Library

EE 26/11

ARKA JAIN University, Jharkhand — NAAC GRADE A, ACCREDITED UNIVERSITY				END SEM EXAMINATION School of Engineering & IT	
Branch	Electrical and Electronics Engineering			Program	Diploma
Subject Name	Electric Traction			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. NO 1	QUESTIONS	Marks	COs	KL
i	Name the various systems of traction.	2	CO1	K1
ii	What are the advantages of electric traction?	2	CO5	K3
iii	Indian Railway was nationalized in which year?	2	CO2	K2
iv	First electric locomotive was started in which year and from where to where?	2	CO1	K2
v	Explain the function of traction sub-station transformer.	2	CO2	K3
vi	List the main parts of traction sub-station.	2	CO5	K2
vii	Discuss the conductor specification use in feeding post.	2	CO5	K6
viii	Compare between circuit barkers and interrupters.	2	CO3	K3
ix	List the relays used in traction sub-stations.	2	CO5	K2
x	Explain self generation system in train.	2	CO1	K1

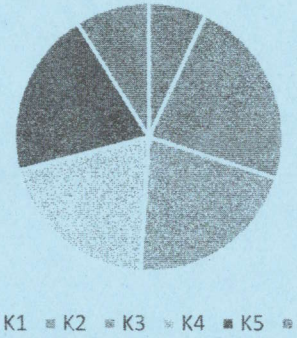
Section B (Answer any FOUR out of SIX) – 20 Marks (Each question Carry 05 Marks)				
Q. No.	**QUESTIONS**	**Marks**	**COs**	**KL**
2	Assess the main parts of diesel engine driven traction system with its diagram and explain.	05	CO1	K1
3	Explain different types of monorail with diagram.	05	CO5	K3
4	Explain the traction feeding-post main parts with layout diagram.	05	CO2	K2
5	Assess the method of 25KV catenary protection	05	CO1	K2
6	Explain the various types of OHE	05	CO2	K3
7	Explain different Types of catenary according to speed Limit.	05	CO5	K2
Section C (Answer any THREE out of FIVE) – 30 Marks (Each question Carry 10 Marks)				
Q. No.	**QUESTIONS**	**Marks**	**COs**	**KL**
8	Explain linear induction motor with advantages and disadvantages.	10	CO1	K1
9	Draw the layout diagram of a traction substation and describe functions of each section.	10	CO5	K3
10	Explain the different types of braking systems used in traction motors.	10	CO2	K2
11	Explain the construction and operation of diamond type pantograph with the help of diagram.	10	CO1	K2
12	Write short note on a) Trolley bus collector b) Bow collector	10	CO2	K3

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

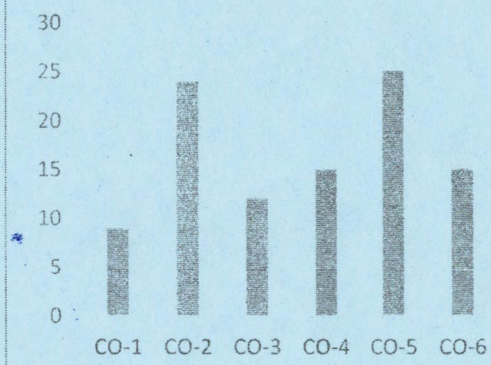
Course Outcomes	CO1	Describe Electric traction system in India.
	CO2	Discuss the power supply arrangements, like substation, feeding sectioning arrangements etc.
	CO3	Interpret the traction layout and its systems.
	CO4	Analyze the different components of the electric locomotive.
	CO5	Evaluate the signaling and supervisory control systems.
	CO6	Structure the overhead equipment for electric traction.

GRAPHICAL REPRESENTATION

Bloom's level wise Marks Distribution



Cource Outcome wise Marks Distribution



'E' 28/11

ARKA JAIN University, Jharkhand — NAAC GRADE A ACCREDITED UNIVERSITY			END SEM EXAMINATION School of Engineering & IT
Branch	Electrical & Electronics Engineering	Program	Diploma
Subject Name	Microprocessor & Microcontroller	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 T states.	2	CO1	K1
ii	Why is an oscillator circuit used in the 8051 microcontroller?	2	CO1	K1
iii	List the components of a microprocessor.	2	CO3	K2
iv	What is a bus in the context of microprocessor?	2	CO2	K3
v	How many machine cycles constitute one instruction cycle in 8085?	2	CO3	K4
vi	Define:- 1) baud rate 2) serial data buffer	2	CO2	K2
vii	What is an opcode fetch cycle and interrupt acknowledge cycle?	2	CO6	K5
viii	What are the different modes in which Timer 2 can operate in the 8051 microcontroller?	2	CO5	K6
ix	What do you mean by RAR instruction in 8085?	2	CO6	K4
x	Name the five interrupt sources of the 8051 microcontroller.	2	CO6	K6

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

Q. No.	QUESTIONS	Marks	COs	KL
2	What are the different features of 8085?	05	CO1	K3
3	Identify and describe the different register pairs in the 8085 microprocessor.	05	CO3	K5
4	Explain the flags in 8085.	05	CO2	K4
5	Draw and explain the memory organization of the 8051 microcontroller.	05	CO5	K6
6	List and describe the software and hardware interrupts of the 8085 microprocessor.	05	CO6	K1
7	Assess the importance of the timing and control unit in the overall operation of the 8051 microcontroller.	05	CO4	K2

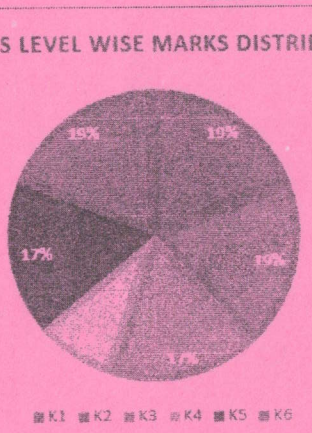
Section C (Answer any THREE out of FIVE) – 30 Marks
(Each question Carry 10 Marks)

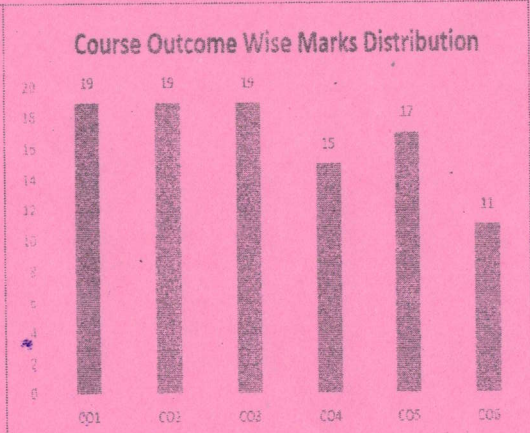
Q. No.	QUESTIONS	Marks	COs	KL
8	Draw the pin diagram of 8255.Explain its pins.	10	CO1	K1
9	Explain briefly the following instruction sets of 8085 with proper example: i. MOV ii. STA iii. ADD iv. JNC	10	CO4	K3
10	Compare a microprocessor and a microcontroller.	10	CO5	K6
11	Explain the various addressing modes of the 8051 microprocessor with examples.	10	CO2	K5
12	Write an assembly language program to multiply two 8 bits hexadecimal numbers.	10	CO3	K2

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

Course Outcomes	CO1	Recall the behavior of a communication system in presence of noise.
	CO2	Compare different analog modulation schemes for their efficiency and bandwidth.
	CO3	Apply different digital modulation schemes and compute the bit error performance.
	CO4	Explain different Analysis and Detection of Characteristics of PMS
	CO5	Interpret pulsed modulation system and analyze their system performance.
	CO6	Build an innovative technique for Carrier Recovery for Digital modulation.

GRAPHICAL REPRESENTATION





'E' 30/11

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)

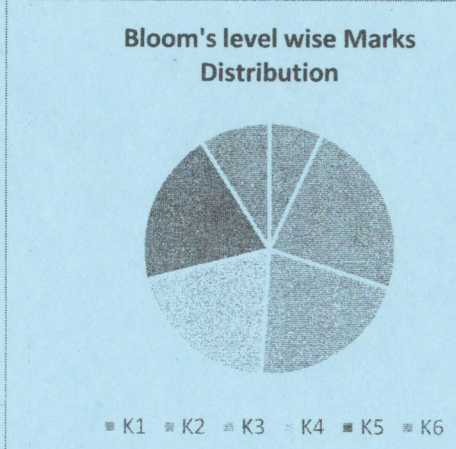
Q. N 1	QUESTIONS	Marks	COs	KL
i	Define the term e-governance.	02	CO1	K1
ii	Explain the main objectives of e-governance.	02	CO2	K2
iii	What are the different models of e-governance?	02	CO2	K1
iv	List any two advantages of E-Governance.	02	CO1	K2
v	In which year digital India campaign start and by whom?	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

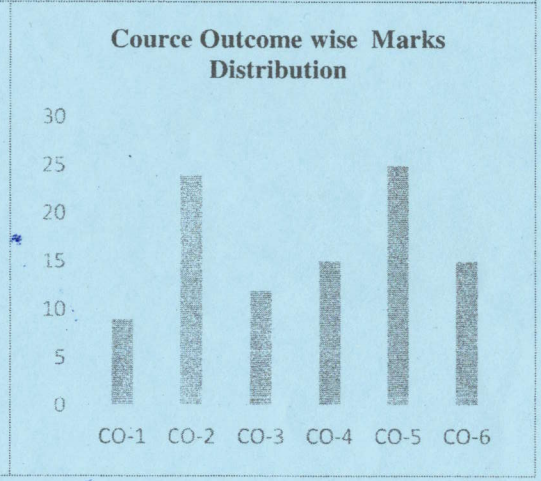
Section B (Answer any FOUR out of SIX) – 20 Marks (Each question Carry 05 Marks)				
Q. No.	**QUESTIONS**	**Marks**	**COs**	**KL**
2	Discuss the types of interaction in e-governance.	05	CO2	K4
3	Discuss some advantages and disadvantages of e-governance.	05	CO1	K4
4	Discuss G2G and G2B interaction	05	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 practice 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





'E' 3/12

JGi ARKA JAIN University, Jharkhand — NAAC GRADE A ACCREDITED UNIVERSITY		END SEM EXAMINATION School of Engineering & IT	
Branch	Electrical and Electronics Engineering	Program	Diploma
Subject Name	Fundamentals of Power Electronics	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 Meansand 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)

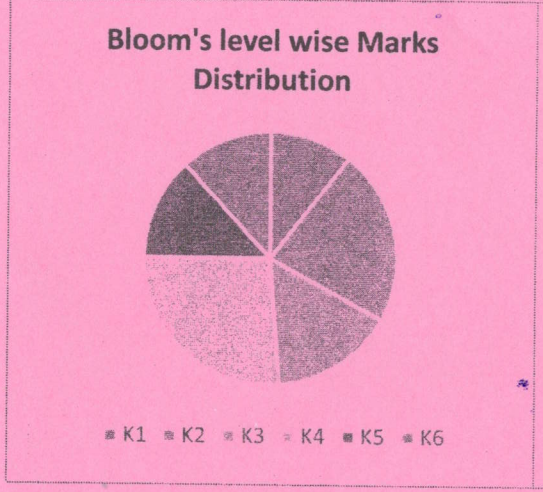
Q. N 1	QUESTIONS	Marks	COs	KL
i	Draw the V-I characteristics of Power Transistor.	2	CO1	K6
ii	List the four specifications of SCR.	2	CO2	K4
iii	What is the capacity of Emergency light?	2	CO6	K1
iv	Define transfer time and backup time of UPS	2	CO6	K1
v	What is Coulomb Blockade Energy in SET?	2	CO1	K1
vi	Define firing angle.	2	CO5	K1
vii	Compare between GTO and SCR.	2	CO2	K4
viii	State various losses taking places in power device.	2	CO3	K2
ix	List the turn off methods of SCR.	2	CO3	K4
x	Compare between voltage commutation and line commutation.	2	CO4	K4

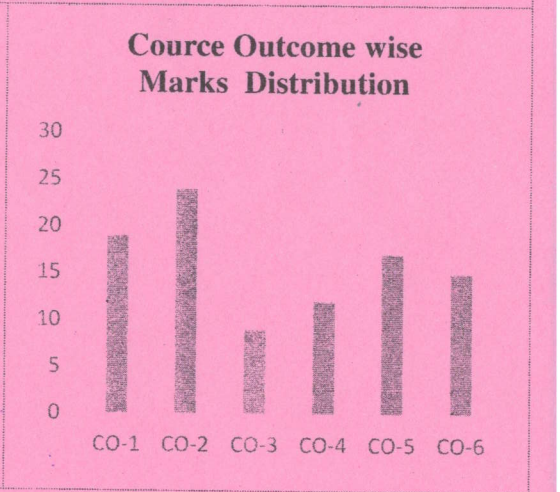
Section B (Answer any FOUR out of SIX) – 20 Marks (Each question Carry 05 Marks)				
Q. No.	**QUESTIONS**	**Marks**	**COs**	**KL**
2	Explain the Snubber protection circuit with diagram	05	CO2	K2
3	A Single phase full controlled bridge rectifier is supplied with voltage V=230 sin 314 t and is delivering power to a resistive load.*If the firing angle* 45° *Find* average output voltage	05	CO5	K3
4	Draw the I-V Characteristics of IGBT and Explain	05	CO1	K2
5	Write down the Differentiate between BJJ & MOSFET	05	CO2	K4
6	Explain Illumination control by using TRIAC with the help of neat sketch	05	CO6	K3
7	Explain the operation of synchronized UJT triggering circuit with a neat sketch	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	Draw V-I Characteristics of SCR with neat sketch and explain its regions.	10	CO2	K6
9	A Single phase half controlled rectifier supplied with voltage V=300 sin 314 t, α= 60° α =100° and load resistance is 100 Ω. Find a) Average output dc voltage b) Load current	10	CO5	K5
10	Could you illustrate and analyze the current-voltage (I-V) characteristics of a Bipolar Junction Transistor (BJT), highlighting its different operating regions	10	CO1	K4
11	a) Explain briefly about the inverter. b) Explain Industrial Control circuits in Power Electronics	10	CO6	K3
12	a) Draw and Explain 1phase midpoint controlled rectifier with resistive load. Also draw input,output waveform of it b) Compare controlled and uncontrolled rectifier.	10	CO4	K4

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

Course Outcomes	CO1	Select power electronic devices for specific applications
	CO2	Understand how to maintain the performance of Thyristors.
	CO3	Develop methods for troubleshoot turn-on and turn-off circuits of Thyristors.
	CO4	Analyze & maintain phase controlled rectifiers
	CO5	Assess different power semiconductor switches.
	CO6	Design & maintain different industrial control circuits.

GRAPHICAL REPRESENTATION





'E' 5/12

ARKA JAIN University, Jharkhand — NAAC GRADE A, ACCREDITED UNIVERSITY		END SEM EXAMINATION School of Engineering & IT	
Branch	Electrical & Electronics Engineering	Program	Diploma
Subject Name	Switchgear and Protection	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)

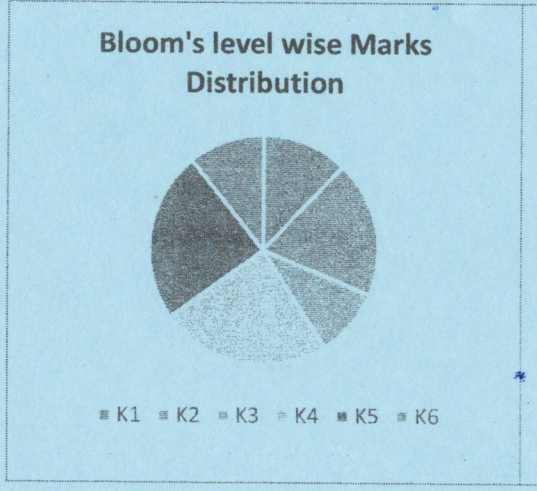
Q. N 1	QUESTIONS	Marks	COs	KL
i	What is the need of protective schemes	2	CO1	K1
ii	What do you mean by primary and back up protection?	2	CO5	K3
iii	Define HRC fuse.	2	CO2	K2
iv	Enlist the types of faults in power system	2	CO1	K2
v	Illustrate Residual current circuit breaker	2	CO2	K3
vi	What do you mean by circuit breaker	2	CO5	K2
vii	Illustrate Miniature circuit breaker.	2	CO5	K6
viii	What do you mean by current chopping?	2	CO3	K3
ix	Name the different kinds of over current relays.	2	CO5	K2
x	Explain Directional relays.	2	CO1	K1

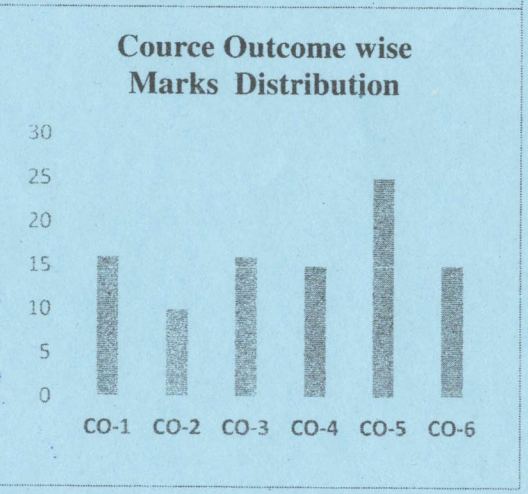
Section B (Answer any FOUR out of SIX) – 20 Marks (Each question Carry 05 Marks)				
Q. No.	**QUESTIONS**	**Marks**	**COs**	**KL**
2	Explain the phenomenon of current chopping in a circuit breaker.	05	CO1	K1
3	What are the types of fuse? Explain the points to be considered while selecting a fuse.	05	CO5	K3
4	Define the following terms related to alternator protection: (a) Over current protection (b) Earth fault protection	05	CO2	K2
5	What is a combined earth fault and phase fault protective scheme?	05	CO1	K2
6	How do static over current relays differ from numerical over current relays?	05	CO2	K5
7	What is the role of a directional earth fault relay in power system protection?	05	CO5	K2
Section C (Answer any THREE out of FIVE) – 30 Marks (Each question Carry 10 Marks)				
Q. No.	**QUESTIONS**	**Marks**	**COs**	**KL**
8	Describe the block diagram and working principles of static relays. Compare static relays with traditional electromagnetic relays in terms of performance and application flexibility.	10	CO1	K6
9	Describe the construction and working of HRC (High Rupturing Capacity) fuses. Discuss their characteristics and applications in electrical protection systems.	10	CO5	K3
10	Describe the difference between phase fault protection and earth fault protection.	10	CO2	K2
11	Explain briefly about SF6 (Sulphur Hexafluoride) circuit breaker with neat sketch diagram. Discuss their working principles, construction features, specifications, and applications in electrical networks.	10	CO1	K2
12	Explain the criteria for selecting a Moulded Case Circuit Breaker (MCCB) for motor protection. Discuss the key parameters and settings that should be considered	10	CO2	K3

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

Course Outcomes	CO1	Identify various types of faults in power system.
	CO2	Select suitable switchgears for different applications.
	CO3	Interpret various types of existing circuit breakers, their design and constructional details.
	CO4	Test the performance of different protective relays.
	CO5	Assess the protection systems of alternators and transformers.
	CO6	Anticipate protection schemes for motors, transmission lines & other power system devices.

GRAPHICAL REPRESENTATION

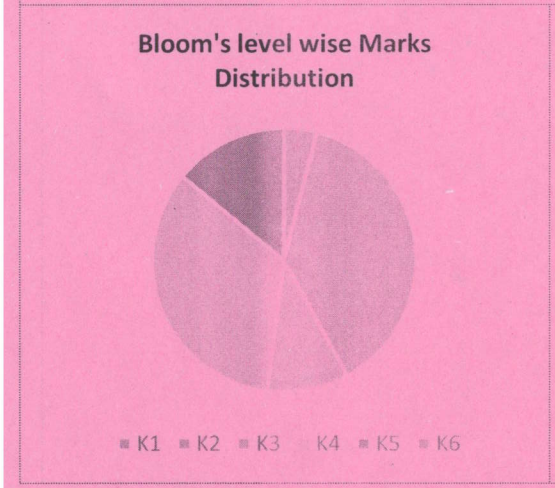


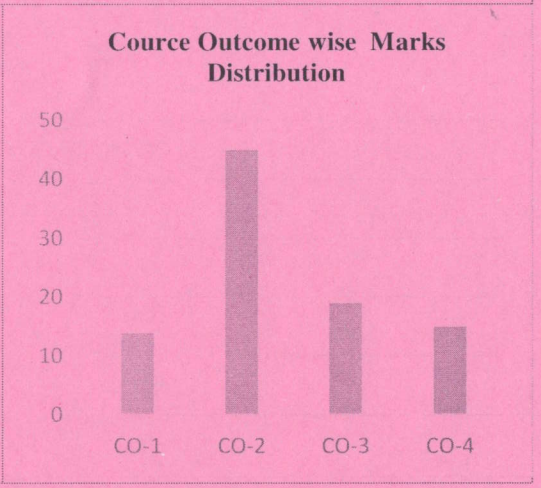


CO- Course Outcomes, **KL**- Knowledge Level, **PO** – Program Outcome

Course Outcomes	CO1	Understanding the basics of Data Analysis skills through artificial intelligence
	CO2	Understanding and Creating AI/ML solutions for various fundamental problems
	CO3	To inculcate nontrivial understanding of the real-world problems.
	CO4	Able to understand and apply various Data decomposition and analysis schemes.

GRAPHICAL REPRESENTATION





ARKA JAIN University Jharkhand — NAAC GRADE A

'E' 9/12

END SEM EXAMINATION

School of Engineering & IT

Branch	**Electrical and Electronics Engineering**	**Program**	**Diploma**
Subject Name	**Artificial Intelligence & Machine Learning**	**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 out application of Artificial Intelligence.	2	CO2	K1
ii	Explain Turing test.	2	CO2	K2
iii	Explain the difference between raw data and processed data	2	CO1	K2
iv	Discuss the typical objectives of data transformation in the context of data analysis.	2	CO1	K2
v	What are the different Algorithm techniques in Machine Learning	2	CO2	K4
vi	What is the role of activation functions in neural networks?	2	CO2	K5
vii	Explain the two basic difference between hard margin and soft margin SVMs	2	CO3	K2
viii	What is data normalization, and why is it used?	2	CO4	K5
ix	Define the term Predicate Logic	2	CO3	K1
x	Which Tools can be used for Machine Learning	2	CO2	K4

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

Q. No.	QUESTIONS	Marks	COs	KL
2	Differentiate Blind Search and Heuristic Search.	05	CO2	K4
3	What is data munging, and why is it important in data analysis?	05	CO4	K5
4	Explain Breadth first search (BFS) with example	05	CO2	K2
5	What Are the Three Stages of Building a Model in Machine Learning?	05	CO2	K5
6	Explain the structure and components of a neural network.	05	CO3	K2
7	Mention the difference between Data Mining and Machine learning	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	How to define a problem as state space search? Discuss it with the help of an example.	10	CO2	K2
9	What are some challenges associated with optimizing SVMs, and how can they be addressed?	10	CO3	K3
10	Differentiate between Supervised, Unsupervised and Reinforcement Learning.	10	CO2	K4
11	What are Biological Neurons? How they help in creating artificial neuron model.	10	CO4	K4
12	Discuss different types of data sources, including primary, secondary, internal, and external sources.	10	CO1	K2