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**University**  
Jharkhand



**END TERM EXAMINATION**  
School of Engineering & IT

Branch	Electrical and Electronics Engineering	Program	B.Tech
Subject Name	Project Management	Semester	VII
		Year	Nov/December 2024
Time: 3 Hour Max. Marks : 50	<ul style="list-style-type: none"> <li>• Start writing from 2nd page onwards; <b>don't Write on the 1st Page Backside</b></li> <li>• Answer all Questions of Section A (Compulsory)</li> <li>• Answer Any Four out of Six of Section B</li> <li>• Answer Any Three out of Five of Section C</li> <li>• 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></li> </ul>		
Knowledge Level (KL)	K1 : Remembering	K3 : Applying	K5 : Evaluating
	K2 : Understanding	K4 : Analysing	K6 : Creating

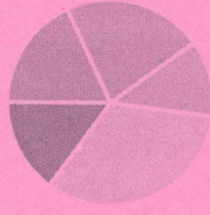
Section A (Each question Carry 02 Marks from Q1-i to Q1-x) – 20 Marks					
Q. N1	QUESTIONS	Marks	COs	KL	PO
i	Enlist the direct methods for demand estimation.	2	CO1	K4	PO3
ii	Write down the categories of projects that can be examined using the capital budgeting process.	2	CO2	K4	PO1
iii	What are the factors affecting profit?	2	CO2	K1	PO2
iv	Write any two Limitations of the Sample Survey.	2	CO1	K4	PO1
v	What do you mean by the Sample Survey Method?	2	CO1	K2	PO4
vi	Define the Average Rate of Return	2	CO2	K1	PO3
vii	Enlist the advantages and disadvantages of the Net Present Value Method	2	CO1	K1	PO2
viii	Define Marginal profit.	2	CO1	K4	PO1
ix	What are the Indicators for Measuring Income	2	CO3	K3	PO3
x	Enlist the categories of projects that can be examined using the capital budgeting process.	2	CO1	K1	PO2

<b>Section B (Answer any FOUR out of SIX) – 20 Marks</b> (Each question Carry 5 Marks)				
Q. No.	QUESTIONS	Marks	COs	KL PO
2	Define the Payback Period and also mention its advantages and disadvantages.	5	CO4	K3 PO4
3	Discuss in detail the major components of cost production.	5	CO3	K5 PO2
4	Differentiate between the Direct and indirect methods of demand estimation.	5	CO1	K3 PO4
5	Describe briefly the differentiated Methods of Sample Surveys.	5	CO2	K4 PO2
6	Describe briefly about Discounted Cash Flow Techniques.	5	CO3	K4 PO5
7	Explain briefly the different features of the market.	5	CO5	K4 PO4

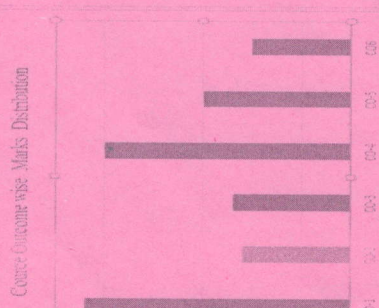
<b>Section C (Answer any THREE out of FIVE) – 30 Marks</b> (Each question Carry 10 Marks)				
Q. No.	QUESTIONS	Marks	COs	KL PO
8	Explain the characteristics of profit planning and control	10	CO4	K2 PO1
9	Explain briefly about Economic and Market Analysis	10	CO6	K2 PO2
10	Explain briefly about indirect methods of demand estimation	10	CO1	K1 PO2
11	Explain in detail the method of distribution and sales promotion.	10	CO5	K4 PO4
12	Explain briefly about investment evaluation criteria	10	CO4	K5 PO5

CO1	Recognize functions of management and practice in real world.
CO2	Understand the importance of projects and its phases
CO3	Apply crashing procedures for time and cost optimization.
CO4	Analyze projects from marketing, operational and financial perspectives
CO5	Evaluate projects based on discount and non-discount methods
CO6	Develop network diagrams for planning and execution of a given project

**Bloom's level wise Marks Distribution**



■ level-1 ■ level-2 ■ level-3  
■ level-4 ■ level-5





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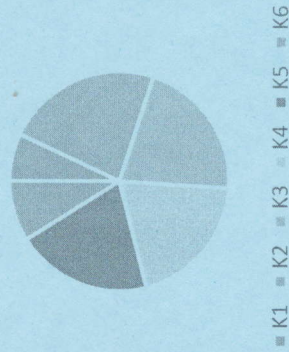
Branch	Electrical and Electronics Engineering	Program	B. Tech
Subject Name	Power Plant Engineering	Semester	VII
		Year	Nov/Dec 2024
Time: 3 Hour Max. Marks : 70	<ul style="list-style-type: none"> <li>Start writing from 2nd page onwards; don't Write on the 1st Page Backside</li> <li>Answer all Questions of Section A (Compulsory)</li> <li>Answer Any <u>Four</u> out of Six of Section B</li> <li>Answer Any <u>Three</u> out of Five of Section C</li> <li>Possession of <u>Mobile Phone</u> or any kind of <u>Written Material, Arguments with the Invigilator or Discussion with Co-Student</u> will come under <u>Unfair Means</u> and will <u>Result</u> in the <u>Cancellation of the Paper(s)</u>.</li> </ul>		
Knowledge Level (KL)	K1 : Remembering	K3 : Applying	K5 : Evaluating
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Section A (Each question Carry 02 Marks from Q1-i to x - 20 Marks)			
Q.N	QUESTIONS	Marks	COs
1			KL
i	Define the term "Load factor".	2	CO4 K1
ii	Define the term "Super Heater".	2	CO4 K1
iii	What are the purposes of Draught system?	2	CO4 K2
iv	Draw the circuit diagram for star connection.	2	CO1 K2
v	What is meant by Cooling Towers?	2	CO2 K3
vi	What are the Demerits of thermal power plants?	2	CO2 K2
vii	State Binary cycle.	2	CO5 K4
viii	What do you mean by Feed Water Treatment in thermal power plant?	2	CO1 K4
ix	Write down the importance of nuclear reactor?	2	CO3 K2
x	What is the use of moderator?	2	CO3 K2

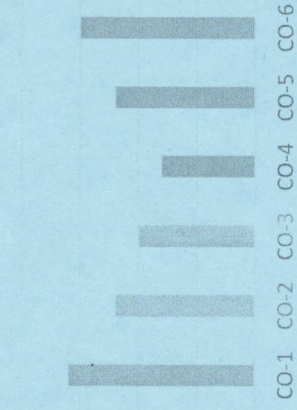
CO1	Define the working principle of Gas turbine power plant, its layout, safety principles and compare it with plants of other types.
CO2	Understand the working principle and basic components of the nuclear power plant and the economic and safety principles involved with it.
CO3	Utilize economics of power plants and list factors affecting the power plants.
CO4	Analyze the working and operation of steam power plants and the different systems comprising the plant and discuss about its economic and safety impacts.
CO5	Determine performance of different power plants based on load variations.
CO6	Choose different types of sources and mathematical expressions related to thermodynamics and improve factors involved with power plant operation.

**GRAPHICAL REPRESENTATION**

**Bloom's level wise Marks Distribution**



**Course Outcome wise Marks Distribution**



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

(Each question Carry 05 Marks)

Q. No.	QUESTIONS	Marks	COs	KL
2	Why the gas turbine power generation is more attractive than other power generation?	5	CO5	K2
3	Explain in detail about integrated gasifier based combined cycle systems.	5	CO4	K2
4	Write short notes on the "Boiling Water Reactor (BWR)".	5	CO6	K4
5	Write down the various processes of the Brayton cycle.	5	CO6	K4
6	Write about principle of nuclear energy and chain reaction.	5	CO2	K4
7	Write short notes on the "Pressurized Heavy Water Reactor (PHWR)".	5	CO1	K2

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

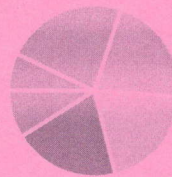
(Each question Carry 10 Marks)

Q. No.	QUESTIONS	Marks	COs	KL														
8	Discuss in detail about economic aspects of power generation.	10	CO2	K4														
9	A generating station has the following daily load cycle: <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Time in Hours:</th> <th>0-6</th> <th>6-10</th> <th>10-12</th> <th>12-16</th> <th>16-20</th> <th>20-24</th> </tr> </thead> <tbody> <tr> <td>Load in MW:</td> <td>40</td> <td>50</td> <td>60</td> <td>50</td> <td>70</td> <td>40</td> </tr> </tbody> </table> Draw the load curve and find (i) maximum demand (ii) units generated per day (iii) average load and (iv) load factor.	Time in Hours:	0-6	6-10	10-12	12-16	16-20	20-24	Load in MW:	40	50	60	50	70	40	10	CO4	K6
Time in Hours:	0-6	6-10	10-12	12-16	16-20	20-24												
Load in MW:	40	50	60	50	70	40												
10	Explain in details about the choice of site selection for Nuclear Power Station.	10	CO2	K4														
11	Explain the functioning of thermal power plant with its layout.	10	CO4	K6														
12	Write down the advantages and disadvantages of Hydroelectric Power Plant.	10	CO5	K4														

Course Outcomes	CO1	Select a suitable DC Motor and Power Electronic Converter package from description of drive requirement – involving load estimation, load cycle considerations, thermal aspects and motor converter matching
	CO2	Understand the characteristics of dc motors and properties chopper fed DC derive.
	CO3	Apply the principles of speed-control of dc motors.
	CO4	Analyze the characteristics of Induction motor and Scalar control or constant V/f control of induction motor.
	CO5	Examine& describe Operation of multi –quadrant dc machines and choppers.
	CO6	Design the power electronic converters used for dc motor and induction motor speed control.

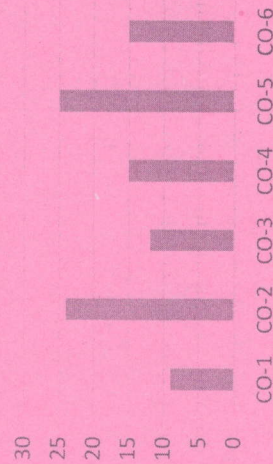
### GRAPHICAL REPRESENTATION

**Bloom's level wise Marks Distribution**



■ K1 ■ K2 ■ K3 ■ K4 ■ K5 ■ K6

**Course Outcome wise Marks Distribution**



CO-1 CO-2 CO-3 CO-4 CO-5 CO-6



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Branch	Electrical and Electronics Engineering	Program	B. Tech
Subject Name	Electrical Drives	Semester	VII
		Year	Nov/Dec 2024
Time: 3 Hour Max. Marks : 70	<ul style="list-style-type: none"> <li>Start writing from 2nd page onwards; don't Write on the 1st Page Backside</li> <li>Answer all Questions of Section A (Compulsory)</li> <li>Answer Any Four out of Six of Section B</li> <li>Answer Any Three out of Five of Section C</li> <li>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 Result in the <u>Cancellation of the Paper(s)</u>.</li> </ul>		
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	Define electrical drives. What are the advantages of electric drives?	2	CO4	K1
ii	Define the AC drives? What are the benefits of AC electric drives?	2	CO4	K1
iii	Define the DC chopper? What is meant by duty cycle?	2	CO4	K2
iv	What is meant by regenerative braking? What is meant by plugging?	2	CO1	K2
v	What are the motors used in electric drives? Mention the necessity of power rating	2	CO2	K3
vi	What is meant by group drive? Give an example	2	CO2	K2
vii	What is meant by individual drive? Give an example.	2	CO5	K4
viii	What is meant by multi-motor drive? Give an example.	2	CO1	K4
ix	What is meant by intermittent periodic duty with electric braking?	2	CO3	K2
x	Draw the circuit diagram of dual converter?	2	CO3	K2

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

Q. No.	QUESTIONS	Marks	COs	KL
2	Explain with the help of circuit diagram the static rotor resistance for speed control of induction motor then derive the equation of equivalent added resistance.	5	CO5	K2
3	Explain with the help of circuit diagram the slip power recovery of three phase induction motor then derive the equation of the slip in this method.	5	CO4	K2
4	Draw the circuit diagram of class D chopper and explain it. And Draw the circuit diagram of class A chopper and explain it.	5	CO6	K4
5	Draw the circuit diagram of class B chopper and explain it. And Draw the circuit diagram of class C chopper and explain it.	5	CO6	K4
6	Draw the simplified trapezoidal speed time curves of the main line service	5	CO2	K4
7	Example: An induction motor has a final steady-state temperature raise of 50°C when running at its rated output. Calculate its half-hour rating for the same temperature raise (50°C) if the copper losses at the rated output are 1.5 times its constant losses. The heating time constant is 60 min.	5	CO1	K2

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

Q. No.	QUESTIONS	Marks	COs	KL
8	A single phase full wave half-controlled bridge converter (semi converter) is used to control the speed of separately excited shunt motor rated at 220 V, 1500 rpm. The converter is connected to a single phase 220 V, 50 Hz supply. The armature resistance is 0.5 Ohm. The motor voltage constant is 0.1 V/rpm. The motor runs at 1200 rpm and carries an armature current of 16 A. Assume that the motor current is continuous and ripple free, determine: i) The firing angle. ii) The power delivered to the motor. iii) The supply current.	10	CO2	K4
9	The speed of DC series motor is controlled by Single Phase Full Wave Half Controlled Bridge Converter (Single Phase Semi Converter) supplied from 240 V AC supply. The combined armature and field resistance is 0.3 Ω. Assuming continuous and ripple free motor	10	CO4	K6

10	current with speed of 1000 rpm and $K = 0.03 \text{ Nm/amp}^2$ . For a firing angle of 35°. determine motor current & motor torque. A Step-down chopper is used to control of DC series motor from 220 V supply. armature and field resistances are 0.02 and 0.01 Ω respectively. Armature current is 100 A and chopper frequency is 200 Hz. Calculate the pulse width if the average value of back emf is 50 V.	10	CO2	K4
11	Explain four quadrant operation in motor drives with diagram	10	CO4	K6
12	Explain slip power recovery control of slip-ring Induction motor	10	CO5	K4



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Branch	Electrical & Electronics Engineering	Program	B.Tech
Subject Name	Analog & Digital communication	Semester	VII
		Year	Nov/Dec 2024
Time: 3 Hour Max. Marks : 70	<ul style="list-style-type: none"> <li>Start writing from 2nd page onwards; don't Write on the 1st Page Backside</li> <li>Answer all Questions of Section A (Compulsory)</li> <li>Answer Any Four out of Six of Section B</li> <li>Answer Any Three out of Five of Section C</li> <li>Possession of Mobile Phones or any kind of Written Material, Arguments with the Invigilator or Discussing with Co-Student will come under <u>Unfair Means</u> and will <u>Result in the Cancellation of the Papers.</u></li> </ul>		
Knowledge Level (KL)	K1 : Remembering	K3 : Applying	K5 : Evaluating
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Section A (Each question Carry 02 Marks from Q1-i to x) – 20 Marks					
Q. N1	QUESTIONS	Marks	Cos	KL	PO
i	Define the process of modulation.	2	CO1	K1	PO1
ii	Describe the concept of de-emphasis.	2	CO2	K2	PO1
iii	List the methods used for demodulating DSB-SC signals.	2	CO3	K2	PO3
iv	What is the bandwidth of a DSB-SC signal?	2	CO2	K3	PO4
V	Describe the methods used to generate SSB-SC signals.	2	CO3	K4	PO2
vi	Define multiplexing.	2	CO2	K2	PO1
vii	Explain the synchronous detection method.	2	CO6	K5	PO2
viii	What are the types of pulse time modulation?	2	CO5	K6	PO1
ix	Define pulse code modulation.	2	CO6	K4	PO5
x	What is a coherent digital modulation technique?	2	CO6	K6	PO5

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

(Each question Carry 5 Marks)

Q. No.	QUESTIONS	Marks	Cos	KL	PO
2	Explain delta modulation and include an appropriate diagram to support your explanation.	5	CO5	K6	PO4
3	Derive the mathematical expression for single-tone amplitude modulation.	5	CO3	K5	PO2
4	Provide a derivation for the expression used in phase modulation.	5	CO2	K4	PO5
5	Derive the power relation for single-tone amplitude modulation.	5	CO1	K3	PO1
6	Explain Amplitude Shift Keying (ASK) and illustrate with a waveform.	5	CO6	K1	PO3
7	Describe the low-level and high-level methods of AM modulation, using diagrams to illustrate.	5	CO1	K3	PO1

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

(Each question Carry 10 Marks)

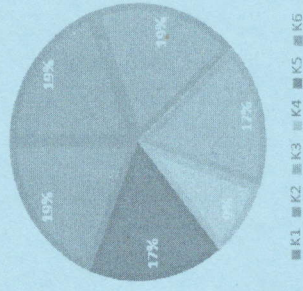
Q. No.	QUESTIONS	Marks	Cos	KL	PO
8	Derive the mathematical expression for angle modulation.	10	CO1	K1	PO1
9	Derive an expression to show how power wastage could be minimized in an AM system.	10	CO4	K3	PO2
10	Discuss a demodulation technique for a DSB-SC signal.	10	CO5	K6	PO5
11	Illustrate and explain the different formats of Pulse Amplitude Modulation (PAM) signals.	10	CO2	K5	PO4
12	Describe the process of generating and detecting Amplitude Shift Keying (ASK) signals.	10	CO3	K2	PO3

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

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**

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