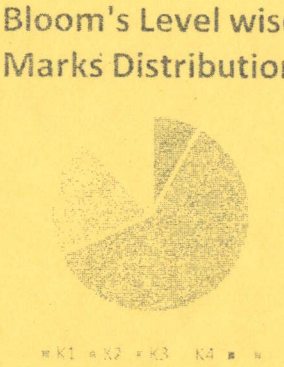
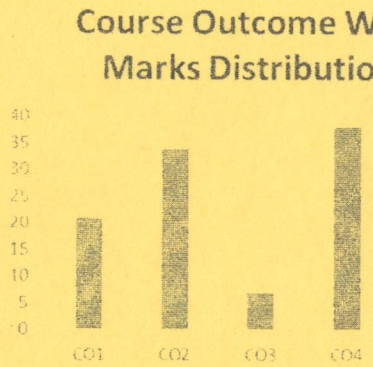
07/05/24 E100

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

Course Outcomes	CO1	Conduct a cyber security risk assessment.
	CO2	Measure the performance and troubleshoot cyber security systems.
	CO3	Implement cyber security solutions.
	CO4	Students able to use cyber security, information assurance, and cyber/computer forensics software/tools.

GRAFICAL REPRESENTATION





ARKA JAIN University Jharkhand — NAAC GRADE A ACCREDITED UNIVERSITY

END SEM EXAMINATION
School of Engineering & IT

Branch	**Computer Science & Engineering**	**Program**	**B.Tech**
Subject Name	**Cyber Laws and Ethics**	**Semester**	**VI**
		Year	**April 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 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
i	List the difference between virus and worms.	2	CO4	K1
ii	What is search engine?	2	CO1	K1
iii	What is cyber stalking?	2	CO4	K1
iv	What are the various phishing attacks?	2	CO4	K2
v	Discuss section 43 of IT Act 2000?	2	CO2	K2
vi	List different types of hacking techniques.	2	CO1	K2
vii	How jurisdiction is determined in cybercrime through national laws?	2	CO3	K4
viii	What is the difference between switch and router?	2	CO1	K2
ix	Define Cyber Forensic.	2	CO4	K1
x	What is IT amendment Act 2008?	2	CO2	K2

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

Q. No.	QUESTIONS	Marks	COs	KL
2	Explain briefly section 66B, 66C, and 66D of IT Act 2000.	5	CO2	K2
3	Describe various types of cyber attacks.	5	CO1	K2
4	Explain different types of jurisdictions issues.	5	CO3	K3
5	Briefly explain about the cyber forensics and computer criminals.	5	CO4	K2
6	Describe different kinds of cyber laws in Indian history.	5	CO2	K2
7	Describe the different types of Internetworking Devices.	5	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 motivations behind cybercrimes.	10	CO4	K2
9	Explain human right issue in investigating cybercrimes.	10	CO4	K4
10	Describe the key amendments in IT Act 2008.	10	CO2	K3
11	What are the various phases of hacking method?	10	CO1	K2
12	Explain the following: a) Insecure Network connections b) Jurisdiction issues under IT Act, 2000	10	CO2	K2

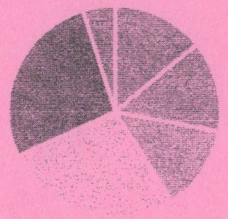
01/05/24 E-100

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

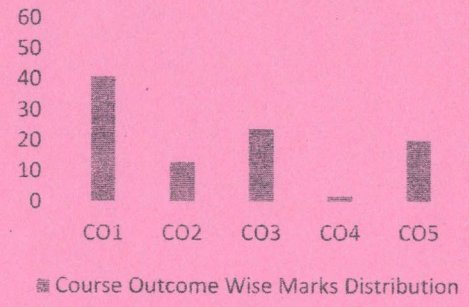
Course Outcomes	CO1	Explain the functions of the different layer of the OSI Protocol.
	CO2	Draw the functional block diagram of wide-area networks (WANs), local area networks (LANs) and Wireless LANs (WLANs) describe the function of each block.
	CO3	For a given requirement (small scale) of wide-area networks (WANs), local area networks (LANs) and Wireless LANs (WLANs) design it based on the market available component.
	CO4	For a given problem related TCP/IP protocol developed the network programming.
	CO5	Configure DNS DDNS, TELNET, EMAIL, File Transfer Protocol (FTP), WWW, HTTP, SNMP, Bluetooth, Firewalls using open-source available software and tools.

GRAFICAL REPRESENTATION

Bloom's Level wise Marks Distribution



Course 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	B. Tech
Subject Name	Computer Networks	Semester	VI
		Year	April 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 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
i	What is slotted ALOHA? Mention its advantages	2	CO1	K3
ii	Compare and contrast LAN, MAN and WAN.	2	CO2	K4
iii	List various services provided by data link layer to network layer.	2	CO2	K3
iv	What are TCP and UDP protocols?	2	CO4	K1
v	What is the difference between Broadcasting and Multicasting?	2	CO3	K1
vi	What is meant by data encryption standard?	2	CO3	K2
vii	What are the characteristics of datagram networks?	2	CO2	K2
viii	Define Congestion. What are the general Principles of Congestion?	2	CO1	K3
ix	What is the significance of topologies? What are the different types of topologies?	2	CO1	K3
x	Define Digital Signature.	2	CO2	K5

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

. No.	QUESTIONS	Marks	COs	KL
2	Explain briefly about the shortest path routing algorithm.	5	CO3	K6
3	Write short notes on IPV6 addresses.	5	CO1	K2
4	List various services provided by data link layer to network layer.	5	CO2	K4
5	Discuss the features of HTTP and also discuss how HTTP works.	5	CO5	K3
6	Explain the encryption and decryption methods	5	CO3	K5
7	Explain the working of electronic mail. How SMTP used in email applications	5	CO5	K2

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

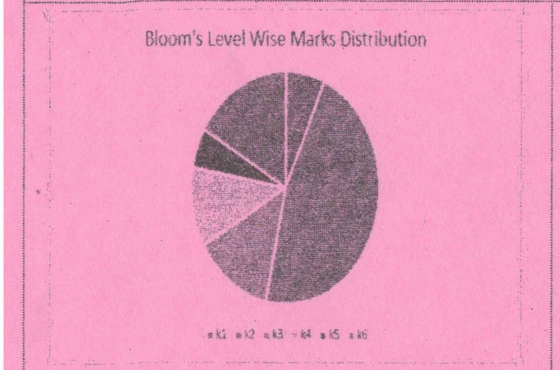
. No.	QUESTIONS	Marks	COs	KL
8	With a suitable example explain Distance Vector Routing algorithm. What is the serious drawback of Distance Vector Routing algorithm? Explain.	10	CO1	K4
9	Explain TCP/IP Protocol Suit with neat sketch and list out differences between TCP/IP and OSI model	10	CO1	K5
10	Explain different kinds of Transmission Media.	10	CO1	K1
11	What are the draw backs of stop and wait protocol? How can they overcome by sliding window protocol?	10	CO3	K4
12	Distinguish between symmetric and asymmetric encryption with example	10	CO5	K5

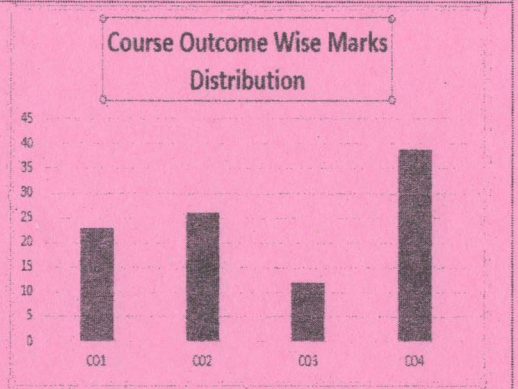
2/5/24 E. 100

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

Course Outcomes	CO1	For a given grammar specification develops the lexica l analyzer
	CO2	For a given parser specification design top-down and bottom-up parsers
	CO3	Develop syntax directed translation schemes
	CO4	Develop algorithms to generate code for a targetmachine

GRAFICAL REPRESENTATION





ARKA JAIN University Jharkhand — NAAC GRADE A ACCREDITED UNIVERSITY

END SEM EXAMINATION
School of Engineering & IT

Branch	Computer Science & Engineering	Program	B.Tech
Subject Name	Compiler Design	Semester	VI
		Year	April 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 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
i	What is a compiler?	2	CO1	K1
ii	Why lexical and syntax analysers are separated out?	2	CO1	K2
iii	Define ambiguous grammar.	2	CO3	K2
iv	Differentiate tokens, patterns, and lexeme.	2	CO1	K1
v	Illustrate LR (0) items.	2	CO3	K3
vi	Write a regular expression for an identifier.	2	CO1	K2
vii	Define a context free grammar.	2	CO3	K1
viii	What do you mean by machine dependent and machine independent optimization?	2	CO4	K2
ix	What are the various types of intermediate code representation?	2	CO4	K2
x	What is a DAG? Mention its applications.	2	CO4	K2

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

Q. No.	QUESTIONS	Marks	COs	KL
2	Compute FIRST and FOLLOW functions for the Non terminals of the given grammar S-> aBDh B-> cC C-> bC/ε D->EF E->g/ε F->f/ε	5	CO2	K3
3	Design SLR Parsing Table for the following grammar E-->T+E /T T→id	5	CO2	K6
4	Draw the Directed Acyclic Graph for the given instruction a+a*(b-c)+(b-c)*d	5	CO4	K5
5	Design three address code for the following instruction a+a*(b-c)+(b-c)*d	5	CO4	K6
6	Illustrate Back patching with example.	5	CO4	K3
7	Construct an FA equivalent to the regular expression (0+1)*(00+11)(0+1)*	5	CO1	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 various phases of a compiler with an illustrative example.	10	CO1	K2
9	State and explain the rules to compute first and follow functions and compute for the following E->E+T/T T->T*F/F F->F*/a/b	10	CO2	K2
10	Design Quadruples, triplets and indirect triplets representation of the following expression A=b* - c +b * -c ;	10	CO4	K6
11	Describe about the following: a) Copy Propagation b) Dead code Elimination c) Code motion	10	Co4	K2
12	Prove that the following grammar is LL(1) grammar. S→aBDh B→cC C→bc/ ε D→EF E→g/ε F→f/ε	10	CO3	K4

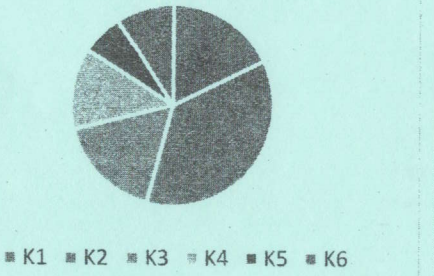
03/05/2024 E 100

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

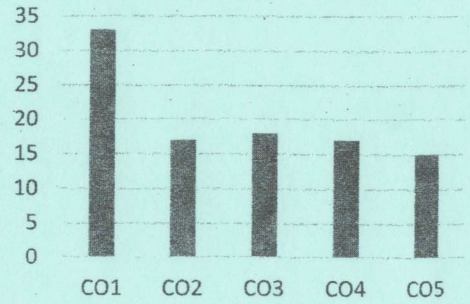
Course Outcomes	CO1	Understand the basics of deep neural network
	CO2	Identify the deep learning algorithms which are more appropriate for various types of learning tasks in various domains
	CO3	Train and optimize deep learning algorithms.
	CO4	Implement deep learning algorithms and solve real-world problems
	CO5	Evaluate the performance of different deep learning models

GRAFICAL REPRESENTATION

Bloom's Level wise Marks Distribution



Course Outcome Wise Marks Distribution



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END SEM EXAMINATION
School of Engineering & IT

Branch	**Computer Science Engineering**	**Program**	**B. Tech**
Subject Name	**Neural Networks and Deep Learning**	**Semester**	**VI**
		Year	**April 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**
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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. N 1	QUESTIONS	Marks	COs	KL
i	What is deep learning?	2	CO1	K1
ii	Point out different set of layers in Feed forward networks.	2	CO3	K4
iii	Describe unsupervised learning.	2	CO1	K1
iv	Describe regularization for deep learning.	2	CO3	K2
v	Explain importance of dataset augmentation.	2	CO4	K3
vi	Compare ReLU and Leaky ReLU.	2	CO1	K4
vii	Discuss softmax activation.	2	CO2	K2
viii	What do you mean by object recognition?	2	CO3	K3
ix	Justify the need of non-linear activation functions in deep neural networks.	2	CO1	K5
x	Classify different Graphical models in machine learning.	2	CO3	K3

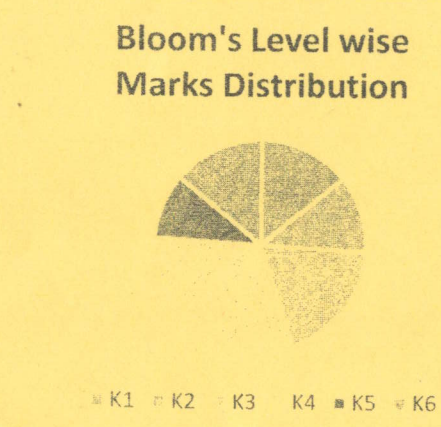
Section B (Answer any FOUR out of SIX) – 20 Marks (Each question Carry 5 Marks)				
Q. No.	QUESTIONS	Marks	COs	KL
2	Describe back propagation algorithm.	5	CO3	K5
3	Describe gradient descent algorithm.	5	CO3	K2
4	Illustrate Long Short Term Memory (LSTM) cell.	5	CO4	K4
5	Compare linear regression and logistic regression.	5	CO1	K4
6	Discuss Auto encoders.	5	CO5	K1
7	Compare biological neuron and artificial neuron. Explain with figures.	5	CO2	K3
Section C (Answer any THREE out of FIVE) – 30 Marks- (Each question Carry 10 Marks)				
Q. No.	QUESTIONS	Marks	COs	KL
8	List out different loss functions used in neural networks. Discuss any four of them in detail.	10	CO1	K2
9	Explain the architecture of Recurrent Neural Networks (RNN).	10	CO2	K2
10	Develop a Deep Feed forward network and explain. Describe about its layers, and activation functions that can be used at various layers. Also list the loss function that can be used.	10	CO5	K6
11	Explain briefly the below: a) Boltzmann machines. b) Deep learning tools.	10	CO4	K2
12	What is machine learning? Explain its uses and application	10	CO1	K1

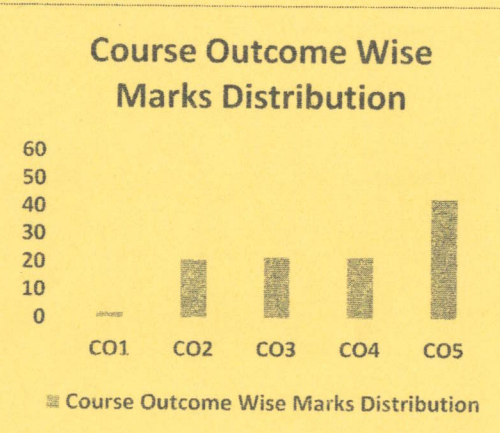
06/05/24 E 10D

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

Course Outcomes	CO1	Familiarize and compare the concepts of POP and OOP.
	CO2	Test and execute the programs and correct syntax and logical errors.
	CO3	Understanding various components of networking that can be programmed
	CO4	Decompose a problem into functions and synthesize a complete program and their implementations using JDBC.
	CO5	Develop reusable component for Graphical User Interface applications

GRAFICAL REPRESENTATION





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END SEM EXAMINATION
School of Engineering & IT

Branch	Computer Science & Engineering	Program	B. Tech
Subject Name	Advanced Java Programming	Semester	VI
		Year	April 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
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- 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
i	Explain the difference between GET and POST requests.	2	CO2	K3
ii	What is Technology of Web? Explain any two web technologies.	2	CO5	K2
iii	Explain any three Containers in Swing.	2	CO5	K1
iv	Explain the difference between static and dynamic website.	2	CO2	K4
v	What are advantages of Java?	2	CO1	K1
vi	What is an IDE?	2	CO2	K4
vii	Name any two packages that are required for creating a basic Applet code.	2	CO5	K6
viii	What are Datagrams?	2	CO3	K3
ix	What is life cycle of a servlets?	2	CO4	K4
x	Draw the AWT hierarchy.	2	CO5	K6

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

Q. No.	QUESTIONS	Marks	COs	KL
2	Discuss any 5 differences between AWT and Swing.	5	CO5	K4
3	Explain any 4 classes in Java Beans API.	5	CO2	K1
4	Explain any two Datagram Packet constructors.	5	CO3	K1
5	What is the role of client and server?	5	CO3	K4
6	Explain in detail about Garbage Collector in Java.	5	CO2	K4
7	Briefly explain javax.servlet package.	5	CO2	K3

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

Q. No.	QUESTIONS	Marks	COs	KL
8	What is Servlet? Explain the different features of Servlet	10	CO5	K2
9	Explain the different steps to connect a Java Application to Database. Write a suitable program to connect Java application to Database.	10	CO4	K6
10	What is socket? Describe different type of Socket? What are the applications of Socket programming?	10	CO3	K5
11	What are Java Swings? How to implement a tree using Java Swings?	10	CO5	K3
12	What are the advantages of Hibernate? Draw and explain the Hibernate application architecture.	10	CO4	K4

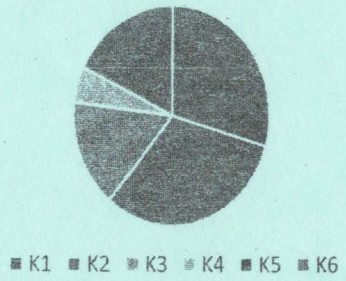
04/05/2024 B 100

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

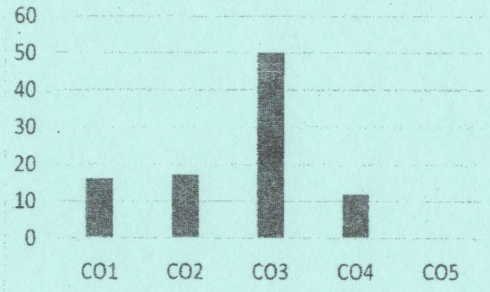
Course Outcomes	CO1	Demonstrate fundamental understanding of the history of Machine Learning and its foundations.
	CO2	Identify machine learning techniques suitable for a given problem.
	CO3	Solve the problems using various machine learning techniques.
	CO4	Apply dimensionality reduction techniques.
	CO5	Design application using machine learning techniques.

GRAFICAL REPRESENTATION

Bloom's Level wise Marks Distribution



Course Outcome Wise Marks Distribution



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END SEM EXAMINATION
School of Engineering & IT

Branch	**Computer Science & Engineering**	**Program**	**B.Tech**
Subject Name	**Machine Learning**	**Semester**	**VI**
		Year	**April 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)**
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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. N 1	QUESTIONS	Marks	COs	KL
i	Explain Candidate elimination Algorithm	2	CO1	K1
ii	Differentiate between data science and machine learning.	2	CO1	K1
iii	Define the following terms: Regression. Write the names of two of its types.	2	CO2	K1
iv	Draw a labelled diagram of Artificial neural Network.	2	CO3	K6
v	Explain Naïve Baye's Classifier in a few words.	2	CO3	K1
vi	Write a short note on Conditional probability?	2	CO1	K1
vii	Write a short note on Reinforcement Learning?	2	CO3	K1
viii	Define the term dimensionality reduction in machine learning?	2	CO4	K1
ix	What is the difference between boosting and bagging?	2	CO3	K1
x	What is back propagation? Explain	2	CO3	K1

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

<table>
<tr><th>Q. No.</th><th>QUESTIONS</th><th>Marks</th><th>COs</th><th>KL</th></tr>
<tr><td>2</td><td>Write an elaborative note on model selection.</td><td>5</td><td>CO3</td><td>K2</td></tr>
<tr><td>3</td><td>Write a short note on genetic algorithm? How do you apply it in solving optimisation problem?</td><td>5</td><td>CO3</td><td>K3</td></tr>
<tr><td>4</td><td>Describe k-nearest neighbour with a neat sketch with a purpose to solve one day-to-day problem you see.</td><td>5</td><td>CO3</td><td>K6</td></tr>
<tr><td>5</td><td>Calculate the Information Gain for the following Data
<table>
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<tr><td>1.</td><td>Red</td><td>Yes</td></tr>
<tr><td>2.</td><td>Red</td><td>No</td></tr>
<tr><td>3.</td><td>Yellow</td><td>Yes</td></tr>
<tr><td>4.</td><td>Yellow</td><td>Yes</td></tr>
<tr><td>5.</td><td>Red</td><td>Yes</td></tr>
<tr><td>6.</td><td>Yellow</td><td>Yes</td></tr>
<tr><td>7.</td><td>Red</td><td>No</td></tr>
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<tr><td>9.</td><td>Red</td><td>Yes</td></tr>
<tr><td>10.</td><td>Yellow</td><td>No</td></tr>
</table></td><td>5</td><td>CO3</td><td>K4</td></tr>
<tr><td>6</td><td>Explain in detail about multilayer network.</td><td>5</td><td>CO2</td><td>K2</td></tr>
</table>

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

<table>
<tr><th>Q. No.</th><th>QUESTIONS</th><th>Marks</th><th>COs</th><th>KL</th></tr>
<tr><td>8</td><td>Write a detailed note on clustering and write a short note on its types.</td><td>10</td><td>CO2</td><td>K2</td></tr>
<tr><td>9</td><td>What is convolution neural networks? Illustrate with a neat diagram.</td><td>10</td><td>CO3</td><td>K6</td></tr>
<tr><td>10</td><td>Explain multilayer perception model in detail with neat diagram.</td><td>10</td><td>CO3</td><td>K2</td></tr>
<tr><td>11</td><td>What is hypothesis testing? Illustrate and example.</td><td>10</td><td>CO1</td><td>K1</td></tr>
<tr><td>12</td><td>Write a detailed note on Principal Component Analysis.</td><td>10</td><td>CO4</td><td>K3</td></tr>
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