ARKA JAIN University, Jharkhand — NAAC GRADE A, ACCREDITED UNIVERSITY			END SEM EXAMINATION School of Engineering & IT
Branch	Computer Science and Engineering	Program	Diploma
Subject Name	Information Security	Semester	V
		Year	Nov/Dec 2024
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 Mobile Phone** or any kind of **Written Material, Arguments with the Invigilator or Discussion with Co-Student** will comes under **Unfair Means** and will **Result** in the **Cancellation of the Paper(s)**.		
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)

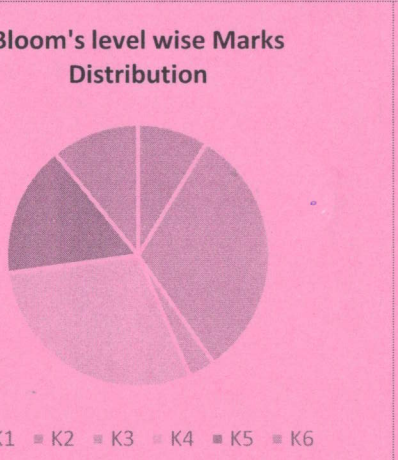
Q. N 1	QUESTIONS	Marks	COs	KL
i	List two types of authentication methods used in operating systems.	2	CO1	K1
ii	What is the purpose of logs in information security?	2	CO2	K3
iii	List two security weaknesses associated with the TCP protocol.	2	CO2	K1
iv	Define UDP and mention one of its weaknesses.	2	CO1	K1
v	What is the difference between symmetric and asymmetric encryption?	2	CO2	K4
vi	Name one common hashing algorithm.	2	CO1	K3
vii	Define IDS and IPS. How do they differ?	2	CO1	K1
viii	What is a VPN concentrator?	2	CO1	K2
ix	What does IPR stand for, and why is it important in cybersecurity?	2	CO2	K3
x	Briefly explain the purpose of the Indian IT Act.	2	CO2	K2

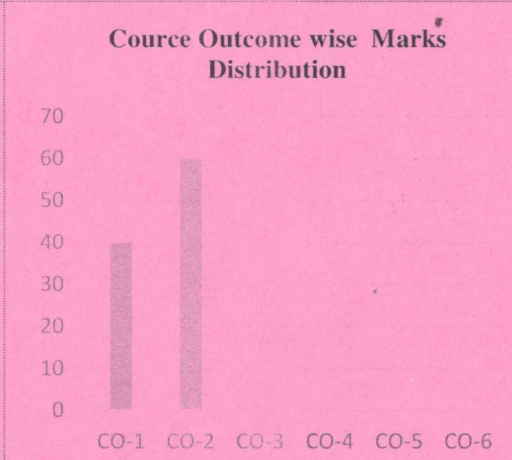
Section B (Answer any FOUR out of SIX) – 20 Marks (Each question Carry 05 Marks)				
Q. No.	**QUESTIONS**	**Marks**	**COs**	**KL**
2	Discuss the role of RAID (Redundant Array of Independent Disks) in data protection.	05	CO2	K2
3	Evaluate the role of OSPF in networking and discuss its security weaknesses.	05	CO2	K6
4	What are the primary security considerations when developing software? List at least three.	05	CO2	K6
5	What are the key considerations when deploying a VPN concentrator in an organization?	05	CO1	K5
6	Explain the security audit procedures and their significance in evaluating an organization's security posture.	05	CO2	K2
7	What are the key differences between symmetric and asymmetric encryption?	05	CO1	K4
Section C (Answer any THREE out of FIVE) – 30 Marks (Each question Carry 10 Marks)				
Q. No.	**QUESTIONS**	**Marks**	**COs**	**KL**
8	Analyze the various security features of operating systems. Discuss how authentication, logs, audit features, and user privileges work together to enhance security.	10	CO1	K5
9	Examine the use of IPSec as a security solution. Explain how it works and its effectiveness in protecting data transmitted over IP networks.	10	CO2	K4
10	Critically assess the role of PKI in establishing trust in digital communications. Discuss the challenges associated with PKI implementation and management.	10	CO1	K2
11	Discuss the various methods used by IDS/IPS to detect and respond to threats. Compare signature-based and anomaly-based detection methods.	10	CO2	K2
12	Explore the relationship between security standards (like ISO 27001) and regulatory compliance.	10	CO2	K4

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

Course Outcomes	CO1	Understanding of security needs and issues of IT infrastructure.
	CO2	Have basic skills on security audit of networks, operating systems and application software.

GRAPHICAL REPRESENTATION



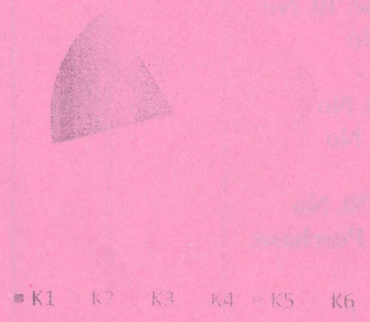


CO- Course Outcomes, **KL**- Knowledge Level, **PO** – Program Outcome

Course Outcomes	CO1	Student will have general idea about Data Warehousing and Data Mining techniques, will be able to explore further and effectively use related tools.

GRAPHICAL REPRESENTATION

Bloom's level wise Marks Distribution



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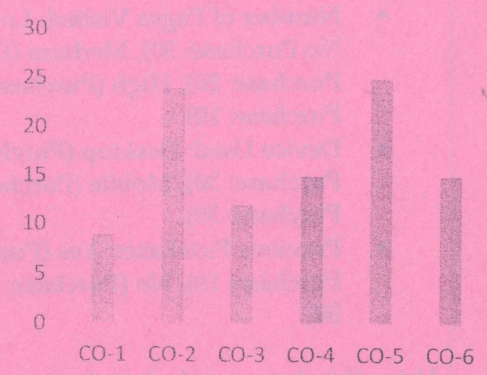


JGi **ARKA JAIN University** Jharkhand — NAAC GRADE A

END SEM EXAMINATION
School of Engineering & IT

Branch	Computer Science and Engineering	Program	Diploma
Subject Name	Data Warehousing & Data Mining	Semester	V
		Year	Nov/Dec 2024

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 Mobile Phone or any kind of Written Material, Arguments with the Invigilator or Discussion with Co-Student will comes under Unfair Means and will Result in the Cancellation of the Paper(s).

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	Discuss Data Visualization.	2	CO1	K1
ii	Define Data Mining.	2	CO1	K1
iii	What are OLAP operations?	2	CO1	K1
iv	What is a star schema?	2	CO1	K1
v	What are dimensions in a data warehouse?	2	CO1	K3
vi	What is clustering in data mining?	2	CO1	K1
vii	Explain the term 'data mart'.	2	CO1	K3
viii	What is a fact table?	2	CO1	K1
ix	Describe overfitting in data mining.	2	CO1	K4
x	What is the role of metadata in a data warehouse?	2	CO1	K1

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

Q. No.	QUESTIONS	Marks	COs	KL
2	Discuss the importance of data quality in data warehousing.	05	CO1	K3
3	Explain the process of data cleaning in ETL.	05	CO1	K1
4	What are the main differences between data warehousing and traditional databases?	05	CO1	K2
5	Describe the role of a data warehouse in business intelligence.	05	CO1	K2
6	What techniques are commonly used for association rule mining? Discuss.	05	CO1	K1
7	How does data visualization support data mining efforts?	05	CO1	K4

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

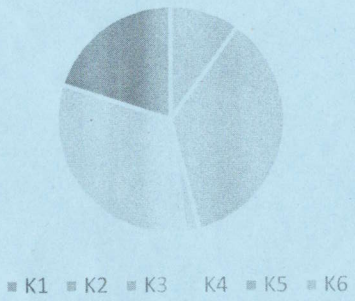
Q. No.	QUESTIONS	Marks	COs	KL
8	Explain the architecture of a data warehouse. Discuss its components and their functions.	10	CO1	K2
9	Explain the concept of frequent pattern mining. How does the Apriori algorithm work, and how does it handle large data sets?	10	CO1	K5
10	Discuss different types of clustering methods and explain how outlier detection is handled in clustering.	10	CO1	K3
11	What is the role of data mining in predictive analytics? Illustrate with an example.	10	CO1	K1
12	Case Study: A company wants to predict whether a customer will purchase a product based on their browsing behavior on an e-commerce website. The company has collected a dataset containing records of 100 customers, each described by four attributes related to their browsing behavior. Question: Using the suitable decision tree algorithm, determine the root node of the decision tree for predicting customer purchases. The dataset has the following distribution of positive (Purchase) and negative (No Purchase) cases: Total cases: 100 (Purchase: 40, No Purchase: 60) The dataset has the following attributes: • Time Spent on Website: Short (Purchase: 10, No Purchase: 20), Medium (Purchase: 20, No Purchase: 30), Long (Purchase: 10, No Purchase: 10) • Number of Pages Visited: Low (Purchase: 20, No Purchase: 30), Medium (Purchase: 10, No Purchase: 20), High (Purchase: 10, No Purchase: 10) • Device Used: Desktop (Purchase: 20, No Purchase: 30), Mobile (Purchase: 20, No Purchase: 30) • Previous Purchases: Yes (Purchase: 30, No Purchase: 10), No (Purchase: 10, No Purchase: 50) Using this dataset, calculate the entropy for the entire dataset and the information gain for each attribute. Which attribute should be chosen as the root node based on the highest information gain?	10	CO1	K6

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

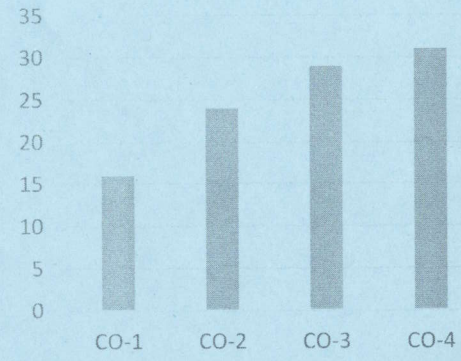
Course Outcomes	CO1	Define mobile technologies in terms of hardware, software, and communications.
	CO2	Utilize mobile computing nomenclature to describe and analyze existing mobile computing frameworks and architectures.
	CO3	Evaluate the effectiveness of different mobile computing frameworks.
	CO4	Describe how mobile technology functions to enable other computing technologies.

GRAPHICAL REPRESENTATION

Bloom's level wise Marks Distribution



Cource Outcome wise Marks Distribution



ARKA JAIN University
Jharkhand

NAAC GRADE A
ACCREDITED UNIVERSITY

END SEM EXAMINATION
School of Engineering & IT

Branch	**Computer Science & Engineering**	**Program**	**Diploma**
Subject Name	**Mobile computing**	**Semester**	**V**
		Year	**Nov/Dec 2024**

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 Mobile Phone** or any kind of **Written Material, Arguments with the Invigilator or Discussion with Co-Student** will comes under **Unfair Means** and will **Result** in the **Cancellation of the Paper(s)**.

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 are Novel Applications of Mobile Computing?	2	CO1	K1
ii	Define Public Communication Services (PCS)	2	CO1	K1
iii	What are the key components of the GSM architecture?	2	CO3	K2
iv	Define localization in the context of mobile networks.	2	CO2	K1
v	What does SDMA stand for, and how does it function?	2	CO2	K1
vi	What is the purpose of the IEEE 802.11 standards?	2	CO4	K2
vii	Name the main components of Mobile IP.	2	CO3	K1
viii	How does WTLS contribute to security in mobile communications?	2	CO4	K3
ix	What is the purpose of the Wireless Session Protocol (WSP)?	2	CO4	K2
x	How does WML relate to XML?	2	CO1	K4

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

Q. No.	QUESTIONS	Marks	COs	KL
2	Describe the architecture of PCS (Public Communication Services).	05	CO2	K2
3	Discuss the applications of WLAN in modern environments.	05	CO3	K2
4	Discuss the benefits of using Mobile IP for mobile users.	05	CO4	K2
5	Discuss how Mobile IP manages the mobility of a device in different networks.	05	CO2	K2
6	Compare and contrast the features of Mobile IPv4 and Mobile IPv6.	05	CO4	K4
7	Explain the technology behind WLL and how it connects users to the public switched telephone network (PSTN).	05	CO4	K4

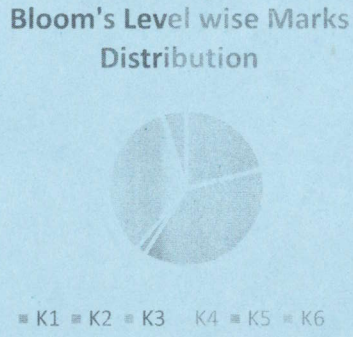
Section C (Answer any THREE out of FIVE) – 30 Marks
(Each question Carry 10 Marks)

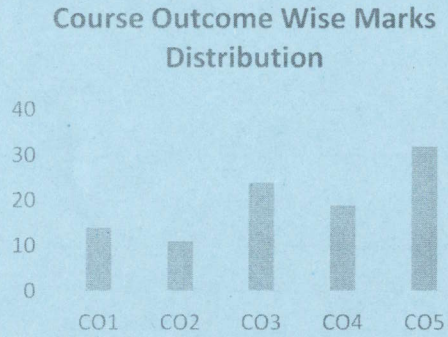
Q. No.	QUESTIONS	Marks	COs	KL
8	Explain the architecture of Mobile Computing with a diagram.	10	CO3	K2
9	Analyze the evolution of multiple access techniques (SDMA, FDMA, TDMA) and their impact on wireless communication.	10	CO1	K5
10	Analyze the effectiveness of CSMA/CA in high-density WLAN environments and suggest improvements or alternatives.	10	CO2	K5
11	Evaluate the impact of Mobile IP types on the development of mobile applications and services.	10	CO4	K4
12	Describe the architecture of CORBA and its components.	10	CO3	K4

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

Course Outcomes	CO1	Students will have good understanding of various aspects of IoT.
	CO2	Understand and know some tools and have basic implementation skills.

GRAPHICAL REPRESENTATION





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JGi ARKA JAIN University Jharkhand — NAAC GRADE A			**END SEM EXAMINATION** **School of Engineering & IT**
Branch	**Computer Science and Engineering**	**Program**	**Diploma**
Subject Name	**Internet of Things**	**Semester**	**V**
		Year	**Nov/Dec 2024**
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 Mobile Phone** or any kind of **Written Material, Arguments with the Invigilator or Discussion with Co-Student** will comes under **Unfair Means** and will **Result** in the **Cancellation of the Paper(s)**.		
Knowledge Level (KL)	**K1** : Remembering	**K3** : Applying	**K5** : Evaluating
	K2 : Understanding	**K4** : Analysing	**K6** : Creating

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

Q. N 1	QUESTIONS	Marks	COs	KL
i	What is the Main function of IoT gateway?	02	CO1	K2
ii	What is IaaS in cloud computing?	02	CO1	K1
iii	Compare Actuator and Sensors.	02	CO1	K2
iv	Which protocol is commonly used for short-range wireless communication in IoT?	02	CO1	K1
V	What type of pin would you use to read an analog sensor in Arduino?	02	CO1	K3
vi	Name one sensor that can be integrated with an Arduino for environmental monitoring.	02	CO1	K1
vii	A DC motor is a type of ___ actuator.	02	CO2	K1
viii	Which of the Arithmetic operator in not valid in Arduino?	02	CO2	K2
ix	Which programming language is commonly used for IoT projects on Raspberry Pi?	02	CO2	K6
x	What does MQTT stand for in IoT communication protocols?	02	CO2	K4

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

Q. No.	QUESTIONS	Marks	COs	KL
2	What do you mean by the physical and logical design of IoT? Explain in detail.	05	CO1	K4
3	Describe the relative strength and limitation of Building IoT with Raspberry Pi.	05	CO2	K5
4	Design and Implement a Health Monitoring Structured System using IoT. What are the different communication models that can be used for such kind of monitoring system? Specify the following for the above system: i Types of Data generated by IoT devices ii Approaches to store the data iii What type of analysis is required from the collected data?	05	CO2	K6
5	Explain the role of sensor networks in IoT. What challenges are faced in the deployment and maintenance of sensor networks?	05	CO1	K4
6	Describe how to integrate a temperature sensor and an LED actuator with Arduino. Provide an example code and explain how the system works.	05	CO2	K2
7	What is an Arduino, and how does it differ from a traditional microcontroller?	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	Discuss the architecture and essential components of an IoT system. Explain how sensing and actuation are integrated into an IoT system.	10	CO1	K2
9	Write a short Note on the following IoT communication Protocols: i MQTT ii ZigBee iii TCP	10	CO2	K5
10	Explain IoT Applications and Deployment Scenarios in different domains.	10	CO1	K3
11	Design a complete IoT system using Arduino that monitors environmental conditions (e.g., temperature and humidity) and triggers an actuator (e.g., a fan or an alert system) when specific conditions are met. Provide detailed explanations of the hardware and software components, and include the Arduino code.	15	CO2	K2
12	How to implement IoT with Raspberry Pi?			

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JGI ARKA JAIN University Jharkhand — NAAC GRADE A ACCREDITED UNIVERSITY			END SEM EXAMINATION School of Engineering & IT
Branch	EEE / CSE	Program	Diploma
Subject Name	Introduction to E-Governance	Semester	V
		Year	Nov/Dec 2024
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 Mobile Phone or any kind of Written Material, Arguments with the Invigilator or Discussion with Co-Student will comes under Unfair Means and will Result in the Cancellation of the Paper(s).		
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	Define the term e-governance.	02	CO1	K1
ii	Explain the main objectives of e-governance.	02	CO2	K2
iii	What are the different models of e-governance?	02	CO2	K1
iv	List any two advantages of E-Governance.	02	CO1	K2
v	In which year digital India campaign start and by whom?	02	CO3	K1
vi	Name the e-governance theories.	02	CO3	K2
vii	Explain any 4 issues in e-governance.	02	CO1	K5
viii	How can e-governance reduce corruption in public administration?	02	CO4	K1
ix	How does e-governance help in tax collection and management?	02	CO5	K1
x	What are the security risks associated with e-governance systems?	02	CO5	K2

Section B (Answer any FOUR out of SIX) – 20 Marks (Each question Carry 05 Marks)				
Q. No.	QUESTIONS	Marks	COs	KL
2	Discuss the types of interaction in e-governance.	05	CO2	K4
3	Discuss some advantages and disadvantages of e-governance.	05	CO1	K4
4	Discuss G2G and G2B interaction	05	C02	K2
5	Explain national e-governance plan.	05	CO3	K2
6	Explain evolution various phases of e-governance.	05	CO4	K5
7	How can e-governance improve public transportation systems?	05	CO6	K1
Section C (Answer any THREE out of FIVE) – 30 Marks (Each question Carry 10 Marks)				
Q. No.	QUESTIONS	Marks	COs	KL
8	Explain the pillars of e-governance.	10	CO3	K2
9	Discuss the impact of e-governance on rural development. How can e-governance initiatives bridge the urban-rural divide and contribute to the socioeconomic development of rural areas?	10	CO4	K4
10	Discuss mygov platform in briefly.	10	CO2	K4
11	Access how Cloud Computing is important in e-governance	10	CO6	K5
12	Analyse the importance e-security and cyber law in e-governance.	10	CO6	K4

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

Course Outcomes	CO1	Describe the basic concepts, terminology and technology of e-commerce/e-government.
	CO2	Understand the major federal and state laws and regulations impacting the evolution of e-government
	CO3	Develop skills to critically evaluate government web sites and e services against current best practicel principles and standards.
	CO4	Analyze new introductory ideas and practices followed in a selected number of e- Governance initiatives in India.
	CO5	Support the policy and social issues facing agencies in implementing e-government initiatives.
	CO6	Construct basic business case and government IT management concepts in preparing e- government proposals, plans or strategies.

GRAPHICAL REPRESENTATION