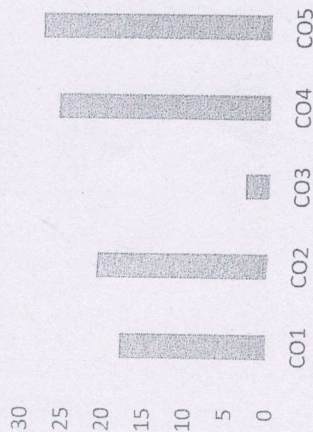


CO- Course Outcomes, **KL- Knowledge Level,** **PO – Program Outcome**

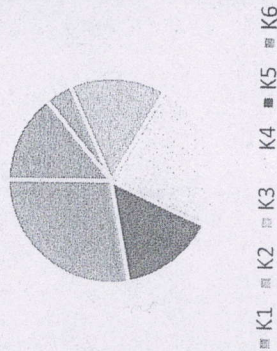
CO1	Identify and explain the different methods of generation, distribution, control and compensation involved in the operation of power systems.
CO2	Design the mathematical models of the mechanical and electrical components involved in the operation of power systems.
CO3	Solve the problems related to the economic dispatch of power, plant scheduling, unit commitment.
CO4	Assess the different methods of control and compensation to choose the best option so that social and environmental problems are minimized.
CO5	Specify the equivalent electrical parameters of transmission line to prepare and analyze models to predict the range and ratings of the equipments.

GRAPHICAL REPRESENTATION

Course Outcome Wise Marks Distribution



Bloom's Level wise Marks Distribution



ARKAJAIN University
Jharkhand

END TERM EXAMINATION
School of Engineering & IT

Branch	Electrical and Electronics Engineering.	Program	B.Tech
Subject Name	Power System -I	Semester	5th
		Year	2022/ Odd

- 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 come under Unfair Means and will Result in the Cancellation of the Papers.
- Time: 3 Hour
Max. Marks : 70

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. N1	QUESTIONS	Marks	COs	KL	PO
i	Define "Single Line Diagram".	2	CO1	K1	PO2
ii	What is Power Transfer Capability in line.	2	CO3	K2	PO1
iii	What is Corona?	2	CO5	K2	PO3
iv	Define "Synchronous Grids".	2	CO4	K6	PO2
v	What are the different classifications of short circuit faults occurring in power system?	2	CO4	K3	PO4
vi	Write a short note on FACTS?	2	CO3	K1	PO2
vii	Mention the various modes of propagation of travelling waves.	2	CO5	K6	PO5
viii	Define "Asynchronous grid".	2	CO1	K5	PO6
ix	Explain in brief the concept of Electrical and Magnetic Fields around conductors?	2	CO1	K1	PO12
x	What is auto transformer? Explain with suitable circuit diagram.	2	CO2	K2	PO11

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

Q. No.	QUESTIONS	Marks	COs	KL	PO
2	Describe the different modes of propagation of Travelling waves in transmission.	5	CO2	K2	PO5
3	Write a note on Shunt & Series Compensation of transmission lines.	5	CO3	K1	PO4
4	What is per unit system? Mention its advantages.	5	CO5	K3	PO1
5	Describe the primary & back-up protection.	5	CO1	K4	PO5
6	Write short note on Induction Generator.	5	CO5	K5	PO2
7	Do a comparison between AC & DC transmission.	5	CO3	K2	PO3

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

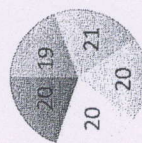
Q. No.	QUESTIONS	Marks	COs	KL	PO
8	Elaborate the structure of power system with suitable diagram.	10	CO2	K1	PO11
9	Explain Travelling waves in Transmission lines & the equation involved.	10	CO1	K2	PO4
10	What is the need of protection of power system? Discuss the various attributes of protection scheme.	10	CO1	K3	PO5
11	Write a detail note on different types of Overcurrent Relays with suitable graph. Also draw its time-current characteristics.	10	CO4	K5	PO2
12	Discuss elaborately lightning phenomena & also mention the methods for protection against over voltages due to lightning	10	CO5	K4	PO12

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

CO1	Learn the features of different types of compensators & to design compensators using time- domain and frequency domain specifications.
CO2	Understand the modelling of linear-time-invariant systems using transfer function and state-space representations.
CO3	Apply the concept of stability and its assessment for linear-time invariant systems.
CO4	Analyse the system response and stability of systems represented in state space form and to design compensators for systems modelled in state space form.
CO5	Obtain models of dynamic systems in transfer function and state space forms.

GRAFICAL REPRESENTATION

Bloom's Level Wise Marks Distribution

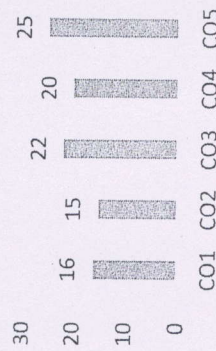


■ K1 ■ K2 ■ K3 ■ K4 ■ K5

Course Outcomes

Wise

Marks Distribution



ARKAJAIN University
Jharkhand

END TERM EXAMINATION
School of Engineering & IT

Branch	Electrical and Electronics Engineering	Program	B.Tech
Subject Name	Control Systems	Semester	5 th
		Year	2022/Odd
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 Graf Paper / Drawing Sheet/ Log Book/ Ledger (please Mention if any) 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 K2 : Understanding	K3 : Applying K4 : Analysing	K5 : Evaluating K6 : Creating

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

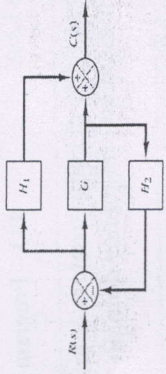
Q. No 1	QUESTIONS	Marks	CO	KL	PO
i	List out the advantages of closed loop control system.	2	CO 2	K1	PO1
ii	Define gain margin	2	CO 2	K1	PO1
iii	Explain Mason's gain formula	2	CO 2	K2	PO1
iv	What is cascade compensation?	2	CO 1	K1	PO1
v	What are the roles of controller in Control systems?	2	CO 1	K1	PO1
vi	What are time domain specifications?	2	CO 2	K1	PO1
vii	Summarize the classification of electrical compensators.	2	CO 1	K2	PO1
viii	Explain phase margin and gain cross over frequency?	2	CO 2	K2	PO1
ix	What is step signal?	2	CO 3	K1	PO1

Q. No.	QUESTIONS	Marks	COs	KL	PO
2	Analyze the effect on system performance when a proportional controller is introduced in a system?	5	CO 4	K4	PO2
3	Explain the breakaway and break-in point. How to determine them?	5	CO 2	K2	PO1 PO2
4	Determine the range of K for which system is stable $s^4 + 3s^3 + 3s^2 + s + k = 0$	5	CO 3	K5	PO3
5	Explain about the following controllers. (i) P and PI controller (ii) PID controller	5	CO 4	K5	PO1
6	Explain the Classification of the system based on depending ratio.	5	CO 3	K4	PO2
7	What are asymptotes? How will you find the angle of asymptotes?	5	CO 5	K1	PO1 PO2

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

Q. No.	QUESTIONS	Marks	CO	KL	PO
1	Solve the stability of the system Using Routh criterion, by the characteristic equation. Comment on the location of the roots of Characteristic Equation. $s^5 + 4s^4 + 8s^3 + 8s^2 + 7s + 4 = 0$	10	CO 3	K3	PO2
2	Explain the Procedure for drawing root locus.	10	CO 5	K2	PO1
3	Analyze the response of first order system for unit step input	10	CO 1	K4	PO1 PO2
4	Simplify the block diagram shown in Figure.	10	CO 5	K3	PO2

Q. No.	QUESTIONS	Marks	COs	KL	PO
5	Explain Polar Plot with all steps.	10	CO4	K5	PO2 PO3

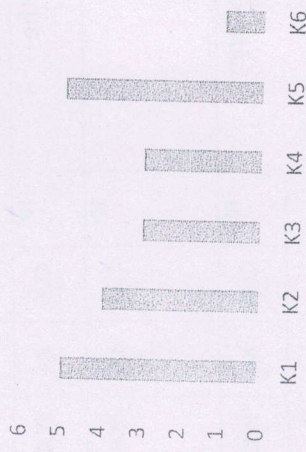


CO- Course Outcomes, KL- Knowledge Level, PO – Program Outcome

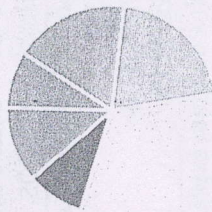
CO1	Acquire the knowledge of principles of semiconductor Physics.
CO2	Understand and utilize the mathematical models of semiconductor junctions and MOS transistors for circuits and systems.
CO3	Develop analysis capability in BJT and FET Amplifier Circuits.
CO4	Distinguish competence in frequency response analysis of discrete amplifiers.
CO5	Interpret design competence in signal and power amplifiers using BJT and FET.

GRAFICAL REPRESENTATION

Course outcome wise distribution



Bloom level wise distribution



■ CO1 ■ CO2 ■ CO3 ■ CO4 ■ CO5 ■ CO6

JGI
ARKA JAIN
University
 Jharkhand

END TERM EXAMINATION
 School of Engineering & IT

Branch	Electrical and Electronics Engg.	Program	B.Tech
Subject Name	Electronics Devices	Semester	5th
		Year	2022/ Odd

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 come 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. N1	QUESTIONS	Mar ks	COs	KL	PO
i	What is the use of Zener diode?	2	CO2	K1	PO1
ii	What is fabrication?	2	CO6	K3	PO1
iii	Why biasing is done in any electronics circuit?	2	CO3	K5	PO1
iv	What is surface inversion?	2	CO1	K4	PO2
v	Why copper is preferred for PCB designing?	2	CO6	K5	PO1
vi	What are Q-points?	2	CO5	K2	PO2
vii	Derive a relation between α and β .	2	CO5	K6	PO2
viii	What is the use of photodiode?	2	CO4	K2	PO2
ix	How photodiode produces electricity?	2	CO1	K5	PO2
x	What is the advantage of using FET instead of using BJT?	2	CO2	K3	PO1

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

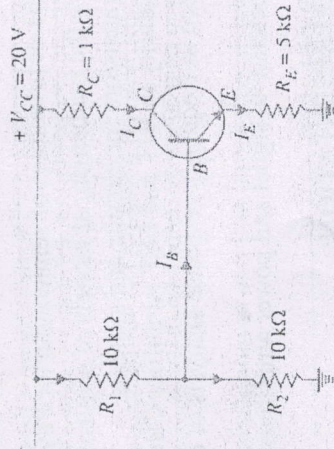
(Each question 5 Marks)

Q. No.	QUESTIONS	Marks	COs	KL	PO
2	Explain PNP transistor with suitable diagram.	5	CO2	K1	PO1
3	Write down the difference between enhancement type MOSFET and depletion type MOSFET.	5	CO4	K2	PO1
4	Derive an expression for base current and collector current in fixed bias.	5	CO3	K5	PO2
5	Explain briefly the energy band diagram taking into consideration conductor, insulator and semiconductor.	5	CO1	K2	PO2
6	Explain any two briefly: a) Through hole technology b) SMD Technology c) Avalanche Breakdown	5	CO6	K1	PO1
7	Explain briefly any two: a) Masking b) Oxidation c) Photolithography	5	CO2	K4	PO1

Section C (Answer any THREE out of FIVE) – 30 Marks-

(Each question Carry 10 Marks)

Q. No.	QUESTIONS	Marks	COs	KL	PO
8	Explain briefly FET? With a neat circuit diagram explain MOSFET.	10	CO2	K1	PO1

9.	Calculate the emitter current in the voltage divider circuit shown in the figure. 	10	CO3	K5	PO1
10	Describe in details the steps involved in the fabrication of CMOS.	10	CO6	K4	PO2
11	Explain briefly any two of the following: a) LED b) Photodiode c) Solar Cell	10	CO2	K1	PO1
12	With a diagram explain the working of a Zener diode.	10	CO5	K3	PO2

Also find the value of V_{CE} and collector potential V_C .



END TERM EXAMINATION
School of Engineering & IT

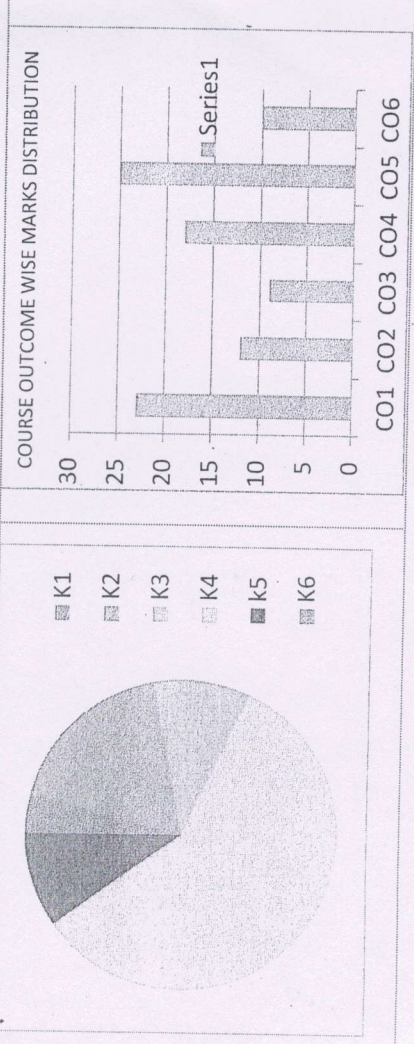
Branch	Electrical and Electronics Engineering.	Program	B.Tech
Subject Name	Microprocessor	Semester	5th
		Year	2022/Odd
Time: 3 Hour Max. Marks : 70	<ul style="list-style-type: none"> Start writing from 2nd page onwards; don't Write on the 1st Page Backside Answer all Questions of Section A (Compulsory) 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 comes under <u>Unfair Means</u> and will <u>Result</u> in the <u>Cancellation of the Papers.</u> 		
Knowledge Level (KL)	K1 : Remembering K2 : Understanding	K3 : Applying K4 : Analysing	K5 : Evaluating K6 : Creating

Q. N 1	QUESTIONS	Marks	COs	KL	PO
i	Explain arithmetic instructions SUB M	2	CO 1	K4	PO2
ii	Identify the addressing mode of instruction LDA 16 bit also explain the instruction.	2	CO 2	K3	PO1
iii	Explain the following instructions with suitable example of each (i) MVI (ii) MOV	2	CO 3	K2	PO3
iv	What are the different types of flags in 8085 microprocessor?	2	CO 3	K1	PO4
v	What is Tri-state logic?	2	CO 4	K1	PO4
vi	Explain the function of ALE and IO/M signals of the 8085 microprocessor.	2	CO 4	K2	PO5
vii	Write assembly level program to subtract two 8 bit numbers.	2	CO 4	K3	PO4
viii	What happens when HLT instruction is executed in processor?	2	CO 1	K4	PO2
ix	Explain the instruction STAX Rp	2	CO 1	K2	PO3
x	Discuss the utility of stack pointer register in 8085 microprocessor	2	CO 1	K2	PO2

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

CO1	Assess and solve basic binary math operations using the microprocessor and explain the microprocessor's and Microcontroller's internal architecture and its operation within the area of manufacturing and performance
CO2	Apply knowledge and demonstrate programming proficiency using the various addressing modes and data transfer instructions of the target microprocessor and microcontroller.
CO3	Compare accepted standards and guidelines to select appropriate Microprocessor (8085 & 8086) and Microcontroller to meet specified performance requirements
CO4	Analyze assembly language programs; select appropriate assemble into machine a cross assembler utility of a microprocessor and microcontroller.
CO5	Design electrical circuitry to the Microprocessor I/O ports in order to interface the processor to external devices.

GRAFICAL REPRESENTATION



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


(Each question 5 Marks)

Q. No.	QUESTIONS	Marks	COs	KL	PO
2	Describe the register organization in 8085 microprocessor.	5	CO 4	K4	PO2
3	Explain the difference between the machine language and the assembly language of the 8085 microprocessor.	5	CO 4	K3	PO1
4	What are the advantages of segmented memory?	5	CO 3	K3	PO3
5	Define opcode and operand, and specify the opcode and operand in the instruction MOV H,L.	5	CO 5	K5	PO3
6	Explain the three machine control flags of 8086 microprocessor	5	CO 1	K4	PO1
7	Describe each type of interrupt with suitable example?	5	CO 2	K3	PO2

Section C (Answer any THREE out of FIVE) – 30 Marks-

(Each question Carry 10 Marks)

Q. No.	QUESTIONS	Marks	COs	KL	PO
8	Write algorithm and assembly level program to multiply two 8 bit numbers in 8085 microprocessor.	10	CO 5	K4	PO2
9	Draw functional block diagram of 8086 microprocessor.	10	CO 1	K2	PO4
10	Construct a neat and clean diagram for 8085 microprocessor Pin out and signals. Explain each signal and pin out in detail.	10	CO 2	K4	PO2
11	What is DMA? Explain the DMA based data transfer using DMA controller.	10	CO 5	K4	PO3
12	Draw the timing diagram for execution of the instruction STA 8000H.	10	CO 6	K4	PO2

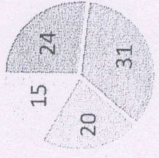
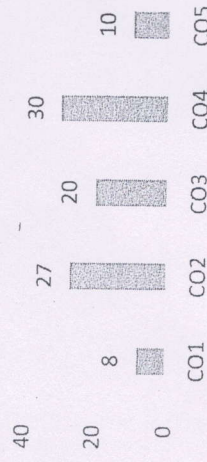
 ARKAJAIN University Jharkhand		END TERM EXAMINATION School of Engineering & IT	
Branch	Electrical and Electronics Engineering	Program	B.Tech
Subject Name	Electrical Energy Conservation and Auditing	Semester	5th
		Year	2022/Odd
• Start writing from 2nd page onwards; <u>don't Write on the 1st Page Backside</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 • Graf Paper / Drawing Sheet/ Log Book/ Ledger (please Mention if any) • 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
	K2 : Understanding		K4 : Analysing
		K5 : Evaluating	K6 : Creating

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

Q. N1	QUESTIONS	Marks	COs	KL	PO
i	Define Energy Audit.	2	CO1	K1	PO1
ii	Explain HVAC?	2	CO1	K2	PO1
iii	List four States where coal deposits are concentrated in India.	2	CO2	K1	PO1
iv	Define conventional and non-conventional energy source?	2	CO2	K1	PO1
v	Name the types of primary resources and secondary resources?	2	CO3	K1	PO1
vi	Name any two places of oil reserves located in India.	2	CO2	K1	PO1
vii	Summarize the examples of Non-renewable Energy.	2	CO2	K2	PO1
viii	Explain the factors affecting motor performance for energy saving opportunities	2	CO1	K2	PO1
ix	Define energy efficiency.	2	CO1	K1	PO1
x	Name the Energy Resources that are being used for many decades?	2	CO2	K1	PO1

CO1	Acquire the knowledge of fundamentals of economic operation of an electrical system.
CO2	Understand the concepts of energy management.
CO3	Apply the methods of improving energy efficiency in different electrical systems.
CO4	Analyse the concept of Transformer loading and Feeder loss evaluation methods, scheme for reactive power management, energy efficient illumination system.
CO5	Choose efficient control strategies, optimal selection, sizing, operation of variable speed drives like pumps and fans.
CO6	Create innovative energy conservation measures and optimal operation methods for electric load like air conditioning, refrigeration, geysers-solar water heaters, compressors, electrolytic process.

GRAFICAL REPRESENTATION

<p align="center">Bloom's Level Wise Marks Distribution</p>  <p align="center"> ■ K1 ■ K2 ■ K3 ■ K4 </p>	<p align="center">Course Outcomes Wise Marks Distribution</p> 
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Section B (Answer any FOUR out of SIX) – 20 Marks

(Each question 5 Marks)

Q. No.	QUESTIONS	Marks	Cos	KL	PO
2	Classify the steps involved in 'Energy management Strategy'?	5	CO4	K4	PO2
3	Explain 'energy management'. What is the objective of energy management?	5	CO3	K2	PO1 PO2
4	Explain the Total Harmonic Distortion and its effects on electrical system?	5	CO5	K2	PO2
5	Explain the status of non-conventional energy sources in India, and what are their future prospect.	5	CO4	K2	PO1
6	List the factors that affect energy efficiency in air compressors.	5	CO5	K3	PO2
7	Solve for the energy consumption of motor in one hour, when a 3-phase AC induction motor (20 kW capacity) is used for pumping operation. Electrical parameter such as current, volt and power factor were measured with power analyzer. (line volts. = 440 V, line current = 25 amps and PF= 0.90).	5	CO2	K3	PO1

Section C (Answer any THREE out of FIVE) – 30 Marks-

(Each question Carry 10 Marks)

Q. No.	QUESTIONS	Marks	COs	KL	PO
8	Explain the procedure for energy audit, step by step.	10	CO3	K2	PO2
9	Explain the following terms with three examples for each – a) Primary and Secondary Energy b) Renewable and Non-renewable Energy.	10	CO4	K2	PO1
10	Compare 'preliminary energy audit' and 'detailed energy audit'?	10	CO3	K3	PO1
11	Discuss the status of non-conventional energy sources in India, and their future prospect?	10	CO4	K4	PO2
12	Name three types of motors in industrial practice. What is the relation between RPM (speed) and frequency of an induction motor?	10	CO2	K1	PO1 PO12