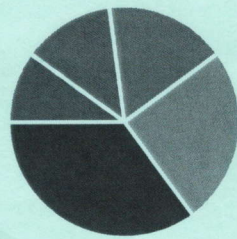


CO1	To Know The Different Schemes of Power Generating Stations Using Block Diagram
CO2	To Develop The Mechanical and Electrical Design of Transmission Line and Numerical Problems
CO3	Analyze The Types of Cables and Their Methods of Laying and Testing
CO4	To Understand The Different Schemes of Distribution and Problem Solving
CO5	Apply The Economic Aspects of Power Supply System With Problem and Type of Tariff of Electricity

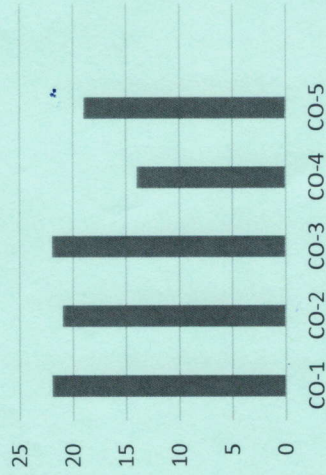
GRAPHICAL REPRESENTATION

Bloom's level wise Marks Distribution



■ K1 ■ K2 ■ K3 ■ K4 ■ K5

Course Outcome wise Marks Distribution



Branch	Electrical and Electronics Engineering	Program	Diploma
Subject Name	Generation, Transmission and Distribution	Session	Odd, 2025-26
Semester	III	Year	Jan, 2026
Time: 3 Hour Max. Marks : 70	<ul style="list-style-type: none"> Start writing from 2nd page onwards; don't Write on the 1st Page Backside Answer all Questions of Section A (Compulsory) Answer Any Four out of Six of Section B Answer Any Three out of Five of Section C Possession of Mobile 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	QUESTIONS	Marks	COs	KL
1				
i	What is the purpose of a transmission line layout in power systems	2	CO2	K1
ii	List the main components of a thermal power station	2	CO1	K2
iii	Define the importance of efficiency in transmission lines	2	CO2	K2
iv	State the formula for Transmission efficiency of a transmission line	2	CO3	K3
v	Write down Kelvin's law for the economical size of a conductor	2	CO2	K1
vi	What are the main types of underground cables used in power systems?	2	CO4	K2
vii	What is diversity factor?	2	CO5	K1
viii	State two advantages of Thermal power plants	2	CO1	K1
ix	State the typical causes of faults in underground cables.	2	CO4	K2
x	What is the difference between radial and ring main distribution?	2	CO5	K1

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

Q. No.	QUESTIONS	Marks	COs	KL
2	Illustrate the main components of a Hydel power plant with a labelled diagram.	05	CO1	K4
3	Discuss about the different types of transmission line according to length and voltage level	05	CO2	K3
4	Draw a simple labeled diagram showing the layout of a transmission and distribution system	05	CO3	K4
5	A conductor weighing 0.7 kg/m is suspended between two towers 200 m apart. If tension is 1500 kg, find the sag. Take $g=9.8 \text{ m/s}^2$	05	CO3	K5
6	How to choose the site for Thermal Power Station	05	CO1	K2
7	Define fixed cost, running cost, and depreciation.	05	CO5	K4

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

Q. No.	QUESTIONS	Marks	COs	KL
8	A power station has an installed capacity of 50 MW. The maximum demand is 30 MW and annual energy generated is 150 million kWh. Calculate: • Load factor • Plant capacity factor • Utilization factor • What is diversity factor?	10	CO5	K5
9	Draw the schematic diagram of a Solar power plant and explain its operation with its advantages and disadvantages	10	CO1	K3
10	a) A 3-phase, 4-wire system supplies a load of 100 kW at a power factor of 0.8 lagging. Calculate the total current supplied if line voltage is 400 V. b) Draw a simple schematic of a 3-phase 4-wire distribution system	10	CO4	K5
11	a) Draw a simple sketch showing sag between two poles and Discuss about it with formulae	10	CO2	K4

12	b) Discuss about the Pin type Insulator in Overhead Line State the formula for voltage regulation of a transmission line A transmission line has the following parameters: Sending end voltage, $V_s=132 \text{ KV}$, Receiving end voltage, $V_r=128 \text{ KV}$ Load current, $I=200 \text{ AI}$ (lagging power factor 0.8) Calculate: The percentage voltage regulation of the transmission	10	CO3	K5
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CO1	Recall The Evaluation And History Of Units And Standards In Measurements
CO2	Understand The Various Parameters That Are Measurable In Electrical And Electronics Instrumentation
CO3	Use The Complete Knowledge Of Various Electronics Instruments/Transducers To Measure The Physical Quantities In The Field Of Science, Engineering And Technology
CO4	Inspect The Performance Characteristics Of Electrical And Electronic Instruments
CO5	Assess The Basic Meters Such As Voltmeters And Ammeters
CO6	Generate Novel Electronic And Electrical Products And Solutions For Real Life Problems

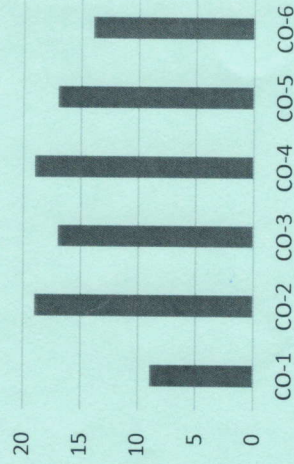
GRAPHICAL REPRESENTATION

Bloom's level wise Marks Distribution



■ K1 ■ K2 ■ K3 ■ K4 ■ K5

Course Outcome wise Marks Distribution



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Jharkhand



[17/01/2026]
END SEM EXAMINATION
School of Engineering & IT

Branch	Electrical And Electronics Engineering	Program	Diploma
Subject Name	Electrical And Electronics Measurements	Session	Odd, 2025-26
Semester	III	Year	Jan, 2026*
Time: 3 Hour Max. Marks : 70	<ul style="list-style-type: none"> Start writing from 2nd page onwards; don't Write on the 1st Page Backside Answer all Questions of Section A (Compulsory) Answer Any Four out of Six of Section B Answer Any Three out of Five of Section C Possession of Mobile 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	QUESTIONS	Marks	COs	KL
1				
i	What is an ammeter used for?	2	CO1	K1
ii	State any two errors that can occur in a wattmeter.	2	CO3	K3
iii	What does PMMC stand for?	2	CO2	K1
iv	Define Accuracy and Precision	2	CO1	K2
v	Define a dynamometer-type wattmeter	2	CO2	K3
vi	List any four types of electrical measuring instruments.	2	CO4	K2
vii	State the function of CRO in electrical measurements.	2	CO6	K1
viii	List the main parts of a single-phase energy meter	2	CO4	K2
ix	Define an energy meter	2	CO6	K3
x	List the methods used for measuring three-phase power.	2	CO5	K1

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

Q. No.	QUESTIONS	Marks	COs	KL
2	Compare the construction and working of single-phase and three-phase energy meters	05	CO4	K4
3	Describe how single-phase power is measured using a wattmeter.	05	CO3	K3
4	Compare the performance of Analog and digital voltmeters.	05	CO1	K4
5	A resistor is connected in a circuit where a voltmeter reads 12 V and an ammeter reads 0.5 A. Calculate the resistance using the voltmeter-ammeter method	05	CO5	K5
6	Identify which instrument to use for measuring the total energy consumed over time.	05	CO1	K2
7	Draw and label a PMMC instrument showing key parts	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	a) Evaluate the importance of balancing a bridge in the Kelvin double bridge method. b) A resistor is connected in a circuit where a voltmeter reads 12 V and an ammeter reads 0.5 A. Calculate the resistance using the voltmeter-ammeter method.	10	CO5	K5
9	a) Describe the working principle of a single-phase energy meter. b) How would you connect a single-phase energy meter in a domestic electrical installation?	10	CO6	K4
10	a) A current transformer (CT) has a ratio of 200:5. If the secondary current is 3 A, calculate the primary current. b) How do dynamic characteristics affect the time response of an instrument	10	CO4	K5
11	a) Evaluate the advantages of using the two-wattmeter method in power measurement of industrial three-phase loads b) Analyze why a wattmeter shows incorrect power	10	CO3	K4

when the current and voltage coils are interchanged.

- a) Compare the operating principles of PMMC and MI instruments.
b) Break down the working of a dynamometer-type wattmeter and explain the role of each coil.

12

10

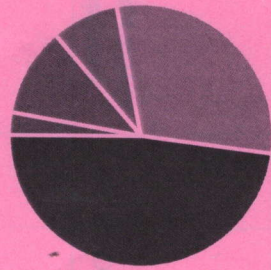
CO2

K5

CO1	Recognize basic electrical DC concepts and theorems
CO2	Extend the concepts of magnetic circuits and resonance
CO3	Analyze function on multi-disciplinary teams through the electric circuits experiments and projects.
CO4	Interpret engineering problems in the area circuits and systems
CO5	Design an electric system, components or process to meet desired needs within realistic constraints

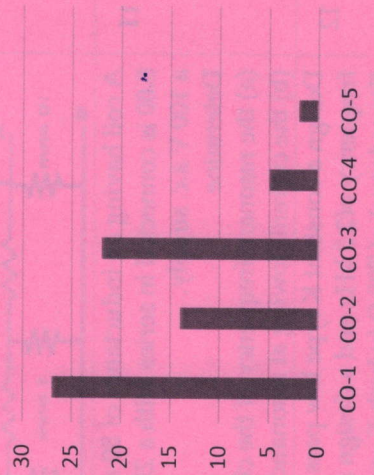
GRAPHICAL REPRESENTATION

Bloom's level wise Marks Distribution



■ K1 ■ K2 ■ K3 ■ K4 ■ K5 ■ K6

Course Outcome wise Marks Distribution



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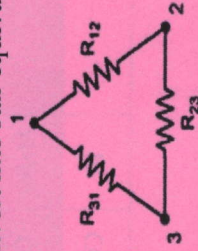


[20/01/2026]
END SEM EXAMINATION
School of Engineering & IT

Program	Electrical & Electronics Engineering	Branch	Diploma
Subject Name	Network theory and Analysis	Session	Odd, 2025-26
Semester	III	Year	Jan, 2026
Time: 3 Hour Max. Marks : 70	<ul style="list-style-type: none"> Start writing from 2nd page onwards; don't Write on the 1st Page Backside Answer all Questions of Section A (Compulsory) Answer Any Four out of Six of Section B Answer Any Three out of Five of Section C Possession of Mobile Phone or any kind of Written Material, Arguments with the Invigilator or Discussion with Co-Student 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 K2 : Understanding	K3 : Applying 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
1				
i	What is Non-linear elements and give an examples	2	CO1	K1
ii	Write down the statement of Thevenin's theorem	2	CO2	K2
iii	Three resistances 100 Ω, 200 Ω and 300 Ω are connected in series and parallel find the equivalent resistance in each case	2	CO1	K3
iv	What are the condition of resonance in a RLC series circuit	2	CO2	K2
v	What do you mean by active and passive element? Give some examples	2	CO1	K2
vi	What is superposition theorem and write down its limitation	2	CO1	K3
vii	Define quality factor	2	CO3	K2
viii	Convert into star equivalent	2	CO1	K4



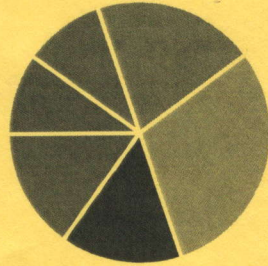
ix	What is Unilateral & bilateral element?	2	CO1	K3
x	Convert the given current source into voltage source	2	CO5	K5
Section B (Answer any FOUR out of SIX) - 20 Marks (Each question Carry 05 Marks)				
Q. No.	QUESTIONS	Marks	COs	KL
2	Calculate the total inductance	05	CO2	K5
3	State and explain the Z-parameter	05	CO3	K4
4	Find the ABCD parameter of the	05	CO3	K5
5	Derive the condition of resonance	05	CO2	K4
6	State and explain the maximum power transfer theorem.	05	CO1	K5
7	Find the current through 3 Ω by using nodal analysis	05	CO4	K5
Section C (Answer any THREE out of FIVE) - 30 Marks (Each question Carry 10 Marks)				
Q. No.	QUESTIONS	Marks	COs	KL
8	Find the Y parameter	10	CO3	K4

9	Find the current through 2 Ω using thevenin's theorem	10	CO1	K5
10	Find the equivalent resistance between A and B of the give circuit	10	CO6	K4
11	A coil having an inductance of 50 mH and resistance 8.00 is connected in series with a 25 μF capacitor across a 100 V a.c. supply. Determine (a) the resonant frequency of the circuit, and (b) the current flowing at resonance.	10	CO2	K4
12	Design a constant K type low pass filter having a cutoff frequency of 2.5 kHz and a design resistance (Impedance) of 700 Ω in both T and π configurations.	10	CO5	K5

CO1	Recall the fundamental principles and classification of electromagnetic machines.
CO2	Relate the working of dc machines as generators and motors.
CO3	Explain the efficiency and voltage regulations of dc machines.
CO4	Analyze the performance characteristics of different DC machines using different equivalent circuit.
CO5	Compare the different types of testing methods used to determine the performance characteristics of DC machines and Transformers.
CO6	Predict the equivalent circuit and phasor diagram of DC different machines.

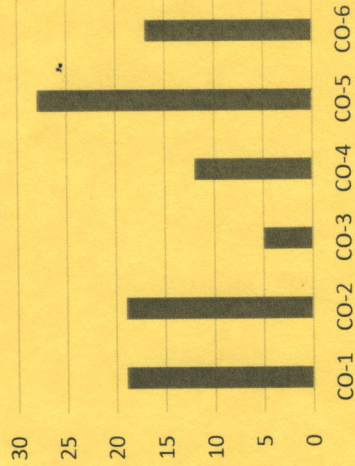
GRAPHICAL REPRESENTATION

Bloom's level wise Marks Distribution



■ K1 ■ K2 ■ K3 ■ K4 ■ K5 ■ K6

Course Outcome wise Marks Distribution



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Jharkhand



[22/01/2026]

END SEM EXAMINATION
School of Engineering & IT

Branch	Electrical and Electronics Engineering	Program	Diploma
Subject Name	Electrical Machine I	Session	Odd, 2025-26
Semester	III	Year	Jan, 2026
Time: 3 Hour Max. Marks : 70	<ul style="list-style-type: none"> 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, <u>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 K2 : Understanding	K3 : Applying 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
1				
i	List the main parts of a DC generator.	2	CO1	K1
ii	In which principle DC Generator works?	2	CO2	K2
iii	Define a DC Motor.	2	CO1	K1
iv	Write the Back EMF equation of a DC Motor.	2	CO2	K2
v	Define a transformer.	2	CO5	K1
vi	Can DC be applied to transformers?	2	CO5	K2
vii	List the types of cooling methods used in transformers.	2	CO4	K1
viii	What is a power transformer?	2	CO5	K2
ix	Define an auto transformer.	2	CO6	K1
x	List the applications of current transformers.	2	CO5	K2

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

Q. No.	QUESTIONS	Marks	COs	KL
2	Why transformers are rated in KVA?	05	CO5	K4
3	Derive the expression for EMF induced in the DC generator.	05	CO2	K6
4	Identify the factors affecting the speed of a DC motor.	05	CO3	K3
5	Write down the applications of various three phase transformer connections.	05	CO5	K4
6	Illustrate the advantages and applications of autotransformer.	05	CO6	K3
7	A d.c. shunt generator has shunt field winding resistance of 100 ohm. It is supplying a load of 5kW at a voltage of 250 V. If its armature resistance is 0.22 ohm, calculate the induced e.m.f. of generator.	05	CO1	K5

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

Q. No.	QUESTIONS	Marks	COs	KL
8	Explain with a neat sketch, the construction and principle of operation of DC Generator.	10	CO1	K3
9	Analyze the conditions under which maximum mechanical power is developed in a DC motor.	10	CO2	K4
10	A single-phase transformer has 350 turns and 1050 secondary turns. The primary is connected to 400 V, 50 Hz ac supply. If the net cross-sectional area of the core is 50 cm ² , Calculate (i) The maximum value of the flux density in the core. (ii) The emf induced in the secondary winding.	10	CO5	K5
11	Discuss the star-star connection of three phase transformers. State its advantages and disadvantages.	10	CO6	K6
12	Discuss the comparison between Two Winding Transformer and Autotransformer.	10	CO4	K4



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[28/01/2026]
END SEM EXAMINATION
School of Engineering & IT

Program	Electrical and Electronics Engineering		Branch	Diploma
Subject Name	Analog Electronics		Session	Odd, 2025-26
Semester	III		Year	Jan, 2026
Time: 3 Hour Max. Marks : 70	<ul style="list-style-type: none"> Start writing from 2nd page onwards; don't Write on the 1st Page Backside Answer all Questions of Section A (Compulsory) Answer Any Four out of Six of Section B Answer Any Three out of Five of Section C Possession of Mobile 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	QUESTIONS	Marks	COs	KL
1				
i	Illustrate Junctions break down Mechanics?	2	CO1	K1
ii	List the differences between ideal diode and practical diode?	2	CO1	K2
iii	Why Capacitor input filter preferred to choke input filter?	2	CO1	K3
iv	Enumerate difference between Half wave Rectifier and Full wave Rectifier?	2	CO2	K2
v	Give the symbolic representation of NPN & PNP Transistor?	2	CO2	K1
vi	Why is the input impedance of an op-amp considered high?	2	CO4	K1
vii	Why emitter is heavily doped and collector is lightly doped in BJT?	2	CO3	K2
viii	Write the expression for frequency of oscillation of RC phase shift oscillator?	2	CO3	K3
ix	Lists Applications of op-amp?	2	CO5	K1
x	Explain negative feedback in Op-amp Circuit?	2	CO4	K2

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

Q. No.	QUESTIONS	Marks	COs	KL
2	Interpret for positive bias Series Clippers and Negative bias Series Clippers?	5	CO1	K1
3	Calculate IC IE and IB for transistor whose $\alpha_{dc}=0.9$ and $I_B=50\mu A$?	5	CO2	K5
4	With neat diagram Discuss dc load line and ac load line for BJT?	5	CO2	K2
5	Find an expression for frequency of oscillation of Wein bridge oscillator?	5	CO3	K4
6	Discuss the differences between an inverting and a non-inverting amplifier	5	CO5	K2
7	Draw a Block diagram of a typical Op-amp? Write characteristics of an Ideal Opamp?	5	CO4	K3

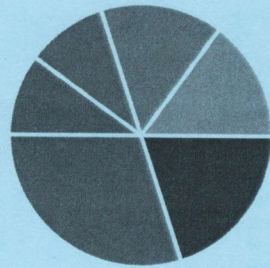
Section C (Answer any THREE out of FIVE) – 30 Marks
(Each question Carry 10 Marks)

Q. No.	QUESTIONS	Marks	COs	KL
8	Sketch the V-I characteristics of p-n junction diode for forward bias voltages. Distinguish between the incremental resistance and the apparent resistance of the diode	10	CO1	K6
9	A full wave rectifier fed from transformer having secondary winding RMS Voltage 36V. If diode Forward resistance is 4 Ohms and that of half secondary is 12 ohms for a load of 1200 Ohms. Calculate: (i.) Power Delivered to load (ii.) Efficiency of Rectification	10	CO2	K5
10	Discuss input and output characteristics of transistor in CB configuration and CE configuration of BJT?	10	CO2	K4
11	Derive the expressions for frequency of oscillation for Hartley oscillator with a neat circuit diagram by using BJT	10	CO3	K2
12	Explain briefly inverting and non-inverting type op-amp. Derive an expression for gain (A) of the same.	10	CO5	K3

Course Outcomes	CO1	CO2	CO3	CO4	CO5
To develop knowledge on the characteristics of different types of diodes, transistors, UJT, FET and to draw a comparison in their characteristics.					
To develop knowledge of diodes, transistors UJT, FET application.					
To develop knowledge of different oscillator circuits and to identify the difference between them and their frequency relation.					
To develop knowledge of operational amplifiers.					
To develop knowledge of operational amplifiers application in the field.					

GRAPHICAL REPRESENTATION

Bloom's level wise Marks Distribution



■ K1 ■ K2 ■ K3 ■ K4 ■ K5 ■ K6

Course Outcome wise Marks Distribution

