



ARKA JAIN University
Jharkhand



[18-11-2025]
END SEM EXAMINATION
School of Engineering & IT

Branch	Electrical and Electronics Engineering	Program	Diploma
Subject Name	Electric Traction	Session	Odd, 2025-26
Semester	V	Year	Nov, 2023
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 <u>Mobile Phones</u> or any kind of <u>Written Material, Arguments with the Invigilator or Discussing with Co-Student</u> will come under <u>Unfair Means</u> and will <u>Result in the Cancellation of the Papers.</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	PO
1	i	1	State the various constituents of supply system in traction.	2	CO1	K1	PO1
	ii	2	Classify the supply system of Electric Traction.	2	CO1	K1	PO2
	iii	3	Why the wheels of train, engine as well as bogies are slightly tapered?	2	CO3	K3	PO4
	iv	4	What are the requirements of ideal traction system?	2	CO2	K3	PO5
	v	5	Write the name of the different types of overhead current collectors.	2	CO6	K4	PO3
	vi	6	What is the normal distance between subsections and parallel post?	2	CO1	K4	PO5
	vii	7	Define the term "Interruption"	2	CO4	K2	PO6
	viii	8	Write down the advantages and disadvantages of Three Phase (3-φ) AC System?	2	CO1	K4	PO1
	ix	9	Define the term HOG in electric traction.	2	CO5	K2	PO2
	x	10	What is purpose of neutral section?	2	CO5	K3	PO4

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

Q. No.	QUESTIONS	Marks	COs	KL	PO
2	Explain briefly about the Single Catenary Construction, and Compound Catenary Construction.	5	CO1	K4	PO5
3	What are the problem of battery drive system which are associated with AC traction System and remedies for it?	5	CO2	K5	PO6
4	Draw the layout of traction sub-station and show there in the various equipments.	5	CO3	K6	PO7
5	Write the name of the equipment used in auxiliary circuit of AC Locomotive and their functions.	5	CO4	K3	PO1
6	Write down the desirable features of traction motors.	5	CO6	K1	PO2
7	State the necessity of railway signalling.	5	CO6	K6	PO3

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

Q. No.	QUESTIONS	Marks	COs	KL	PO
8	State the various constituents of supply system in traction. List the major equipments in a substation.	10	CO1	K4	PO5
9	Write down the comparison between Normal Train, Metro Train, and Mono Rail? Explain briefly about the Dynamic braking.	10	CO2	K5	PO6
10	Draw and explain the block diagram of AC locomotive.	10	CO4	K6	PO5
12	Explain briefly about the Regenerative braking.	10	CO5	K2	PO3

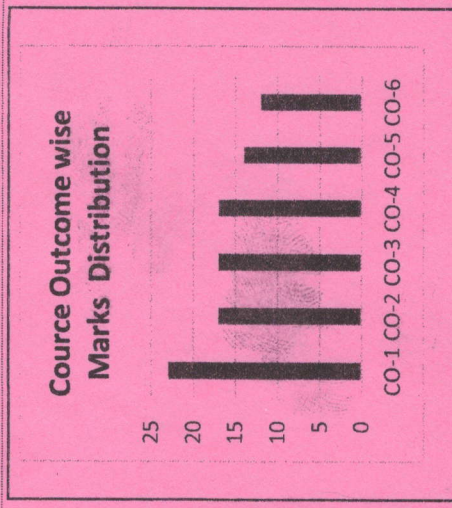
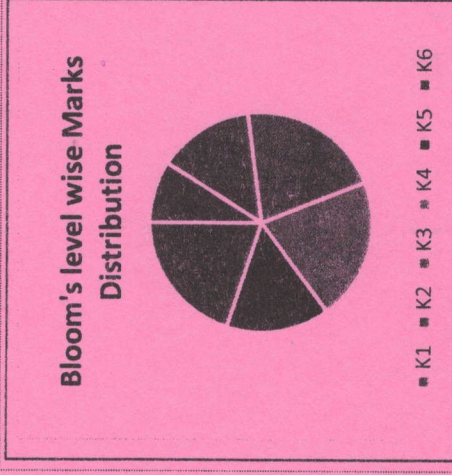
CO- Course Outcomes,



KL- Knowledge Level,

PO – Program Outcome

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.

GRAFICAL REPRESENTATION



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