	COs	KL
8	Describe the Data Encryption Standard (DES) algorithm with its structure, working, and limitations. Also explain Triple DES.	10	CO1	K2
9	Explain the RSA algorithm in detail, including key generation, encryption, and decryption with an example.	10	CO3	K3
10	Explain in detail the block cipher principles and design. Discuss Shannon's concepts of confusion and diffusion.	10	CO1	K2
11	Discuss the Diffie-Hellman key exchange and Elliptic Curve Cryptography (ECC) with suitable diagrams.	10	CO3	K2
12	Explain digital signatures and authentication protocols.	10	CO4	K2

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

CO1	Understand the fundamental concepts of cryptography.
CO2	Apply techniques to ensure confidentiality and integrity of data
CO3	Demonstrate knowledge of public key cryptosystems and authentication techniques
CO4	Develop and implement digital signatures and authentication applications
CO5	Design and apply security mechanisms in network and web-based systems.

GRAPHICAL REPRESENTATION



	ARKA JAIN University Jharkhand	NAAC GRADE A ACCREDITED UNIVERSITY	[08-05-2026] END SEM EXAMINATION School of Engineering & IT
Program	Bachelor of Computer Application [Cyber Security]		
Subject Name	Fundamentals for Information Security	Session	Even, 2025-26
Semester	IV	Year	April, 2026*
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 - Possession of <u>Mobile Phone</u> or any kind of <u>Written Material</u>, <u>Arguments with the Invigilator or Discussion with Co-Student</u> will comes under <u>Unfair Means</u> and will <u>Result</u> in the <u>Cancellation of the Paper(s)</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 x - 20 Marks)				
Q. N	QUESTIONS	Marks	COs	KL
1				
i	What is phishing?	02	CO1	K2
ii	What is multi-factor authentication (MFA)?	02	CO3	K2
iii	Define cryptography.	02	CO1	K2
iv	What is symmetric encryption	02	CO1	K2
v	What is the purpose of a firewall in network security?	02	CO4	K1
vi	Give one example of a malware attack.	02	CO1	K2
vii	What does XSS stand for in web security?	02	CO5	K1
viii	What does HTTPS ensure?	02	CO5	K1
ix	What is a VPN used for?	02	CO4	K1
x	What does PKI stand for?	02	CO2	K2

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

(Each question Carry 05 Marks)

Q. No.	QUESTIONS	Marks	COs	KL
2	Describe common security threats and vulnerabilities	05	CO1	K1
3	Explain the difference between symmetric and asymmetric encryption algorithms.	05	CO2	K2
4	Write short notes on authorization and accountability in access control.	05	CO3	K3
5	Explain network access control (NAC) and its importance.	05	CO4	K2
6	Explain secure communication protocols like HTTPS and their importance.	05	CO5	K2
7	Describe the purpose of key management and distribution in cryptography	05	CO2	K2

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

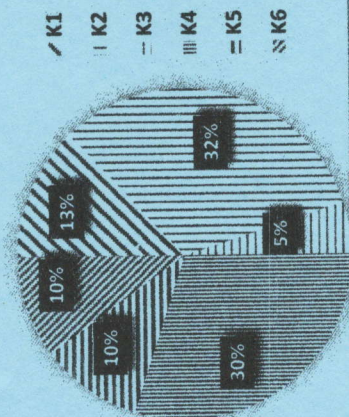
(Each question Carry 10 Marks)

Q. No.	QUESTIONS	Marks	COs	KL
8	Discuss the basic concepts of cryptography and its importance in securing information.	10	CO2	K4
9	Explain in detail the types of attacks on information systems, including malware, phishing, and social engineering.	10	CO2	K4
10	Discuss access control models (DAC, MAC, RBAC) in detail and explain where each model is best applied.	10	CO3	K4
11	Describe Virtual Private Networks (VPNs) and their role in securing remote communication.	10	CO4	K5
12	Explain the Secure Software Development Lifecycle (SDLC) and its role in developing secure software	10	CO5	K6

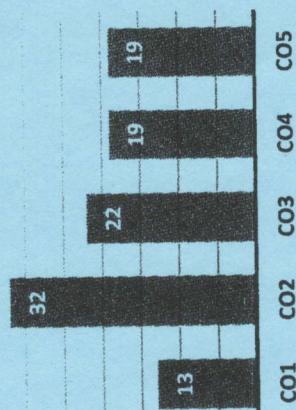
Course Outcomes	CO1	CO2	CO3	CO4	CO5	CO6
Learn fundamentals of cryptography and its application to network security.						
Understand network security threats, security services, and countermeasures.						
Understand vulnerability analysis of network security.						
Develop strategies for implementing compliance measures within technological						
Identify and mitigate software security vulnerabilities in existing systems						
Apply methods for authentication, access control, intrusion detection and prevention.						

GRAPHICAL REPRESENTATION

Bloom's Level wise Marks Distribution



Course Outcomes wise Marks Distribution



		ARKA JAIN University Jharkhand		NAAC GRADE A ACCREDITED UNIVERSITY		[11-05-2026] END SEM EXAMINATION School of Engineering & IT	
Program		Bachelor of Computer Application [Cyber Security]					
Subject Name		Advance Web Programming		Session		Even 2025-26	
Semester		IV		Year		April, 2026	
Time: 3 Hour Max. Marks : 70		• Start writing from 2nd page onwards; <u>don't Write on the 1st Page</u> * • <u>Backside</u> • Answer all Questions of Section A (Compulsory) • Answer Any <u>Four</u> out of Six of Section B • Answer Any <u>Three</u> out of Five of Section C • Possession of <u>Mobile Phone</u> or any kind of <u>Written Material, Arguments with the Invigilator or Discussion with Co-Student</u> will comes under <u>Unfair Means</u> and will <u>Result in the Cancellation of the Paper(s)</u>.					
		Knowledge Level (KL)		K1 : Remembering		K3 : Applying	
		K2 : Understanding		K4 : Analysing		K6 : Creating	

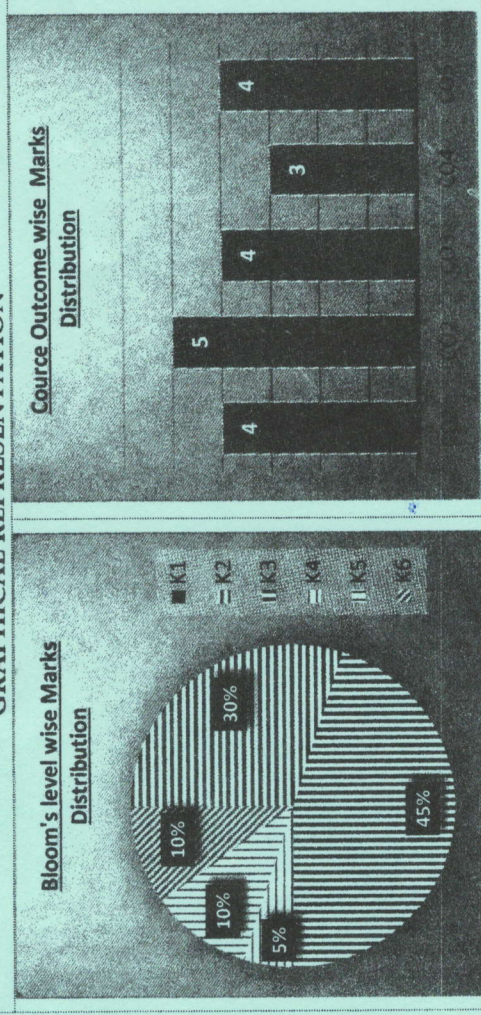
Section A (Each question Carry 02 Marks from Q1-i to x - 20 Marks)					
Q.N	QUESTIONS			Marks	COs
1					KL
i	What is HTML? Briefly explain its role in web page development.			02	CO3
ii	What is CSS? Why is it used in web designing?			02	CO3
iii	Define Java Script and mention any two of its features.			02	CO4
iv	What is an HTML tag? Give one example.			02	CO4
v	What is a variable in Java Script? How is it declared?			02	CO5
vi	What is PHP? Mention its use in web development.			02	CO5
vii	What is a function in programming?			02	CO1
viii	What is an array in PHP? Give an example.			02	CO1
ix	What is Document Object Model (DOM)?			02	CO2
x	What are super global variables in PHP? Give one example.			02	CO2

Section B (Answer any FOUR out of SIX) – 20 Marks (Each question Carry 05 Marks)				
Q. No.	QUESTIONS	Marks	COs	KL
2	Explain the basic structure of an HTML document with suitable example.	05	CO1	K4
3	Differentiate between inline, internal (embedded), and external CSS with examples.	05	CO2	K3
4	Explain different data types in Java Script with examples.	05	CO5	K6
5	Describe various control statements in Java Script such as if-else and loops.	05	CO3	K5
6	Explain PHP control structures used for decision making and looping.	05	CO4	K2
7	What are associative arrays in PHP? Explain with example.	05	CO5	K3
Section C (Answer any THREE out of FIVE) – 30 Marks (Each question Carry 10 Marks)				
Q. No.	QUESTIONS	Marks	COs	KL
8	Describe the Document Object Model (DOM) in Java Script and explain how event handling works with suitable examples.	10	CO1	K3
9	Write a detailed Java Script program to perform client-side form validation and explain its working.	10	CO1	K6
10	Explain PHP basics including syntax, variables, constants, data types, and operators with examples.	10	CO2	K3
11	Describe PHP functions in detail, including call by value, call by reference, and recursive functions with examples.	10	CO2	K3
12	Explain arrays in PHP, including indexed and associative arrays, and demonstrate how to access and loop through them.	10	CO3	K5

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

CO1	Understand the basic concepts of HTML, CSS, JavaScript and PHP.
CO2	Learn to create well-structured web pages.
CO3	Learning basic Web terminology and various concepts under HTML like lists, tables, images, links, frames, CSS etc.
CO4	Understanding basic concepts and built-in objects in JavaScript
CO5	Understand the principles of web design and accessibility.

GRAPHICAL REPRESENTATION





ARKA JAIN
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Jharkhand



[30-04-2026]

END SEM EXAMINATION
School of Engineering & IT

Program	Bachelor of Computer Application		
Subject Name	Web Programming	Session	Even, 2025-26
Semester	IV	Year	April, 2026
• 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 Phone</u> or any kind of <u>Written Material, Arguments with the Invigilator or Discussion with Co-Student</u> will comes under <u>Unfair Means</u> and will <u>Result in the Cancellation of the Paper(s)</u> .			
Knowledge Level (KL)	K1 : Remembering	K3 : Applying	K5 : Evaluating
	K2 : Understanding	K4 : Analysing	K6 : Creating

Time: 3 Hour
Max. Marks : 70

Knowledge Level (KL)

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

Q.N	QUESTIONS	Marks	COs	KL
1				
i	Differentiate between Internet and World Wide Web.	02	CO1	K2
ii	Define Telnet and mention its use.	02	CO1	K1
iii	What is the difference between static and dynamic web pages?	02	CO2	K2
iv	Define the term Domain Name System (DNS).	02	CO2	K2
v	What is a proxy server?	02	CO3	K1
vi	Define web hosting.	02	CO3	K1
vii	Difference between inline and external CSS.	02	CO4	K2
viii	Define semantic elements in HTML5 with one example.	02	CO2	K2
ix	What is the use of <form> tag in HTML5?	02	CO1	K1
x	Difference between client-side and server-side scripting.	02	CO3	K2

Section B (Answer any FOUR out of SIX) - 20 Marks (Each question Carry 05 Marks)				
Q. No.	QUESTIONS	Marks	COs	KL
2	Explain the structure of a URL with example.	05	CO1	K1
3	Explain HTML5 semantic elements with examples.	05	CO2	K2
4	Discuss CSS and its types with examples.	05	CO3	K3
5	Explain JavaScript operators with examples.	05	CO4	K4
6	Describe JavaScript control statements (if, loop, break).	05	CO4	K3
7	Explain GET and POST methods in PHP.	05	CO5	K3
Section C (Answer any THREE out of FIVE) - 30 Marks (Each question Carry 10 Marks)				
Q. No.	QUESTIONS	Marks	COs	KL
8	Discuss HTML5 page layout and navigation techniques with examples.	10	CO1	K6
9	Explain how to create tables and forms in HTML5 with suitable examples.	10	CO2	K6
10	Describe JavaScript objects and core objects (Array, String, Date, and Math).	10	CO3	K4
11	Explain how PHP is integrated with MySQL for database operations.	10	CO4	K5
12	Write a short note on sessions, cookies, and HTTP in PHP.	10	CO5	K5

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

Course Outcomes	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.																										
	CO5	Evaluate dynamic web pages using PHP and My SQL.																										
GRAPHICAL REPRESENTATION																												
Bloom's level wise Marks Distribution <table><thead><tr><th>Bloom's Level</th><th>Marks</th></tr></thead><tbody><tr><td>K1</td><td>20%</td></tr><tr><td>K2</td><td>13%</td></tr><tr><td>K3</td><td>17%</td></tr><tr><td>K4</td><td>20%</td></tr><tr><td>K5</td><td>15%</td></tr><tr><td>K6</td><td>15%</td></tr></tbody></table> Course Outcome wise Marks Distribution <table><thead><tr><th>Course Outcome</th><th>Marks</th></tr></thead><tbody><tr><td>CO-1</td><td>21</td></tr><tr><td>CO-2</td><td>21</td></tr><tr><td>CO-3</td><td>21</td></tr><tr><td>CO-4</td><td>22</td></tr><tr><td>CO-5</td><td>15</td></tr></tbody></table>			Bloom's Level	Marks	K1	20%	K2	13%	K3	17%	K4	20%	K5	15%	K6	15%	Course Outcome	Marks	CO-1	21	CO-2	21	CO-3	21	CO-4	22	CO-5	15
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CO-5	15																											

		ARKA JAIN University Jharkhand				[04-05-2026] END SEM EXAMINATION School of Engineering & IT	
Program		Bachelor of Computer Application					
Subject Name		Introduction to Data Science				Session Even 2025-26	
Semester		IV				Year April, 2026	
Time: 3 Hour Max. Marks : 70		• Start writing from 2nd page onwards; don't Write on the 1st Page • 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 Phone</u> or any kind of <u>Written Material</u> <u>Arguments with the Invigilator or Discussion with Co-Student</u> will comes under <u>Unfair Means</u> and will <u>Result</u> in the <u>Cancellation of the</u> <u>Paper(s).</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 x - 20 Marks)						
Q. N	QUESTIONS	Marks	COs	KL		
1						
i	Define Data Mining.	02	CO1	K5		
ii	What are the main features of Data Mining?	02	CO4	K5		
iii	List any two applications of Data Mining.	02	CO3	K2		
iv	What is Data Preprocessing?	02	CO4	K3		
v	Define Data Cleaning.	02	CO3	K5		
vi	What is Data Integration?	02	CO2	K6		
vii	What is Data Reduction?	02	CO1	K1		
viii	What is a Frequent Itemset?	02	CO2	K2		
ix	What is the Apriori Algorithm used for?	02	CO3	K4		
x	Define Classification in Data Mining.	02	CO4	K2		

Section B (Answer any FOUR out of SIX) – 20 Marks				
(Each question Carry 05 Marks)				
Q. No.	QUESTIONS	Marks	COs	KL
2	What is Knowledge Discovery in Database (KDD)? Explain data mining as an important step in KDD process.	05	CO1	K3
3	Differentiate between Data Cleaning and Data Integration.	05	CO2	K2
4	Explain Data Transformation and Data Discretization.	05	CO3	K4
5	Discuss techniques to improve classification accuracy.	05	CO5	K5
6	Explain Decision Tree Induction with Example.	05	CO5	K2
7	Explain Partitioning and Hierarchical Clustering methods.	05	CO3	K2
Section C (Answer any THREE out of FIVE) – 30 Marks				
(Each question Carry 10 Marks)				
Q. No.	QUESTIONS	Marks	COs	KL
8	Explain Data Mining and its features in detail. Discuss major issues in Data Mining.	10	CO1	K3
9	Explain different methods used to handle missing values in data pre-processing. Also define noisy data and explain how it effect data quality.	10	CO2	K5
10	Explain Pattern Evaluation Methods and Advanced Pattern Mining.	10	CO4	K6
11	Discuss Classification techniques: Decision Tree, Bayes, and Rule-Based Classification.	10	CO4	K3
12	Discuss applications, trends, and societal impact of Data Mining.	10	CO5	K3

Course Outcomes	CO1	CO2	CO3	CO4	CO5
Analyse the data and carry out supervised, unsupervised learning processes.					
Students will develop relevant programming					
Students will demonstrate proficiency with statistical analysis of data.					
Students will develop the ability to build and assess Data based models.					
Students can design more complex algorithms involving more complex data structures, and					
GRAPHICAL REPRESENTATION					
Bloom's level wise Marks Distribution			Course Outcome wise Marks Distribution		

	ARKA JAIN University Jharkhand	NAAC GRADE A ACCREDITED UNIVERSITY	[08-05-2026] END SEM EXAMINATION School of Engineering & IT
Program	Bachelor of Computer Application		
Subject Name	Cyber Security	Session	Even, 2025-26
Semester	IV	Year	April, 2026
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 - Possession of <u>Mobile Phone</u> or any kind of <u>Written Material</u>, <u>Arguments with the Invigilator</u> or <u>Discussion with Co-Student</u> will come under <u>Unfair Means</u> and will <u>Result</u> in the <u>Cancellation of the Paper(s)</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 x – 20 Marks)				
Q. N	QUESTIONS	Marks	COs	KL
1				
i	Define Cyber security.	02	CO1	K1
ii	What is Information Security?	02	CO2	K2
iii	What is the CIA triad?	02	CO3	K1
iv	Define Confidentiality in security.	02	CO4	K3
v	What is Network Security?	02	CO4	K2
vi	Name any two network security threats.	02	CO1	K4
vii	What is Cryptography?	02	CO2	K3
viii	What is Symmetric Encryption?	02	CO3	K4
ix	What is an Intrusion Detection System (IDS)?	02	CO4	K2
x	What is Risk Management?	02	CO3	K5

Section B (Answer any FOUR out of SIX) – 20 Marks
(Each question Carry 05 Marks)

Q. No.	QUESTIONS	Marks	COs	KL
2	Explain the importance of cyber security in modern computing.	05	CO1	K3
3	Describe the evolution of cyber security threats.	05	CO2	K4
4	Explain the CIA triad with examples.	05	CO2	K2
5	Write a short note on Risk Management principles.	05	CO1	K1
6	Explain common network security attacks.	05	CO3	K6
7	Differentiate between symmetric and asymmetric cryptography.	05	CO4	K6

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

Q. No.	QUESTIONS	Marks	COs	KL
8	Explain the basic concepts and principles of cyber security in detail.	10	CO1	K3
9	Discuss the foundations of Information Security and explain the CIA triad.	10	CO2	K2
10	Explain various network security threats and protection mechanisms.	10	CO3	K4
11	Discuss emerging trends in cyber security (IoT, Cloud, AI challenges).	10	CO4	K5
12	Explain the role of practical projects or internships in cyber security learning.	10	CO4	K4

Course Outcomes	CO1	CO2	CO3	CO4
Understand the fundamentals of Cyber Security				
Learn about Cyber Security components and subsystems				
Explore real-world applications of Cyber Security				
Develop problem-solving skills through hands-on projects.				

GRAPHICAL REPRESENTATION	
Bloom's level wise Marks Distribution 10% 15% 10% 25% 15% 25% K1 K2 K3 K4 K5 K6	Course Outcomewise Marks Distribution 5 5 5 6 CO1 CO2 CO3 CO4

		ARKA JAIN University Jharkhand		NAAC GRADE A ACCREDITED UNIVERSITY		[06-05-2026] END SEM EXAMINATION School of Engineering & IT	
Program		Bachelor of Computer Application					
Subject Name		Python for Data Science		Session		Even, 2025-26	
Semester		IV		Year		April, 2026	
Time: 3 Hour Max. Marks : 70		• Start writing from 2nd page onwards; <u>don't Write on the 1st Page Backside</u> • Answer all Questions of Section A (Compulsory) • Answer Any <u>Four</u> out of Six of Section B • Answer Any <u>Three</u> out of Five of Section C • Possession of <u>Mobile Phone</u> or any kind of <u>Written Material, Arguments with the Invigilator or Discussion with Co-Student</u> will comes under <u>Unfair Means</u> and will <u>Result</u> in the <u>Cancellation</u> of the <u>Paper(s)</u>.					
		Knowledge Level (KL)		K1 : Remembering		K3 : Applying	
		K2 : Understanding		K4 : Analysing		K6 : Creating	

Section A (Each question Carry 02 Marks from Q1-i to x – 20 Marks)				
Q. N	QUESTIONS	Marks	COs	KL
1				
i	What is Data Science?	02	CO1	K1
ii	Define web scraping	02	CO1	K1
iii	What is data cleaning?	02	CO2	K2
iv	Define data visualization.	02	CO3	K1
v	What is correlation?	02	CO3	K2
vi	State Bayes' Theorem	02	CO3	K1
vii	What is gradient descent?	02	CO4	K2
viii	Define overfitting.	02	CO4	K2
ix	What is k-nearest neighbors (KNN)?	02	CO4	K1
x	What is dimensionality reduction?	02	CO5	K1

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

(Each question Carry 05 Marks)

Q. No.	QUESTIONS	Marks	COs	KL
2	Explain different ways to acquire data using APIs and web scraping with examples.	05	CO1	K3
3	Explain techniques used for cleaning and reshaping messy datasets.	05	CO2	K3
4	Describe different types of data visualization (bar chart, line chart, scatter plot) with examples.	05	CO3	K3
5	Explain correlation and its types. How is it useful in data analysis?	05	CO3	K4
6	Explain the concept of gradient descent with suitable example.	05	CO4	K3
7	Describe the k-nearest neighbors algorithm with an example.	05	CO4	K3

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

(Each question Carry 10 Marks)

Q. No.	QUESTIONS	Marks	COs	KL
8	Explain the complete process of data acquisition using web scraping and APIs. Write a Python program to fetch data from an API.	10	CO1	K4
9	Explain data preprocessing steps including cleaning, transformation, and rescaling. Illustrate with examples variance, and correlation. Illustrate their importance in data analysis.	10	CO2	K4
10	Explain machine learning concepts: overfitting, underfitting, bias-variance tradeoff. Compare different classification methods (KNN, Naive Bayes).	10	CO3	K4
11	Explain dimensionality reduction using Principal Component Analysis (PCA). Discuss its advantages and applications.	10	CO4	K5
12		10	CO5	K4

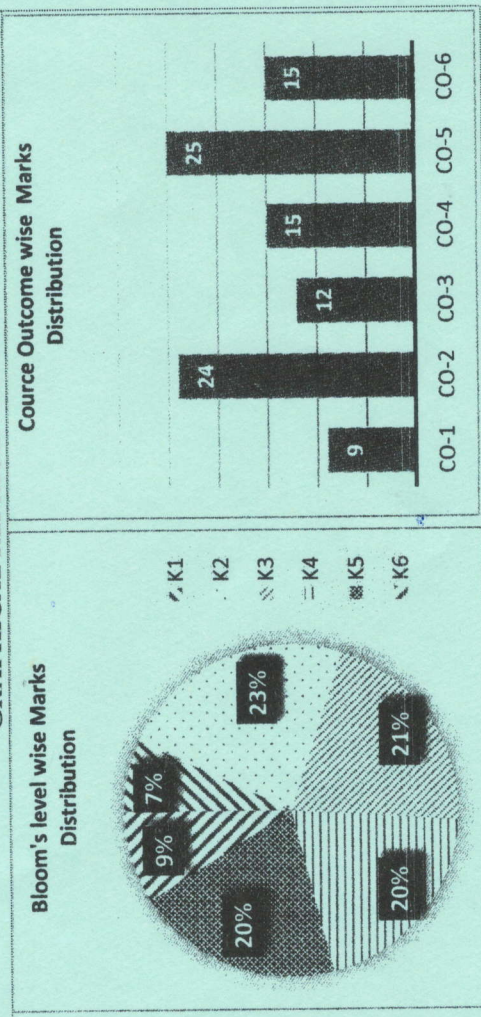
Acquire data through web-scraping and data APIs.

Clean and reshape messy datasets

Use exploratory tools such as clustering and visualization tools to analyze data.

Use methods such as logistic regression, nearest neighbors, decision trees, and support vector machines to build a classifier.

Apply dimensionality reduction tools such as principle component analysis

GRAPHICAL REPRESENTATION

 ARKA JAIN University Jharkhand				[11-05-2026] END SEM EXAMINATION School of Engineering & IT	
Program		Bachelor of Computer Application			
Subject Name		Information Retrieval		Session	Even 2025-26
Semester		IV		Year	April, 2026
Time: 3 Hour Max. Marks : 70		• Start writing from 2nd page onwards; <u>don't Write on the 1st Page Backside</u> • 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 Phone</u> or any kind of <u>Written Material, Arguments with the Invigilator or Discussion with Co-Student</u> will come under <u>Unfair Means</u> and will <u>Result</u> in the <u>Cancellation of the Paper(s)</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 x - 20 Marks)					
Q. N	QUESTIONS	Marks	COs	KL	
i	What is the scope of Information Retrieval?	02	CO1	K3	
ii	What is a search engine?	02	CO1	K2	
iii	What is indexing?	02	CO4	K5	
iv	What is a document in IR?	02	CO2	K2	
v	What is precision?	02	CO3	K2	
vi	What is recall?	02	CO3	K3	
vii	What is multimedia retrieval?	02	CO1	K4	
viii	What is query processing?	02	CO3	K3	
ix	What is relevance feedback?	02	CO2	K2	
x	What is TF-IDF?	02	CO5	K1	

Section B (Answer any FOUR out of SIX) - 20 Marks (Each question Carry 05 Marks)				
Q. No.	QUESTIONS	Marks	COs	KL
2	Write short note on query formulation.	05	CO5	K4
3	Explain evolution of IR systems briefly.	05	CO5	K3
4	Write difference between precision and recall.	05	CO1	K6
5	Explain inverted index with example.	05	CO3	K3
6	Write short note on Boolean retrieval model.	05	CO4	K3
7	Explain ranked retrieval model.	05	CO2	K5
Section C (Answer any THREE out of FIVE) - 30 Marks (Each question Carry 10 Marks)				
Q. No.	QUESTIONS	Marks	COs	KL
8	Explain the concept of indexing in Information Retrieval. Describe the inverted index with a suitable example.	10	CO1	K3
9	Describe the steps involved in query processing in Information Retrieval systems.	10	CO1	K6
10	Compare the Boolean Retrieval Model and Ranked Retrieval Model in detail, highlighting their differences.	10	CO2	K5
11	Explain the TF-IDF method and discuss how scoring is used to rank documents.	10	CO2	K2
12	Explain the working of web search engines with a neat diagram.	10	CO3	K3

Course Outcomes	CO1	Understand core concepts of information retrieval.																								
	CO2	Implement basic retrieval algorithms.																								
	CO3	Evaluate retrieval system performance.																								
	CO4	Apply retrieval techniques to solve practical problems.																								
	CO5	Explore advanced topics like web search and NLP in IR.																								
GRAPHICAL REPRESENTATION																										
<u>Bloom's Level Wise Marks Distribution</u> <table border="1"><thead><tr><th>Bloom's Level</th><th>Marks</th></tr></thead><tbody><tr><td>K1</td><td>2%</td></tr><tr><td>K2</td><td>20%</td></tr><tr><td>K3</td><td>17%</td></tr><tr><td>K4</td><td>19%</td></tr><tr><td>K5</td><td>8%</td></tr><tr><td>K6</td><td>34%</td></tr></tbody></table> <u>Course Outcome wise Marks Distribution</u> <table border="1"><thead><tr><th>Course Outcome</th><th>Marks</th></tr></thead><tbody><tr><td>CO1</td><td>6</td></tr><tr><td>CO2</td><td>5</td></tr><tr><td>CO3</td><td>5</td></tr><tr><td>CO4</td><td>2</td></tr></tbody></table>			Bloom's Level	Marks	K1	2%	K2	20%	K3	17%	K4	19%	K5	8%	K6	34%	Course Outcome	Marks	CO1	6	CO2	5	CO3	5	CO4	2
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