



Dr. Babasaheb Ambedkar Technological University, Lonere  
P.V.P. Institute Of Technology, Budhgaon-416304

**DEPARTMENT OF ELECTRICAL ENGINEERING**

Ref No:

Date: 03/04/2024

**Notice**

All the students of SY and TY Electrical Engineering department are hereby informed that **Mid Semester Exam** is scheduled from 19<sup>th</sup> April 2024 to 23<sup>rd</sup> April 2024.



The detail schedule for the examination is as follows:

All should take note of same.

Day & Date	Time	Class	Subject Code	Subject
FRIDAY 19/04/2024	11:00 am to 12:00 pm	SY	BTECC401	Network Theory
		TY	BTEEC601	Switchgear and Protection
	03:00pm to 04:00 pm	SY	BTECC402	Power System-I
		TY	BTEEC602	Electrical Machine Design
MONDAY 22/04/2024	11:00 am to 12:00 pm	SY	BTECC403	Electrical Machines-II
		TY	BTEEC603	Control System Engineering
	03:00pm to 04:00 pm	SY	BTECPE404	Computer Algorithm / ARES
		TY	BTEEPE604	Smart Grid Technology
TUESDAY 23/04/2024	11:00 am to 12:00 pm	SY	BTECC405	Computer Architecture and Operating System / ADE
		TY	BTEEOE605	Power Plant Engineering
	03:00pm to 04:00 pm	SY	BTHM402	Universal Human Values-II

**Note:**

- Students should be in proper dress code with institute ID.
- Students shall not permit to attain the test, after 10 minutes.

	
<b>Exam Coordinator</b>	<b>Head of Department</b>

**H.O.D.**  
Dept of Electrical & Comp.Engg.  
P.V.P.I.T. Budhgaon

**DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE**

**MSE Examination –April 2024**

**Course: T.Y in Electrical Engineering Sem: II**

**Subject Name: ELECTRICAL MACHINE DESIGN Subject Code: BTEEC602**

**Max Marks:20 Day &Date:- /04/2024 Duration:- 1 Hr.**

**Instructions to the Students:**

1. All questions are compulsory
2. Write all the answers with neat labeled diagram.
3. Figures to the right indicates full marks

		(Level/CO)	Marks
<b>Q.1</b>	<b>Solve any two of the following.</b>		<b>4 X 2</b>
(A)	State the various properties of Insulating materials use for the electrical machine	CO1/1	
(B)	Explain various limitation in Machine Design	CO1/3	
(C)	State the various methods of cooling electrical machine. Explain any one method of Transformer cooling.	CO2/3	
<b>Q. 2</b>	<b>Solve any two of the following.</b>		<b>6X2</b>
(A)	Explain the different modes of the heat dissipation in the electrical machine	CO1/3	
(B)	Develop the single layer winding for 24 slots and 4 pole Three phase Star connected AC Machine	CO2/4	
(C)	Determine the main dimensions of the core of a 5 KVA, 11000/1400 volts, 50Hz single phase core type distribution transformer having the following data: Thenet conductor area in the window is 0.6 times the net cross- sectional area of iron in thecore. The core is of square cross section, maximum flux density is 1 wb/m <sup>2</sup> Current density is 1.4 A/mm <sup>2</sup> . Window space' factor is 0.2. Height of the window is 3 times its width.	CO4/4	

**\*END\***

  
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P.V.P. Institute Of Technology, Budhgaon-416304

Academic Year:

MID SEM EXAM

Block No.

Class: T.Y. ELECTRICAL

EMP

Course & Code:

Roll No.	Sign of Student
3001	— AB —
3002	H.A.kadam
3003	R.M.H.
3004	<del>Rajmane</del>
3005	<del>JS</del>
3006	R.D.lonare
3007	<del>Don</del>
3008	<del>spatidar</del>
3009	<del>Kumbhkar</del>
3010	<del>Amasole</del>
3011	<del>Suri</del>
3012	<del>Patil</del>
3013	<del>Ketribho</del>
3014	<del>Khandak</del>
3015	<del>ASB</del>
3016	Aadhav
3017	<del>Isar</del>
3018	<del>Pahet</del>
3019	<del>Kui</del>
3020	Omaste
3021	Shinde
3022	Aashish
3023	Rulkar
3024	P.V.desh
3025	<del>AKR</del>
3026	<del>Shamgar</del>
3027	<del>AS</del>
3028	Asikule
3029	SB
3030	NRPatil
3031	<del>Shinde</del>
3032	<del>Hasle</del>
3033	<del>Lamjafulla</del>
3034	<del>Sepe</del>

Roll No.	Sign of Student
3035	<del>AKR</del>
3036	<del>Ambar</del>
3037	<del>diyal</del>
3038	<del>Omaste</del>
3039	<del>Michavan</del>
3040	A.R.Jamdade
3041	— AB —
3042	<del>Wadhav</del>
3043	<del>SC</del>
3044	<del>Patil</del>
3045	A.V.Jagtap
3046	<del>Korby</del>
3047	<del>Shinde</del>
3048	<del>Patil</del>
3049	<del>Madgave</del>
3050	<del>Patil</del>
3051	S.Patil
3052	<del>AS</del>
3053	<del>Rajmane</del>
3054	SAB
3055	K.S.Jadhav
3056	<del>Shinde</del>
3057	<del>NRPatil</del>
3058	<del>SH</del>
3059	<del>PA</del>
3060	S.P.mane
3061	<del>TR</del>
3062	<del>RST</del>
3063	P.P.V.
3064	<del>P.S.nigde</del>
3065	<del>Patil</del>
3066	<del>Patil</del>
3063	<del>Patil</del>

*(Signature)*  
H.O.D.



Dr. Babasaheb Ambedkar Technological University, Lonere  
P.V.P. Institute Of Technology, Budhgaon-416304

Academic Year:

MID SEM EXAM

Block No.

3064	
3065	
3066	
3067	<u>Entil</u>
3068	
3069	
3070	
3071	
3072	
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3074	
3075	
3076	

Class	47	
Present	65	
Absent	02	
Total	66	

*P. S. S. Patil*  
Name & Sign of Supervisor

*Patil*  
H.O.D.

Dept of Electrical & Comp. Engg.  
P.V.P.I.T. Budhgaon



DR. V.P.S.S.M.'S

Padmabhooshan Vasanthaodada Patil Institute of Technology,  
Budhgaon - 416304, Tal: Miraj, Dist: Sangli

Test Examination : First / Mid / Second / POE : Academic Year 2023 2024.

Name of Student : Vaishnavi Uttam Raisale	
Department : Electrical Eng.	Class : T.Y (Btech) Semester: 6 <sup>th</sup> .
Subject : EMD.	Date : 19/04/2024.
Roll No. : 3032	PRN : 226269128357.
Signature of Supervisor :	

Q. No.	1	2	3	4	Total	Sign.
Marks	03	03	05	04	15	

PRV-20K/OCT 23

Q.1

A Properties of Insulating Material.

Insulating material are that type of material which opposes the flow of current through it.

We use the insulating material for where there is needed of or the failure of conducting material.

properties of Insulating Material:

1) It should High dielectric strength.

→ these property states that the opposition for electricity should be High.

Above these dielectric strength material starts conducting.

2) High resistivity:

These property also tells about the resistance of material is High.

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3) low resistance temp. coefficient:-

→ With variation in temp. the resistance should not vary.

4) High melting point:-

→ The melting point of insulation should be high so that at high temp it could not melt.

5) High mechanical strength:-

→ For rotating m/c insulation can be withstand with vibrations.

6) High Breakdown Strength

→ the material Breakdown at highest value.

7) High wear & tear.

8) It should be flexible.

9) the cost of material should less.

B) while designing a machine, a some factor like current density, mechanical strength, saturation these become a limitation factor.

1) Saturation:-

When we have good flux density the volume of required is less but it pushes iron to operate beyond its

Magnetization. due to these material gets saturated & Iron loss takes place. So losses are increased, as well as Hysteresis loop Area become larger & Hysteresis losses increases.

### 2) Current density

High current density also require less volume but it increases I<sup>2</sup>R losses in machine.

### 3) Mechanical strength

while designing large m/c the mechanical strength become limitation. for large m/c mech strength is poor.

### 4) Insulation

Insulation is also affect on m/c design. Insulation provide ↑ between conductor.

### 5) efficiency & p.f.

When efficiency of m/c is High. According to that m/c design should be required. for larger m/c High effi. Not possible. So it impact on effi. & p.f.

### 6) Commutation

poor commutation affect on m/c performance.

Q2

A]. Modes of Heat dissipation.

How the Heat is dissipated through one body to another according to that Heat dissipation method classified.

A conduction

In any ele. m/c or equipment when losses are created due to these losses the temp. of machine is increased & Heat produced.

there are No. of methods accordingly the type of machine to reduce the Heat. & for these we use 3 Modes of Heat dissipation.

- 1) conduction.
- 2) convection
- 3) Radiation.

i) conduction :-

In these Heat transfer method, the Heat is transferred to one conducting body to another directly.

as we know Heat is transfer from Hotter Body to colder Body.

And it's not stop till the temperature of both Bodies becomes equal.

for ex)

In transformer we immersed in oil of trans. tank. these oil dissipated



the Heat energy in wdg. By the Conduction method.

also in our Home for Boiling water we put a pot on gas directly. the pot of the Fire these is also the ex. of Conduction.

### 2) Convection

In these method Heat is transferred through gas or fluid molecules.

while heating these <sup>Hot</sup> particles are goes on & then cold particles get Hot.

the oil in xmer become Hotter & goes in Conservator tank.

also the Boiling water in pot it is an example of convection method.

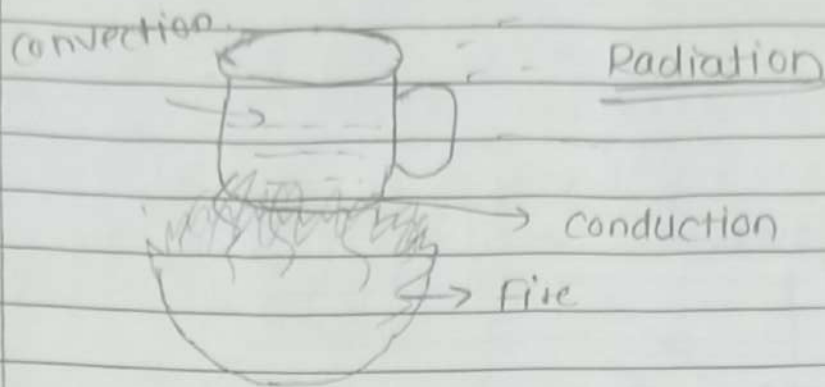
### 3) Radiation

In these method there is no physical or direct contact between two bodies. the electromagnetic waves which are radiating the Hot Body, causes the surrounding area Hotter.

In Radiation both bodies are not connected but they feel Hotter due to radiating waves.

for ex: the Filament lamp.

OR Near setting just the fire feel Hot. it is also an example of Radiation.



B)  
 slots = 24  
 poles = 4.

i) pole pitch =  $\frac{\text{slots}}{\text{poles}} = \frac{24}{4} = \underline{6}$ .

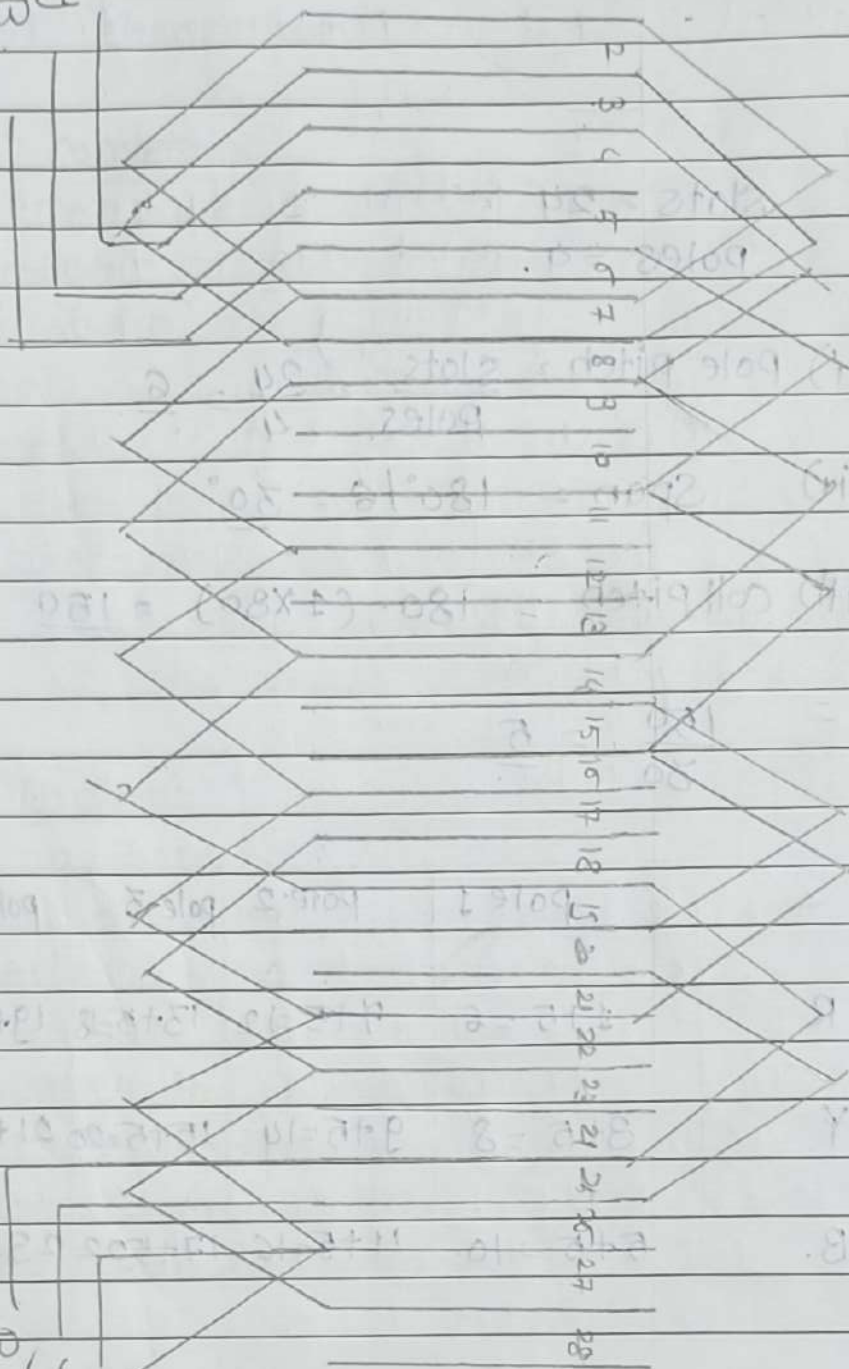
ii) Span =  $180^\circ / 6 = \underline{30^\circ}$

iii) coil pitch =  $180 - (1 \times 80) = \underline{100}$

=  $\frac{100}{20} = \underline{5}$ .

	pole 1	pole 2	pole 3	pole 4
R	1+5=6	7+5=12	13+5=18	19+5=24
Y	3+5=8	9+5=14	15+5=20	21+5=26
B.	5+5=10	11+5=16	17+5=22	23+5=28

ω<sub>CC</sub> →



ω<sub>CC</sub> →

T.Y.B.TECH ELECTRICAL ENGG						
MSE 2023-2024						
ROLL NO	NAME OF STUDENT	SAP	EMD	CSE	SGT	PPE
3001	SATWSHILA VILAS SARGAR	AB	AB	ABSENT	AB	AB
3002	HARSHVARDHAN ANANDA KADAM	4	2	4	10	11
3003	ROHAN MAHADEV HARGE	2	1	2	4	12
3004	ATHRAV VIVEK RAJMANE	4	9	3	13	11
3005	BASVESHVAR VITTHALRAO VANJIRE	19	10	3	20	19
3006	RITESH DEVIDAS LONARE	11	9	5	18	20
3007	DADASO HANMANT HONMANE	7	8	3	11	16
3008	ADITYA SUNIL POTADAR	14	11	2	17	20
3009	SHUBHAMRAJE SUNIL NIMBALKAR	6	11	1	12	19
3010	ASHISH SANTOSH MASALE	20	11	12	16	20
3011	SANKET SUHAS PATIL	2	5	0	2	13
3012	SATYA JEET PANDURANG PATIL	4	9	1	2	13
3013	SHRAVAN LALASO HATTIKAR	0	5	0	2	13
3014	CHAITANYA VIJAY KIRDAT	16	10	9	16	16
3015	AVISHKAR RAMCHANDRA KIRDAT	16	8	8	14	18
3016	ABHIJEET LAXMAN JADHAV	17	6	8	17	18
3017	DHAIRYASHIL DATTAJIRAO DUBAL	9	10	6	12	15
3018	RAHUL ANIL GIDD	17	9	6	17	20
3019	GURUPAD SHIVAPPA AWATI	10	9	6	11	13
3020	NISHIKANT NAMDEV MASKE	10	9	5	2	13
3021	DIVYA YUVRAJ SHINDE	19	11	19	19	19
3022	AASHISH MILIND GORE	15	12	14	13	18
3023	PRAJIT PARASHURAM KOLEKAR	17	11	5	12	18
3024	PRATIK VINAYAK DESAI	9	10	0	13	14
3025	CHETAN ANILKUMAR KAMBLE	14	11	10	16	20
3026	SAGAR BHASKAR YAMGAR	11	12	11	14	17
3027	ROHIT BALU GAIKWAD	4	10	2	14	10
3028	ABHISHEK SUNIL VADAVANE	9	8	4	15	17
3029	SHWETA VIJAY SONAVANE	19	13	16	19	20
3030	NISHANT BHARAT PATIL	7	6	0	11	11
3031	ABDUSAMAD SALIM NADAF	3	8	0	13	13
3032	VAISHNAVI UTTAM RASALE	20	15	17	20	20
3033	TASMIYA FIROJKHAN MULLA	12	13	12	20	19
3034	TRUPTI CHANDRAKANT ZAMBRE	20	14	19	18	20
3035	AKASH SHASHIKANT SONAWANE	11	8	2	14	14
3036	SHWETA DASHRATH NIMBALKAR	20	14	20	19	20
3037	DIVYA NITIN MANE	20	12	14	20	18
3038	ONKAR PRAKASH HAKE	3	3	0	6	10
3039	MANGAL SITARAM CHAVAN	9	9	0	14	17
3040	ARPITA RAMESH JAMDAR	9	5	10	11	14
3041	YASH SHARAD KARNALE	AB	AB	ABSENT	AB	AB
3042	SAKSHI DATTATRAY VIDHATE	15	8	4	14	12
3043	SHREYAS SANTOSH KULKARNI	7	8	2	13	11
3044	SAI PRASAD JAMDAR	14	7	2	18	16
3045	ADITI UDAY JAGTAP	12	8	3	19	14
3046	TUSHAR ASHOK KADAM	16	12	12	16	17
3047	ANIKET MAHADEV KOLI	11	5	3	10	17

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3048	SONAL MOHAN PATIL	4	6	0	13	12
3049	TANMAY TAVANAPPA VADGAVE	5	1	2	10	9
3050	SAKSHI UDAY PATIL	12	7	6	15	11
3051	SHANKAR RAMCHANDRA PATIL	8	7	0	13	9
3052	ATHARV GANESH SHINDE	8	7	0	13	10
3053	PRADNYA DNYANDEV RAJMANE	10	8	10	17	16
3054	SHAILA VIJAY BORAMANIKAR	2	4	0	8	11
3055	KAJAL SHASHIKANT JADHAV	10	9	11	18	18
3056	SHREYA MANAJI SALUNKHE	9	10	0	10	16
3057	NIKITA ANANDRAO PATIL	12	9	8	13	20
3058	SHIVRAJ JAGNNATH TOPKAR	12	11	5	17	18
3059	GIRISH GAJANAN BELKAR	8	8	0	10	10
3060	SOURABHA RAGHUNANDAN MANE	7	8	0	9	11
3061	VIVEK RAJENDRA JADHAV	2	8	0	11	8
3062	PRATHAMESH SHASHIKANT TASHILDAF	12	6	0	14	15
3063	PRATHMESH PRAMOD VASUDEV	14	5	2	11	15
3064	PRATHMESH SUBHASH INGALE	12	6	1	13	14
3065	RUTUJA JANARDHAN PATIL	13	10	2	18	14
3066	SATYAJEET SACHIN PATIL	12	7	3	12	3
3067	SOURABH PATIL	13	6	4	6	4
	No. of Students Appeared	65	65	65	65	65
	No. of Students Absent	2	2	2	2	2
	No. of Students Pass	47	44	19		65
	No. of Students Fail	18	21	46		0
	Result (%)	72.3	67.69	70.76		100
	NAME OF FACULTY	NSP	SKS	SNP	MVD	SYG

*Patil*  
Exam- Coordinator

*Baru*  
H.O.D.  
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