In Pursuit of Excellence	**Course and Faculty Details**	SESSION-2019-2020 SEM- Ist

Faculty Details

Name of the Faculty:	Mr. Saurabh Saxena
Designation:	Assistant Professor
Department:	Electrical Engineering Department

Course Details

Name of the Program:	Bachelor of Technology
Batch:	2019-23
Branch:	CE, EE, ECE, ME, CS
Section:	E
Name of Subject:	Basic Electrical Engineering
Subject Code:	KEE-101
Category of Course:	Core Subject

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M.I.T., Moradabad

Dr. Rajul Misra
H.O.D.
Electrical Engineering Department

In Pursuit of Excellence	**Index**	SESSION-2019-2020 SEM- Ist

Dr. Manish Saxena
HOD (ASH)
M.I.T., Moradabad

Vision

To develop industry ready professionals with values and ethics for global needs.

Mission

- To impart education through outcome based pedagogic principles.
- To provide conducive environment for personality development, training, and entrepreneurial skills.
- To induct high professional ethics and accountability towards society in students.

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Vision

To achieve excellence in imparting education in the field of Electrical Engineering by creating competent professionals for Industry, Academia & Socio-economic development to meet National and International needs.

Mission

To provide students with supportive environment that facilitates learning to solve the problems in the field of electrical engineering and to prepare them to be successful and ethical human beings as well as professionals as they move to industry, academia and other professions.

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Department Program Educational Objectives (PEOs)

1. Develop Electrical Engineering core competence to enable our students to approach problems systematically, to communicate and interact effectively with engineers in different specialization and to make technology decisions with confidence.
2. Produce graduates with the necessary background and technical skills to work professionally in one or more of the following areas: power system, power electronics, electrical machines, control systems and electrical drives.
3. Instill in our students optimism self confidence, a high degree of personal integrity, and the belief that each of them can make a difference.
4. Upholding the importance of professionalism and ethics in Electrical Engineering professions to form a cultured and more developed society.

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Program Outcomes (POs):

1. **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization for the solution of complex engineering problems.

2. **Problem analysis:** Identify, formulate, research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

3. **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for public health and safety, and cultural, societal, and environmental considerations.

4. **Conduct investigations of complex problems:** Use research based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of information to provide valid conclusions.

5. **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modeling to complex engineering activities, with an understanding of the limitations.

6. **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

7. **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

9. **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

10. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with the society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

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11. Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

12. Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

11. Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

12. Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Dr. [illegible] xena
[illegible] (ASH)
M.I.T., Moradabad

In Pursuit of Excellence	**Program Specific Outcomes**	SESSION-2019-2020 SEM- Ist

After completing their graduation, students of Electrical Engineering will be able to -

PSO1: Apply the knowledge acquired to identify, formulate and solve problems of Electrical Engineering systems for the benefit of society.

PSO2: Demonstrate the concepts in designing, testing, and maintenance of electric machines and development of Electrical Engineering systems.

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In Pursuit of Excellence	Academic Calendar	SESSION-2019-2020
		SEM- Ist

→ See on next page

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Moradabad Institute of Technology

Ramganga Vihar Phase – II, Moradabad

ACADEMIC CALENDAR

ODD Semester — Session: 2019 – 2020

S. No.	Particulars	Date	Responsibility
1.	**Time Table** (a) Display on Notice Boards (b) Distribution to concerned Teachers	 29 July 2019 29 July 2019	O.C. Time – Table
2.	Distribution of class lists to teachers	29 July 2019	O.C. Class / DR
3.	**Registrations** (a) 3rd / 5th /7th Semester (b)List of unregistered students to various department (c) Notifying unregistered students for getting registered at the earliest (through class O.Cs. / Faculty)	 1,2,3 Aug.2019 20 Aug 2019 22 Aug 2019	 Concerned Teachers OS Academic Concerned HODs
4.	**Commencement of Classes** 3rd / 5th / 7th Semester	2,3,4 Aug.2019	Concerned Teachers
5.	Blow up submission to HODs	30 July 2019	Concerned Teachers
6.	Announcement of Test series dates	16Aug 2019	Dean Academics
7.	(a) Collection of Examination forms from University and announcement of date for availability of forms (b) Last date for submission of forms to office (c) Submission of forms to University	30 Aug 2019**	OS Academic to take timely action as per University directions.
8.	Announcement of stationery & materials for Test Series in full semester (a) Requirement (b) Actual Procurement	 31 Aug 2019 5 Sept 2019	Convener Test Series Committee O.S. Academics
9.	(a)Short attendance compilation and information to parents and undertaking format handed over to students (b)Collection of Short attendance undertaking	09 Sept 2019 11 Sept 2019	O.C. Class
10.	1st Test Series Thu, Fri, Sat	12, 13,14, Sept 2019	
	(a) Announcement of Test Series schedule, Invigilation Programme, Seating Arrangement etc.	11 Sept 2019	Class Test Committee
	(b) After completion of Test Series- Evaluation of test copies & sharing of copies to students (c) Submission of test copies in Nodal Centre (d) Report of poor performance of students to class OCs	21 Sept 2019 25 Sept 2019 26 Sept 2019	Concerned Teachers Concerned Teachers Concerned Teachers
	(e)Short attendance compilation, display on notice board and information to parents	19 Oct 2019	O.C. Class
	2nd Test Series Wed, Thus, Fri	23,24, 25 Oct 2019	
	(a) Announcement of Test Series schedule, Invigilation Programme, Seating Arrangement etc.	22 Oct 2019	Class Test Committee

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	(b) After completion of Test Series - Evaluation of test copies & showing of copies to students (c) Submission of test copies in Nodal Centre (d) Report of poor performance of students to class OCs	02 Nov 2019 04 Nov 2019 05 Nov 2019	Concerned Teachers Concerned Teachers Concerned Teachers
12.	Filling of student feedback forms for current semester	27 Nov 2019	Concerned HODs
13.	Requirement of additional Faculty (to be conveyed to Director) (for even semester)	30 Nov 2019	Concerned HODs
14.	(a) Floating the electives for even semester (b) Last date for students choice	26 Nov 2019 30 Nov 2019	Concerned HODs
15.	Announcement of dues list and its last date for clearing dues (Current semester)	**22 Oct 2019**	Accounts/ OS Academic
16.	Date up to which final attendance is to be counted	29 Nov 2019	Concerned teachers
17.	Submission of consolidated list of shortage of attendance to Director and information to Parents	30 Nov 2019	Class O.Cs
18.	**3rd Test Series** **Thu, Fri, Sat**	**28,29,30 Nov 2019**	
	(a) Announcement of Test Series schedule, Invigilation Programme, Seating arrangement etc.	27 Nov 2019	Class Test Committee
	(b) After completion of Test Series- Evaluation of test copies & showing of copies to students (c) Submission of test copies in Nodal Centre (d) Report of poor performance of students to class OCs	03 Dec2019 04 Dec 2019 04 Dec 2019	Concerned Teacher Concerned Teachers Concerned Teachers
19.	**Submission of sessional marks:** (a) Meeting of Dean Academics, all HODs and Director regarding attendance and performance of students.	04 Dec 2019	Dean Academics
	(b) Checking of Teachers' Records by HODs	05 Dec 2019	Concerned HODs
	(c) Finalization of sessional marks	05 Dec 2019	Concerned Teachers
	(d) Submission of Award list after final checking and uploading to OS Academics for further necessary action	As per date announced by AKTU	HODs Concerned Teachers
20.	**Theory Examinations:** (a) Collection of Admit Cards / Roll Nos. from University (b) Preparation of Roll lists (c) Collection of stationery such as copies, practical copies drawing sheets, graph paper etc. from University. (c) Procurement of stationery and other materials locally as necessary.	As per AKTU schedule	OS Academics to take appropriate actions as per University directions.
21.	**Practical Examinations:**	As per AKTU schedule	Concerned HODs
	(a) Appointment of Internal Examiners	3 days before the practical exam schedule	Concerned HODs
	(b) Obtaining list of panel of External Examiners from AKTU & preparation of schedule of practical examination	As per AKTU schedule	OS Academics
	(d) Dispatch of letters/ emailing the external examiners	Within 2 days of list obtained from AKTU	HODs and concerned teachers

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22.	**Preparation for Even Semester** (a) Load Distribution by Department (b) Submission to O.C. Time-Table (c) Display of Time Table on Notice Board	10 Dec 2019 12 Dec 2019 18 Jan 2020	Concerned Coordinators O.C. Time Table
23.	Registration for Even semester [2019 – 20]	To be announced**	OS Academic
24.	Announcement of Academic calendar for Even semester [2019 – 20]	5 Days before the start of Even sem.	Dean Academics

**May be revised as per AKTU Schedule.

27.7.2019

Dean Academics

Director

Copy to:

1. Chairman	2. Secretary	3. P.A. to Director for Director's folder
4. All HODs	5. DOSW	6. Controller Examination
7. Associate Dean Academics	8. Registrar	9. All Faculty Members through HODs
10. O.S. Academics	11. A.S. Examinations	12. Accounts Section
13. T & P Cell	14. Librarian	15. Convener Test Series/ O.C. Time Table

HOD (A&H)
M.I.T. Moradabad

In Pursuit of Excellence	**Course Evaluation Scheme**	SESSION-2019-2020 SEM- Ist

B. Tech 1st Year (All branches except Bio Technology and Agriculture Engg.) Structure in accordance with AICTE Model Curriculum Effective w.e.f. Academic Session 2018-19

SEMESTER - I

Sl. No	Code	SUBJECT	PERIODS			EVALUATION SCHEME				END SEMESTER		TOTAL	CREDIT
			L	T	P	CT	TA	Total	PS	TE	PE		
3 WEEKS COMPULSORY INDUCTION PROGRAM													
1	KAS101 KAS102	Physics Chemistry	3	1	3	30	20	50	25	100	25	200	5.5
2	KAS103	Mathematics-I	3	1	0	30	20	50	-	100	-	150	4
3	KEE 101 KCS101	Basic Electrical Engineering Programming for Problem Solving	3	1	2	30	20	50	25	100	25	200	5
4	KCE101 KWS101	Engineering Graphics & Design Workshop Practices	1	0	4	-	-	-	25	-	25	50	3
	MOOCs (For B.Tech. Hons. Degree)*												0
		TOTAL										600	17.5

SEMESTER II

Sl. No.	Code	SUBJECT	PERIODS			EVALUATION SCHEME				END SEMESTER		TOTAL	CREDIT
			L	T	P	CT	TA	Total	PS	TE	PE		
1	KAS201 KAS202	Physics Chemistry	3	1	3	30	20	50	25	100	25	200	5.5
2	KAS203	Mathematics II	3	1	0	30	20	50	-	100	-	150	4
3	KEE201 KCS201	Basic Electrical Engineering Programming for Problem Solving	3	1	2	30	20	50	25	100	25	200	5
4	KCE201 KWS201	Engineering Graphics & Design Workshop Practices	1	0	4	-	-	-	25	-	25	50	3
5	KAS204	Professional English	2	0	2	30	20	50	-	100	-	150	3
	MOOCs (For B.Tech. Hons. Degree)*												0
		TOTAL										750	20.5

Mini Project or Internship (3-4 weeks) shall be conducted during summer break after II semester and will be assessed during III semester

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In Pursuit of Excellence	**Course Syllabus as per University and Adopted by Institute**	SESSION-2019-2020 SEM- Ist

Basic Electrical Engineering Syllabus

Module - 1: DC Circuits [08]

Electrical circuit elements (R, L and C), Concept of active and passive elements, voltage and current sources, concept of linearity and linear network, unilateral and bilateral elements, Kirchhoff"s laws, Loop and nodal methods of analysis, Star-delta transformation, Superposition theorem, Thevenin theorem, Norton theorem.

Module - 2: Steady- State Analysis of Single Phase AC Circuits [10]

Representation of Sinusoidal waveforms – Average and effective values, Form and peak factors, Concept of phasors, phasor representation of sinusoidally varying voltage and current.
Analysis of single phase AC Circuits consisting of R, L, C, RL, RC, RLC combinations (Series and Parallel), Apparent, active & reactive power, Power factor, power factor improvement. Concept of Resonance in series & parallel circuits, bandwidth and quality factor.
Three phase balanced circuits, voltage and current relations in star and delta connections.

Module - 3 : Transformers [08]

Magnetic materials, BH characteristics, ideal and practical transformer, equivalent circuit, losses in transformers, regulation and efficiency. Auto-transformer and three-phase transformer connections.

Module –4 : Electrical machines [08]

DC machines: Principle & Construction, Types, EMF equation of generator and torque equation of motor, applications of DC motors (simple numerical problems)
Three Phase Induction Motor: Principle & Construction, Types, Slip-torque characteristics, Applications (Numerical problems related to slip only)
Single Phase Induction motor: Principle of operation and introduction to methods of starting, applications.
Three Phase Synchronous Machines: Principle of operation of alternator and synchronous motor and their applications.

Module –5 : Electrical Installations [06]

Components of LT Switchgear: Switch Fuse Unit (SFU), MCB, ELCB, MCCB, Types of Wires and Cables, Importance of earthing, Types of Batteries, Important characteristics for Batteries.Elementary calculations for energy consumption and savings, battery backup.

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COURSE OUTCOMES

Once the student has successfully completed this course, he/she will be able to:

CO 1	Apply the concepts of KVL/KCL and network theorems in solving DC circuits.
CO 2	Analyze the steady state behavior of single phase and three phase AC electrical circuits.
CO 3	Identify the application areas of a single phase two winding transformer as well as an auto transformer and calculate their efficiency. Also identify the connections of a three phase transformer.
CO 4	Illustrate the working principles of induction motor, synchronous machine as well as DC machine and employ them in different area of applications.
CO 5	Describe the components of low voltage electrical installations and perform elementary calculations for energy consumption.

Dr. Manish Saxena
(H)
Mandalad

In Pursuit of Excellence	**Course Delivery Method**	SESSION-2019-2020 SEM- Ist

Name of Subject: Basic Electrical Engineering Subject Code: KEE-101

Branch: Electrical Engineering

Course Plan

Delivery Methods: **Chalk & Talk, Power Point Presentation, Tutorials, Video Lectures, Analogy, solving Numericals/Design exercises, Practicals, assignments, seminar, Brainstorming, Group Discussion/Interactive session, Delivery through Simulation Software/CAD Tools, Mini project, Quiz**

Coverage of

Unit 1 by: - Chalk & Talk, Power Point Presentation, Tutorials, Video Lectures, Analogy, solving numericals, Practicals, assignments, seminar

Unit 2 by: - Chalk & Talk, Power Point Presentation, Tutorials, Video Lectures, Analogy, solving Numericals/Design exercises, assignments and Practicals

Unit 3 by: - Chalk & Talk, Power Point Presentation, Tutorials, Video Lectures, Analogy, solving Numericals/Design exercises, assignments, Practicals

Unit 4 by: - Chalk & Talk, Power Point Presentation, Tutorials, Video Lectures, Analogy, solving Numericals/Design exercises, mini project (simulation based), assignments, group discussion/Interactive session, Practicals

Unit 5 by: - Chalk & Talk, Power Point Presentation, Tutorials, Video Lectures, solving Numericals/Design exercises, brain storming question, assignments, quiz, Delivery through Simulation Software/CAD Tools

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In Pursuit of Excellence	Mapping	SESSION-2019-2020 SEM- Ist

Mapping of Course Outcomes with POs & PSOs:

Sr. No	CO Level	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO 11	PO12	PSO1	PSO 2
		Engineering knowledge	Problem analysis	Design or development	Investigation Of comp. problem	Modern tools	Engineering And society	Environment And sustainability	ethics	Individual and team	Communication	Project mgt and finance	Lifelong learning		
1	CO 1	3	2	1	2	-	1	-	1	1	1	-	2		
2	CO 2	3	2	1	-	-	1	-	-	-	-	-	2		
3	CO 3	3	2	-	-	1	1	-	-	1	1	-	2		
4	CO 4	3	3	1	-	1	1	-	-	-	-	1	2		
5	CO 5	3	3	2	-	1	1	-	-	-	1	2	1		

CO 1	Apply the concepts of KVL/KCL and network theorems in solving DC circuits.
CO 2	Analyze the steady state behavior of single phase and three phase AC electrical circuits.
CO 3	Identify the application areas of a single phase two winding transformer as well as an auto transformer and calculate their efficiency. Also identify the connections of a three phase transformer.
CO 4	Illustrate the working principles of induction motor. synchronous machine as well as DC machine and employ them in different area of applications.
CO 5	Describe the components of low voltage electrical installations and perform elementary calculations for energy consumption.

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M.I.T., Moradabad

CT paper is attached herewith

Mapping of Mid-Term Questions

CT	Qs. No.	CO	PO
1	1	1	1,2,3,12
	2	2	1,2,3,12
	3	1	1,2,3,12
	4	2	1,2,3,12
	5	1	1,2,3,12
	6	1	1,2,3,12
	7	2	1,2,3,12
2	1	2	1,2,3,12
	2	3	1,2,3,12
	3	2	1,2,3,12
	4	2	1,2,3,12
	5	2	1,2,3,12
	6	3	1,2,3,12
3	1	4	1,2,3,12
	2	4	1,2,3,12
	3	5	1,2,3,12
	4	4	1,2,3,12
	5	4	1,2,3,12
	6	5	1,2,3,12

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In Pursuit of Excellence	**Time Table**	SESSION-2019-2020 SEM- Ist

Time table is attached herewith

→ see on next page

Dr. Manish Saxena
HOD (A.E.H)
[illegible] Lucknow

MORADABAD INSTITUTE OF TECHNOLOGY, MORADABAD
ELECTRICAL ENGINEERING DEPARTMENT
SESSION 2019-20(ODD SEM)
FACULTY TIME TABLE (Revised 27.08.19)

L	T	P	Total Load
8	3	10	21

Name: Mr. Saurabh Saxena (SS)

Time / Day	9am-10:00am	10:00am-11:00am	11:00 am-12:00noon	12:00pm–01:00 pm	01:00pm-2:00pm	2:00pm–3:00 pm	3:00pm–4:00pm	4:00pm-5:00pm
MON					LUNCH	REE-754/REN-754, 7th, H+I,C-208		
TUE		KEE-101(L) 1st E A-302	REE-702(L) 7th H+I C-201					
WED		KEE-101(L) 1st E A-302	REE-551, 5th G1, C-101					
THU	KEE-101(L) 1st E A-302		KEE-101(L) 1st E A-302	REE-702(L) 7th H+I C-201		REE-754/REN-754, 7th, H+I,C-208		
FRI			KEE-101(T) 1st E3 A-322			KEE-101(L) 1st E A-302		
SAT		KEE-101(T) 1st E2 A-302	KEE-101(T) 1st E1 A-302	REE-702(L) 7th H+I C-201		REE-555, 5th G, C-108		

Subject Code	Subject Title
REE-702	Power System Protection
REE-551	Electrical Machines –II Lab
REE-555	Seminar-I
KEE-101	Basic Electrical Engineering
REE-754/REN-754	Project-I

26-8-19
Mr. Maroof Ali
(Deptt. Coordinator Time Table)

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HOD (ASH)
M.I.T., Moradabad

Sau Sax.

26/08/19
Mr. Rakesh Kr. Gangwar
(O.C. Time Table)

MORADABAD INSTITUTE OF TECHNOLOGY, MORADABAD

Electrical Engineering Department

Student Interaction Time

(Session 2019-20) Even/Odd

S.N.	Day	Timing
1.	Monday	—
2.	Tuesday	2.00-4.00 PM
3.	Wednesday	2.00-4.00 PM
4.	Thursday	—
5.	Friday	03.00-4.00 PM
6.	Saturday	4.00-5.00 PM

Saurabh Saxena
(A.P., EED)

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HOD (ASH)
M.I.T. Moradabad

In Pursuit of Excellence	**Lecture Plan & Course Coverage**	SESSION-2019-2020 SEM- Ist

→ see on next page

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HOD (ASH)
M.I.T.S. Gwalior

MORADABAD INSTITUTE OF TECHNOLOGY
(Electrical Engineering Department)
LECTURE BLOW UP

Course : B. Tech.
Subject : Electrical Engineering
Semester : 1st
Internal Marks : 50

Session : 2019-20
Subject Code: KEE-101
Branch: CE,EC,EE,ME,CS
External Marks : 100

L	T	P
3	1	0

LECTURE PLAN

S. No.	Detail of the topic/Contents	Lectures No.	Lecture Delivery Date
	Module– 1		
1.	Electrical circuit elements (R, L and C)	1	21/08/19
2.	voltage and current sources :Independent & Dependent sources	1	22/08/19
3.	Concept of active and passive elements, unilateral and bilateral elements, concept of linearity and linear network	1	23/08/19 Saul
4.	Kirchhoff"s laws, Star-delta transformation with Numerical Problems	1	27/08/19
5.	Loop and nodal methods of analysis :Numerical Problems	1	28/08/19
6.	Superposition theorem with Numerical Problems	1	29/08/19
7.	Thevenin theorem with Numerical Problems	1	30/08/19 Saul
8.	Norton theorem with Numerical Problems	1	03/09/19
	Module – 2		04/09/19
	Representation of Sinusoidal waveforms –	1	05/09/19
1.	Average and effective values, Form and peak factors	1	06/09/19 Saul
2.	Concept of phasors,	1	11/09/19
3.	phasor representation of sinusoidally varying voltage and current	1	17/09/19
4.	Analysis of single phase AC Circuits consisting of R, L, C, RL, RC, RLC combinations (Series and Parallel)	2	18/09/19 19/09/19 Saul
5.	Apparent, Active & Reactive power, Concept of Power factor & it's improvement	1	20/09/19 Saul
6.	Concept of Resonance in series & parallel circuits	1	25/09/19 Saul
7.	Bandwidth and quality factor in series & parallel circuits	1	26/09/19 Saul
8.	Three phase balanced circuits, voltage and current relations in star and delta connections.	2	27/09/19 01/10/19 Saul
	Module – 3		
1.	Magnetic materials	1	03/10/19
2.	BH characteristics	1	04/10/19
3.	ideal and practical transformer	1	09/10/19 Saul
4.	equivalent circuit	1	10/10/19
5.	losses in transformers	1	11/10/19 Saul
6.	regulation and efficiency	1	12/10/19 Saul
7.	Auto-transformer and three-phase transformer connections.	1	15/10/19 Saul
	Module – 4		
1.	**DC machines:**		
2.	Principle & Construction	1	17/10/19 Saul
3.	Types, EMF equation of generator and torque equation of motor	1	18/10/19 Saul
4.	applications of DC motors (simple numerical problems)	1	31/10/19 Saul

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Saul Saxena

5.	**Three Phase Induction Motor:** Principle & Construction, Types, Slip-torque characteristics, Applications (Numerical problems related to slip only)	2	31/10/19 & 01/11/19 Sal
6.	**Single Phase Induction motor:** Principle of operation and introduction to methods of starting, applications.	2	05/11/19 & 06/11/19 Sal
7.	**Three Phase Synchronous Machines:** Principle of operation of alternator and synchronous motor and their applications.	1	07/11/19 Sal
	Module – 5		
1.	Components of LT Switchgear:	1	08/11/19 Sal
2.	Switch Fuse Unit (SFU), MCB, ELCB, MCCB	2	13 & 14 Nov Sal
3.	Types of Wires and Cables	1	15/11/19 Sal
4.	Importance of earthing	1	19/11/19 Sal
5.	Types of Batteries, Important characteristics for Batteries	1	20/11/19 Sal
6.	Elementary calculations for energy consumption and savings, battery backup	1	21/11/19 Sal

Coverage in	**Unit 1 & 2**	**CT-1 -30%**
	Unit 3 & 5	**CT-2 – 60%**
	Unit 4	**CT-3 – 100%**
List of Text Books	T1	Ritu Sahdev, "Basic Electrical Engineering", Khanna Publishing House.
	T2	D.P. Kothari and I.J. Nagrath, "Basic Electrical Engineering", Tata McGraw Hill
List of Reference Books	R1	E. Hughes, "Electrical and Electronics Technology", Pearson, 2010
	R2	V.D. Toro, "Electrical Engineering Fundamentals" Pearson India
A few web-links:	L1	(http://spokentutorial.org)

Topics Beyond Syllabus: Denoted By ** In Each Unit

Prepared By:

Saurabh Saxena
(A.P., EE Deptt)

Reviewed By:

Rajul Misra
(HOD EE Deptt.)

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MORADABAD GROUP OF INSTITUTIONS, MORADABAD

MORADABAD INSTITUTE OF TECHNOLOGY

ELECTRICAL ENGINEERING DEPARTMENT

Tutorial No. 1(Module-1)

Course: B. Tech.

Subject: Electrical Engineering

Semester: 1st/2nd

Subject Code: KEE-101/201

Section A: Short Answer Type Questions

Q.1 Explain the following:

(a) Active and passive elements

(b) Unilateral and bilateral elements

(c) Distributed and lumped parameters

Q.2Explain resistance, reactance and impedance

Q.3 Differentiate between star and delta connections.

Q.4 Why reactive power is not present in dc circuits.

Q.5 Derive expression for converting a star network to a delta equivalent network

Q.6 What is the properties of ideal voltage and current sources.

Section B: Long Answer Type Questions

Q.7 Three resistance R, 2R and 3R are connected in delta. Determine the resistances for an equivalent star connection.

Q.8 State and explain Kirchoff's laws. What are limitations and applications of Kirchoff's law in circuit theory?

Q9. State and explain Superposition theorem to solve a.c. or d.c. network.

Q10. State and explain Thevenin's theorem to solve a.c. or d.c. network.

Q11. State and explain Norton's theorem to solve a.c. or d.c. network.

Q12. State and explain Maximum power transfer theorem with its applications?

Q13. Explain how Norton's theorem is the converse of Thevenin's theorem.

Q.14 State and explain Kirchoff's laws. What are limitations and applications of Kirchoff's law in circuit theory?

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ELECTRICAL ENGINEERING DEPARTMENT

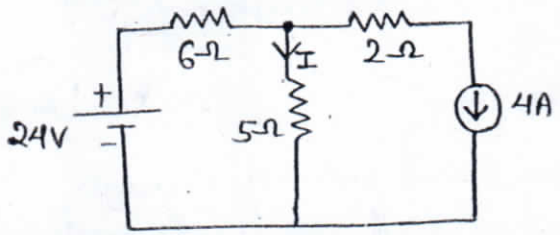
[redacted] (MODULE-1)

Tutorial No. 2 (Unit 1 Numericals)

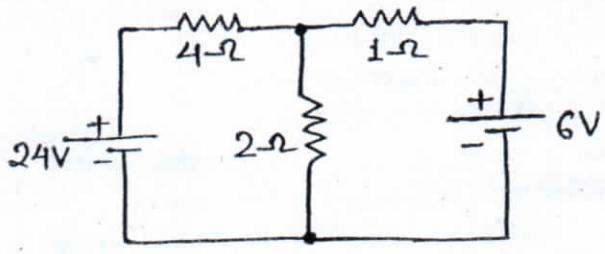
Course: B. Tech. Semester: 1st/2nd

Subject: Electrical Engineering Subject Code: KEE-101/202

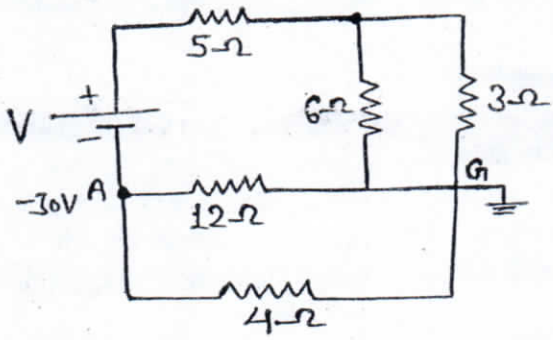
Q.1 Find the current I in the given circuit figure.



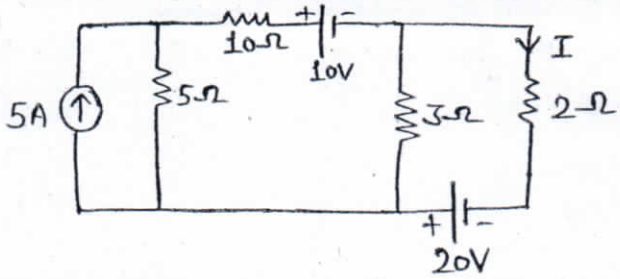
Q.2 Find current in 2Ω resistor in given circuit figure.



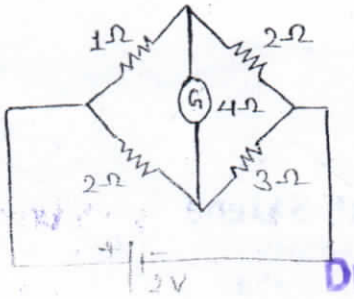
Q.3 In the given figure the potential of point A= -30V. Using Kirchoff's laws find (a) value of V and (b) power dissipated by 5Ω resistance



Q.4 Find the current in and voltage across the 2Ω resistance in following figure.



Q.5 Calculate the current through galvanometer in the following bridge figure .



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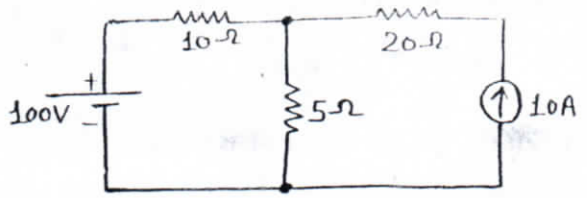
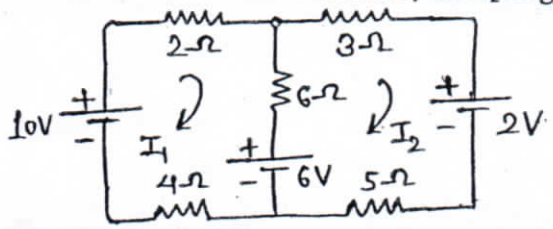
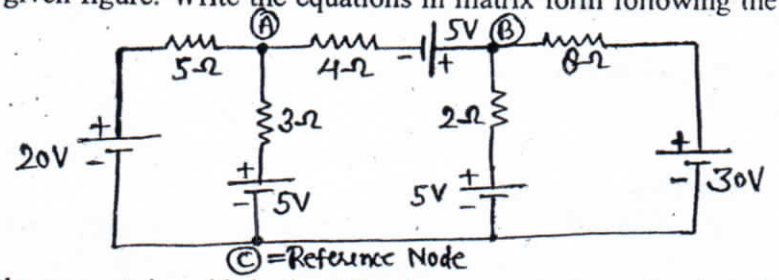
Q.6 Find the currents in all resistive branches of the circuit shown in given figure by KVL



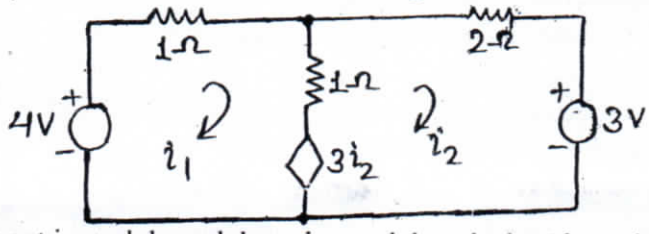
Q.7 Using mesh analysis, calculate the currents I_1 and I_2 in given figure .



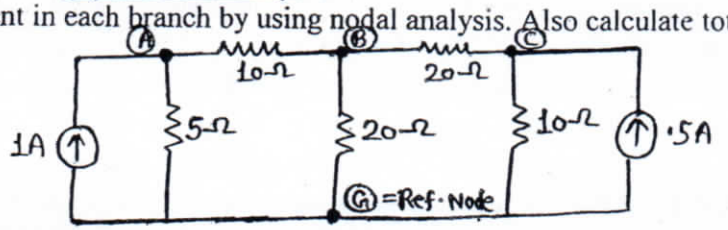
Q.8 Out of Mesh and nodal analysis, which method require least number of equations to solve the network in given figure. Write the equations in matrix form following the method requiring least effort.



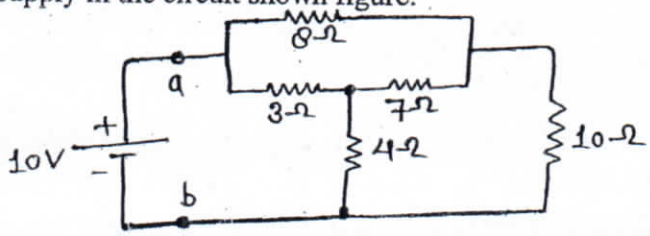
Q.9 Determine the currents i_1 and i_2 in the following network shown in given figure.



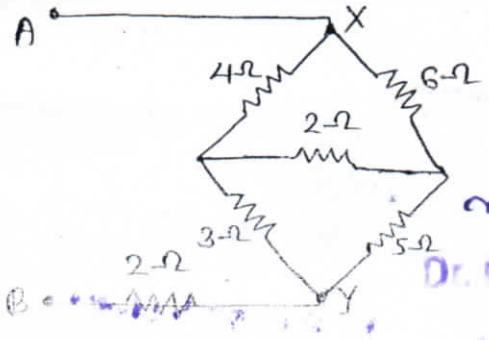
Q.10 Find the current in each branch by using nodal analysis. Also calculate total power loss in figure .



Q.11 Using delta to star transformation determine the resistance between terminals a-b and the power drawn from the supply in the circuit shown figure.



Q.12 Find the resistance between AB of the circuit as shown in circuit figure Use star-delta transformation.



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ELECTRICAL ENGINEERING DEPARTMENT

Tutorial No. 3 (Module-2)

Course: B. Tech. **Semester: 1st/2nd**

Subject: Electrical Engineering **Subject Code: KEE-101/201**

Section A: Short Answer Type Questions

Q1. Show that instantaneous power consumed in a pure resistive circuit is not constant but it is fluctuating.

Q2. Prove that the average power consumed in a pure inductive and pure capacitive circuit is zero.

Q3. What is the significance of power factor in an a.c. circuit?

Q4. Explain the terms apparent power, true power and reactive power in an a.c. circuit.

Q5. Write short note on (i) Impedance Triangle and (ii) Q-factor of the coil.

Q6. List out basic three differences between d.c. and a.c. circuits.

Q7. Why do we need higher power factor as possible in a.c. circuit?

Q8. Can you achieve series resonance without changing supply frequency?

Q.9 Differentiate among real, reactive and apparent power.

Q10.What is a 3-phase system? Give its necessity and advantages.

Q11. Why interconnection of 3-phase system is necessary?

Q12. Differentiate between star and delta connections.

Q13. What do you mean by three phase balanced load?

Q14. Why is an unbalanced load not normally used on a 3-phase 3- wire system?

Q15. While measuring power in a balanced three phase circuit, one of the wattmeter keep showing zero as load is varied. How do you account for it?

Q16. Explain why two-wattmeter method in power measurement is universal one?

Section B: Long Answer Type Questions

Q17. Derive expressions for impedance, current, average power and power factor for R-C series circuit when sinusoidal voltage is applied to it.

Q18. Derive expressions for impedance, current, average power and power factor for R-L-C series circuit when sinusoidal voltage is applied to it.

Q19. Discuss resonance in R-L-C series circuit. Derive an expression for resonant frequency for R-L-C series circuit.

Q20. Explain the concept of bandwidth and quality factor for R-L-C series circuit. Derive the suitable expressions.

Q21. Explain resonance in a series R-L-C circuit with the help of impedance v/s frequency diagram and derive an expression for resonant frequency. Write properties of series resonance circuits.

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ELECTRICAL ENGINEERING DEPARTMENT

Tutorial No. 4 (Module-2)

Course: B. Tech. **Semester: 1st/2nd**

Subject: Electrical Engineering **Subject Code: KEE-101/201**

Q1. A 100Ω resistance is carrying a sinusoidal current given by 3cosωt.
Determine- (i) instantaneous power taken by resistance and (ii) average power.
[450 (1+cos 2ωt) W; 450 W]

Q2. The current in a 2.2kΩ resistor is i=5sin (2π x 100t +45°) mA.

(i) Write the mathematical expression for the voltage across the resistor.
[11 sin (2π x 100t + 45°)]

(ii) What is the RMS value of the resistor voltage? **[7.78 V]**

(iii) What is the instantaneous value of resistor voltage at t=0.4 ms. **[9.47 V]**

Q3. A pure inductive coil allows a current of 10 A flows from a 230 V, 50 Hz supply. Find (i) inductive reactance; (ii) inductance of the coil; (iii) power absorbed.
Write down the equations for voltage and current.
[23 Ω; 0.073 H; Zero; v=325.27 sin 314t; i= 14.14 sin (314t – π/2)]

Q4. A choke coil takes a current of 2A lagging 60° behind the applied voltage of 200 V at 50 Hz.

(i) Calculate impedance, resistance and inductance of the coil. **[100 Ω; 50 Ω; 0.275 H]**

(ii) Find the power consumed when the coil is connected across 100 V, 25 Hz supply. **[113.5 W]**

Q5. Calculate the capacitance of a condenser to be connected in series with a 100 V, 80 W lamp to enable it to be used on a 200 V, 50 Hz supply. **[14.7 x 10^{-6} F]**

Q6. A 230 V, 50 Hz a.c. supply is applied to a coil of 0.06 H inductance and 2.5 Ω resistance connected in series with 6.8 μF capacitor. Calculate (i) impedance; (ii) current; (iii) phase angle between current and voltage; (iv) power factor and (v) power consumed.
[449.2 Ω; 0.512 A; 89.7° Lead; 0.00557 Lead; 0.656 W]

Q7. A coil of resistance 100Ω and inductor 100 μH is connected in series with a 100pf capacitor. The circuit is connected to a 10 V variable frequency source. Calculate (i) resonant frequency; (ii) current at resonance; (iii) voltage across L & C at resonance and (iv) Q-factor of the circuit.
[1.59 x 10^6 Hz; 0.1 A; V_L=100 V; V_C=100 V; 10]

Q8. A series LC circuit is composed of a 15 μH, 10Ω inductor and a 100 pF capacitor. Determine its Bandwidth. **[106.15 kHz]**

Q9. A series RLC circuit which resonates at f_r =500 kHz has L= 100 μH, R= 25 Ω and C=1000 pF. Determine (i) Q-factor of the circuit; (ii) the new value of C required to resonate at 500 kHz when the value of L is doubled and new Q-factor. **[12.6; 500 pF; 25]**

Q10. Deduce the formula for half power frequencies for as series R-L-C circuit under resonance. Why they are called half power frequencies.

Q11. What do mean by the term power factor. Suggest how it can be improved.

Q.12 Find the average and rms values of the Sinusoidal current.

Q.13 Find the rms value of the average value, peak factor and form factor of square waveform, triangular wave form, half wave rectified.

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Section B: Long Answer Type Questions

Q14. Compare single phase and 3-phase systems.

Q15. Derive the relationship between line current, phase current, line voltage and phase voltage in a three-phase delta connected circuit.

Q16. Prove that the power in a 3- phase balanced load circuit can be obtained from the readings of two watt meters with the help of suitable vector diagram. Discuss the nature of power factor when:

The two watt meters read equal and positive values.

The two watt meters read equal and appositive values.

The one wattmeter reads zero value.

Q17. How the power is measured by single wattmeter in 3 phase supply? Also, explain why two wattmeter is superior to one wattmeter method.

Q18. Derive expression for converting a delta network to a star equivalent network and vice-versa.

Q19. Given a balanced 3- Ø, 3-wire system with Y- connected load for which line voltage is 230 V,50Hz and impedance of each phase is (8 + j6) ohm. Find the line current, pf, power, volt-amperes and reactive power. Draw the phasor diagram of the above circuit. (I_L=13.28A, P.f.=0.8 lagging, P=4.232KW, S=5290VA, Q=3.174KVAR) (J.B.G. P.no.-233)

Q20. A 3- phase balanced load connected across a 3- phase, 400V ac supply draws a line current is 10Amp .Two wattmeters are used to measure input power. The ratio of two wattmeter's readings in 2:1. Find the readings of the two wattmeters. (W_1=4000W, W_2=2000W) (J.B.G. P.no.-249)

Q21. In a 2 wattmeter method power measured was 30KWat 0.7 p.f. lagging. Find the reading of each wattmeter. (W_1=23.835KW, W_2=6.165KW)(J.B.G. P.no.-249)

Q22. In a 2 wattmeter method of power measurement in a 3-phase circuit, the readings of the wattmeters are 1,200 watt and 300 watt. What is the p.f. of the load, prove the formula used. (P.f.=0.6934 lagging) (J.B.G. P.no.-248)

Q23. A 3 wire, 3-phase supply feeds a load consisting of three equal resisters. By how much is the load reduced if one of the resistor be removed?

(i) When the load is star connected (ii) When the load is delta connected

(In star-50%, In delta-33.33%) (J.B.G. P.no.-242)

Q24. A balanced star connected load of (8+j6) per phase is connected to a balanced 3- phase, 400V supply. Find the line current power factor, power and total volt amperes. (I_L=23.1A, P=12.8KW, S=16KVA,P.f.=0.8 lagging) (J.B.G. P.no.-231)

Q25. A balanced delta connected load of (12+j9)Ω/phase is connected to 3-phase 400V supply. Find: (i) Line Current (ii) Power Factor (iii) Power drawn (iv) Reactive volt-amperes (v) Total volt-amperes.(I_L=46.2 A,P.f.=0.8 lagging, P=25.6KW, Q=19.2KVAR, S=32KVA) (J.B.G. P.no.-237)

Q26. Three identical resistors of 20Ω each are connected in star to a 415V, 50Hz, three-phase supply. Calculate (i) the total power consumed, (ii) the total power consumed, if they are connected in delta (iii) the total power consumed, if one of the resistors is opened. (P_s=8.61KW, P_D=25.83KW, P_s=4.3KW, P_D=17.2KW) (J.B.G. P.no.-242)

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ELECTRICAL ENGINEERING DEPARTMENT

Tutorial No. 5 (Module-3)

Course: B. Tech. **Semester: 1st / 2nd**

Subject: Electrical Engineering **Subject Code: KEE-101/201**

Section A: Short Answer Type Questions

Q1. On what factors does the magnetic reluctance depend?
Q2. What is meant by leakage and fringing?
Q3. What is magnetization curve?
Q4. Draw hysteresis loops for (i) permanent magnets (ii) transformer and (iii) Ferrite.
Q5. What is hysteresis loss? On what factors does it depend?
Q6. How can eddy current and hysteresis losses be minimized?
Q7. Mention some applications of eddy currents?
Q8. What is difference between a statically induced emf and a dynamically induced emf?
Q9. What is Fleming right hand rule?
Q10. What is meant by coefficient of coupling between the coils?
Q11. What is meant by magnetizing current?
Q12. What do you know about the no load current of a transformer?
Q13. On what factors does the hysteresis loss depend? Why can be assumed to be constant?
Q14. On what factors does the eddy current loss depend? Why this loss can be assumed to be constant?
Q15. What is the difference between an ideal and practical transformer?
Q16. Define voltage regulation of a transformer.
Q17. What is meant by equivalent circuit of a transformer?
Q18. How may be iron loss be reduced to a minimum is a transformer?
Q19. What is the condition for maximum efficiency in a transformer?
Q20. Write two advantages, disadvantages & applications of autotransformer?

Section B: Long Answer Type Questions

Q21. Give analogous characteristics of electrical and magnetic circuit.
Q22. Explain construction & basic principle of operation of a single phase transformer.
Q23. Derive e.m.f. equation for a single phase transformer.
Q24. Draw and explain phasor diagram of transformer under loaded condition.
Q25.Explain all types of losses in the transformer in detail.
Q26. Explain short circuit & open circuit test of single phase transformer.
Q27. Draw the equivalent circuit diagram of the transformer when referred to primary & secondary side.

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ELECTRICAL ENGINEERING DEPARTMENT

Tutorial No. 6 (Module-3)

Course: B. Tech. **Semester: 1st /2nd**

Subject: Electrical Engineering **Subject Code: KEE-101/201**

Q1. An iron ring has a x- section of 4cm2. An air gap of 0.5 mm has been made by a cut across its section. The effective iron path is 75 cm. The ring is wound with a coil of 500 turns through which a current of 1.5 A is passed. If the total flux in the air gap is 0.3 m Wb, find the relative permeability of iron. **[991.2]**

Q2. A coil of 150 turns is linked with a flux of 0.001 wb when carrying a current of 10A if the current is uniformly reversed in 0.1 sec, calculate the induced emf. **[3 V]**

Q3. An iron ring has a mean circumferential length of 60 cm with an airgap of 1mm and a uniform winding of 300 turns. When a current of 1 amp flows through the coil find the flux density. The relative permeability of iron is 300 assume $\mu = 4\pi x107$ H/m. **[0.1256 T]**

Q4. A cast iron ring with a mean diameter of 10cm and a cross sectional area of 3cm2 has a radial gap of 0.15 cm. Calculate the current required through the winding of 1,000 turns wound uniformly over the ring to produce a flux of 2× 10-4 Wb in the air gap. Take relative permeability of cast iron as 250. **[1.462 A]**

Q5. An iron ring of mean diameter 22 cm and cross section 10 cm2 has an air gap 1 mm wide. The ring is wound uniformly with 200 turns of wire. The permeability of ring material is 1,000. A flux of 0.16m Wb is required in the gap. What current should be passed through the wire? **[1.075 A]**

Q6. A magnetic ring has a mean circumference of 1.5 m and is of 0.01m2 in cross section and is wound with 175 turns. A saw cut of 4 mm width is made in the ring. Calculate the magnetizing current required to produce a flux of 0.8 m Wb in the air gap. Assume permeability of iron as 400 and leakage factor of 1.25. **[3.16 A]**

Q7. A rectangular shaped core is made of mild steel plate 15mm x20mm, cross section. The mean length of the magnetic path is 18 cm. the exciting coil has 300 turns and current 0.7 Amp. Calculate (i) Magnetizing force (ii) flux density (iii) Reluctance (iv) flux of magnetic circuit. Assume relative permeability of mild steel as 940.

[1166.66 AT/m; 1.378 T; 50.79 X 10^4 AT/wb; 4.13 X 10^{-4} wb]

Q8. An electromagnet has an gap of 4mm and flux density in the gap is 1.3wb/m2. Determine the compare turns for the gap. **[4140]**

Q9. To coil having 100 and 50 turns respectively are wound on a core with $\mu = 40,00\mu 0$ effective core length =60 cm and core area =9 cm2. Find the mutual inductance between the coil.

[37.7 mH]

Q10. A toroid has a core of square x section 2500 mm2 is area and mean diameter of 250mm. The core material has a relative permeability 1,000. Calculate the number of turns wound on the core to obtain an inductance of 1H. **[500]**

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Q11. Two coils A of 1,200 turns and B of 800 turns lie near each other so that 60 percent of the flux produced is one links the other it is found that a current of 5Amp is a produces a flux of 0.25 mWb while the same current in B produces a flux of 0.15 mwb. Determine the mutual inductance and co-efficient of coupling between the coils. **[0.024 H; 0.6325]**

Q12. Find the induced emf in a conductor of length 150 cm moving at angle of 300 to the direction of uniform magnetic field of flux density 1.2 wb/m2 with a velocity of 60m/sec. **[54 V]**

Q13. A 50k VA, 4400/220 V transformer has R1 = 3.45Ω, R2 = 0.009Ω. The values of reactances are X1= 5.2Ω and X2= 0.015Ω. Calculate for the transformer (i) equivalent resistance as referred to primary (ii) equivalent resistance referred to secondary (iii) equivalent reactance as referred to both primary and secondary (iv) equivalent impedance as referred to both primary and secondary (v) total copper loss, first using individual resistance of the two windings and secondly using equivalent resistances as referred to each side.

[7.05 Ω; 0.0176 Ω; 11.2 Ω; 0.028 Ω; 13.23∟57.81°; 0.0331∟57.81°; 910.4 W]

Q14. The parameters of the equivalent circuit of a 200KVA, 2500/250V single phase transformer are as follows. Primary resistance = 0.2 Ω, Secondary resistance = 2x 10-3 Ω, Primary leakage reactance = 4.5 Ω, Core loss resistance = 10 x103Ω, Magnetizing reactance = 1.55 x 103Ω,
Using the circuit referred to primary determine: Voltage regulation and Efficiency of the transformer at rated load and with 0.8 lagging power factor. **[2.686 %; 98.04 %]**

Q15. A transformer with normal voltage impressed has a flux density of 1.4 Wb/m2 and a core loss comprising of 1,000 W eddy current loss and 3,000 W hysteresis loss. What do these losses become under the following conditions?

(a) increasing the applied voltage by 10% at rated frequency. **[3494 W; 1210 W]**

(b) reducing the frequency by 10% with normal voltage impressed. **[3196 W; 1000 W]**

(c) increasing both impressed voltage and frequency by 10%. **[3300 W; 1210 W]**

Q16. A 230/115V, single phase transformer is supplying a load of 5A, at pf 0.866 lagging. The no-load current is 0.2A at pf of 0.208 lagging. Calculate the primary current and primary power factor. **[2.64 A; 33.26° lagging]**

Q17. A 100KVA, 2400/240V, 50Hz single phase transformer has an exciting current of 0.64 Amp and a core loss of 700 watt, when its high voltage side is energized at rated voltage and frequency calculate the components of no – load current and no load branch parameters.

[0.292; 0.57 A; 8.22 kΩ; 4.21 kΩ]

Q18. A 11,000/230V, 150kVA, 1-phase, 50Hz transformer has core loss of 1.4kW and full load copper loss of 1.6 kW. Determine (i) kVA load for maximum efficiency and value of maximum efficiency at unity pf. (ii) the efficiency at half full load 0.8 pf leading.

[140.03 kVA; 98.04 %; 97.09 %]

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ELECTRICAL ENGINEERING DEPARTMENT

Tutorial No. 7 (Module-4)

Course: B. Tech. **Semester: 1st / 2nd**

Subject: Electrical Engineering **Subject Code: KEE-101/201**

Section A: Short Answer Type Questions

Q1. Why brushes are employed in dc machines?

Q2. Why is induced emf in a dc motor called the back or counter emf?

Q3. Why D.C. series motor is preferred in elevators?

Q4. How will you resolve a single pulsating field?

Q5. Why should a dc series motor not be run without load?

Q6. What happens when the auxiliary winding of a capacitor motor is disconnected during running condition?

Q7. What are the applications of Synchronous machine?

Q8. What are the two types of a 3- phase induction motor? Which type is generally preferred?

Q9. Why induction motors are called "asynchronous"?

Q10. Define slip in 3-phase induction motor. What is its value at starting and at synchronous speed?

Section B: Long Answer Type Questions

Q11. Explain principle of operation of single phase induction motor using two revolving field theory. List various methods of starting.

Q12. Explain why the synchronous motor is not self starting? Also write down the merits, demerits and application of the synchronous motor

Q13. Explain the effect of excitation or 'V curve'.

Q14. Draw torque slip characteristics of a 3- phase induction motor indicating their in the starting torque, the maximum torque and the operating region.

Q15. Derive the expression for developed torque in a 3- phase induction motor and find the condition for maximum torque

Q16. Derive an expression for torque of a dc motor. Also draw the torque speed characteristics for the different types of dc motor?

Q17. Derive the emf equation of a dc generator? What are the various types of dc generator? Draw diagram for each

Q18. Explain the working, construction & torque- slip characteristics of single phase induction motors?

Q19. Differentiate the constructional details of squirrel cage and slip ring (wound rotor) 3- phase induction motor and also give their relative merits and determines.

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Tutorial No. 8 (Module-4)

Course: B. Tech. **Semester: 1st /2nd**

Subject: Electrical Engineering **Subject Code: KEE-101/201**

Q1. A 25 hp, 250V dc series motor has armature resistance of 0.1Ω & field resistance of 0.05Ω & brush contact drop 3V. When the line current is 80A, the speed is 600 rpm. Find the speed when the line current is 100A. **[N=473.9 rpm]**

Q2.A 250v dc shunt motor having an armature resistance of 0.25 ohm carries an armature current of 50 A and runs at 750 rpm. If flux is reduced by 10%, find speed. Assume that torque remain the same. **[N=828.5 rpm]**

Q.3. The armature of a 6-pole lap wound dc shunt motor takes 400A at a speed of 350 rpm. The flux per pole is 80 mWb, the no. of turns is 600 & 3% of torque is lost in friction. Calculate the brake horse power. **[T=295.13]**

Q4. A 3-phase, 50 Hz induction motor has 6 poles and operates with a slip of 5% at a certain load. Determine

(a) The speed of the rotor with respect to the stator. **[N=950 rpm]**
(b) The frequency of rotor current. **[f=2.5 hz]**
(c) The speed of the rotor magnetic field with respect to rotor. **[N=50 rpm]**
(d) The speed of the rotor magnetic field with respect to stator. **[N=1000 rpm]**
(e) The speed of the rotor magnetic field with respect to the stator magnetic field. **[N=0 rpm]**

Q5. A 3- phase, 4-pole induction motor is supplied from 3- phase, 50Hz ac supply calculate

(a) The synchronous speed. **[N=1500 rpm]**
(b) The rotor speed when sleep in 4%. **[N= 1440 rpm]**
(c) The rotor frequency when rotor runs at 600 rpm. **[f=3Hz]**

Q6. A dc generator has an armature emf of 100 v when the useful flux per pole is 20mWb and the speed is 800 rpm. Calculate the generated emf (i) with the same flux and a speed of 1000 rpm (ii) with a flux per pole of 24 mWb and a speed of 900 rpm. **[E=125 V; E=135 V]**

Q7.A 4 pole lap wound armature has 144 slot with two coil sides per slot each coil having 2 turns. If the flux per pole is 20 mWb and armature rotates at 720 rpm. What is induced voltage? **[E=138.24 V]**

Q8. A 20 kW, 200 V shunt generator has an armature resistance of 0.05 ohm and a shunt field resistance of 200 ohm. Calculate the power developed in armature when it delivers rated output. **[P=20.71kW]**

Q9. A 3-phase delta connected 440 volts, 50Hz, 4- pole induction motor has a rotor stand still emf per phase of 130 volts if the motor is running at 1440 rpm calculate for this speed.

(a) The slip
(b)The frequency of rotor induced emf.
(c)The value of the rotor induced emf per phase
(d)Stator to rotor turn ratio

Q10. A 3- phase, 4-pole induction motor is supplied from 3- phase, 50Hz ac supply calculate

(a) The synchronous speed.
(b)The rotor speed when slip in 4%.
(c)The rotor frequency when rotor runs at 600 rpm.

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MORADABAD INSTITUTE OF TECHNOLOGY

ELECTRICAL ENGINEERING DEPARTMENT

Tutorial No.9(Module-5)

Course: B. Tech. **Semester: 1st/2nd**

Subject: Electrical Engineering **Subject Code: KEE-101/201**

Section A: Short/Long Answer Type Questions

Q1. What do you understand by service line? Draw the connections of service pole, pole fuse, energy meter, service fuse, main switch and fuses and distribution board for providing a service connection to a single-phase load.

Q2. Draw and explain neat wiring diagram for a house installation showing connections for energy meter, main switch and distribution boards.

Q3. How will you determine the number of circuits required in a house wiring installation?

Q4. Enumerate the various systems of distribution electrical energy for internal wiring. Explain distribution board system.

Q5. Explain the looping-in-system for connections of various lamps or other appliances in parallel.

Q6. Draw the wiring diagram, schematic diagram and single line diagram of on light, one ceiling fan with regulator and one 5 A 3 pin plug point each controlled by individual switches.

Q7. Draw schematic and wiring diagram for staircase lighting.

Q8. Draw a circuit diagram for bed room lighting.

Q9. Name various types of wiring systems. What are the advantages and disadvantage of conduit wiring?

Q10. Suggest suitable wiring for any four of the following. Give reasons in support of your answer:
(i) Auditorium (ii) Radio station (iii) Machine shop (iv) Cold storage (v) Damp places.

Q11. Name the type of wiring best suited for workshops. Explain this wiring in detail and mention its advantages and disadvantages.

Q12. Describe the various types of wires or cables usually used in internal wiring of building.

Q13. What is fuse? What is its purpose? Discuss.

Q14. What is the function of a fuse? Why is it connected in the phase wire?

Q15. According to IE rules, a cutout (fuse) shall not be placed in the earthed neutral conductor of two-wire system. Discuss the reason to justify this rule.

Q16. What are the different types of fuse used? Why is a fuse inserted in the phase wire, not in the neutral wire? Why are HRC fused used?

Q17. Why is it advisable to use HRC fuse (cartridge fuse) for motor protection instead of rewirable fuse? Why is a fuse inserted in the live wire and not in the neutral wire?

Q18. What is switch fuse unit? Describe any switch fuse unit with neat diagram.

Q19. Discuss methods of earthing electrical installation.

Q20. Write short notes on:
(i) Service mains (ii) Various types of cables used for internal wiring. (iii) Fuse units
(iv) MCBs (v) ELCBs (vi) MCCBs

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ELECTRICAL ENGINEERING DEPARTMENT

Tutorial No.10 (Module-5)

Course: B. Tech.

Subject: Electrical Engineering

Semester: 1st/2nd

Subject Code: KEE-101/201

Section A: Short/Long Answer Type Questions

Q1. Give the classification of secondary accumulators. What for stationary batteries are used? Write down the chemical reactions during charging and discharging process of lead-acid cells.

Q2. State the factors which affect the capacity of battery mentioning the nature of effects.

Q3. Give charging and discharging curves and charging indications of lead-acid batteries.

Q4. Describe electrical characteristics of lead-acid batteries.

Q5. Explain the construction of nickel-iron cell. Write the chemical reactions during charging and discharging of nickel-iron cells. Give its electrical characteristics, advantages, disadvantages and applications.

Q6. Give the construction, characteristics, merits, demerits and applications of nickel-cadmium accumulators.

Q7. Compare lead acid cell with nickel-iron cell in respect of (a) internal resistance (b) life (c) cost and (d) ampere-hour efficiency.

Q8. Hoe does nickel-metal hydride cells differ form nickel-cadmium cells. Give the chemical reactions that occur in these cells during charging and discharging.

Q9. Why *pf* correction is necessary? Describe any one method with circuit diagram.

Q10. Write short notes on the following:

(i) Types of batteries

(ii) Characteristics of lead-acid accumulators

(iii) Nickel metal hydride cells

(iv) Power factor correction

Q11. What is miniature circuit breaker? Explain its functions and working with neat diagram.

Q12. Enumerate the various ELCBs. Draw their circuit diagrams and explain their working.

Q13. What is MCCB and how does it differ from MCB? Explain its operating mechanism.

Q14. What is earthing? Explain the purpose of earthing.

Q15. Why earthing is essential? Explain the purpose of earthing.

Q16. What is need of earthing electrical installations? Discuss its advantages.

Q17. What are the functions of earthing in an electrical installation? Discuss any one method of earthing.

Q18. What do you understand by earthing? Why is it necessary to earth electrical installation? Draw out a neat sketch for earthing by GI pipe.

Q19. What do you understand by earthing? Why is it provided? Draw a neat sketch of pipe earthing.

Q20. Why is it necessary to earth an electrical installation? Discuss its merits and demerits. Show with sketches a pipe earthing schemes as per IE rules and prepare an estimate of materials required and fine its cost.

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1- Shivam Singh Shivam Singh
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3. Vishal Sindhu Sindhu
4. Siddharth Bansal Siddharth
5 Vasu Agarwal Vasu
6 Shivo Gupta Shivo
7 Yogendra Kumar Yogendra
8 Sumit Kumar Sumit Kumar
9. Prashant Tiwari Prashant Tiwari
10. Saurabh Kumar Saurabh
11 Vinayak Verma
12 Pankaj Kumar Pankaj
13. Sonu Arya Sonu Arya
14. Shahroz Hussain Shahroz
15. Vikas Pal Vikas Pal
16 - Yogendra Singh Yogendra Singh
17 · Vishal Sharma Vishal Sharma
18 - Farzand Ali Farzand
19 - Sachin Kumar Sachin Kumar
20 · Saurabh Sharma Saurabh
21 - Aditya Tomar Aditya
22. Vinay Shrestha
23. Shivansh Chauhan Shivansh Chauhan
24 - Vishnu Kumar Vishnu Kumar
25. Sudheer Kumar Sudheer Kumar
26. Uday Verma Uday Verma
27. Priyansh Tyagi Priyansh
28. Pranav Kumar Singh Pranav. Kr. Singh
29 Rishi Saxena Rishi
30. Yuvraj Khanna Yuvraj
31 S. Zayyan Ali
32 रोनाल्ड आर्य
33 Sooyab Alam
34 Mishuraz Gumen
35 Saad Wasi Saad
36 Vinay Deep Vinay Deep
37 Vishakha Chaudhary Vishakha
38 - Shetal Singh
39 Simran Simran

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In Pursuit of Excellence	**ASSIGNMENT - 1**	SESSION-2019-2020 SEM-Ist

Q1. Calculate the effective resistance between points A and B in the given circuit in Fig.1. [3.69Ω]

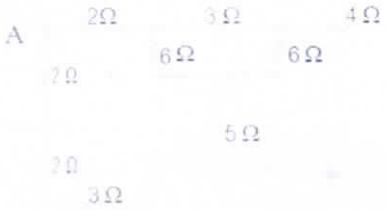

Fig 1

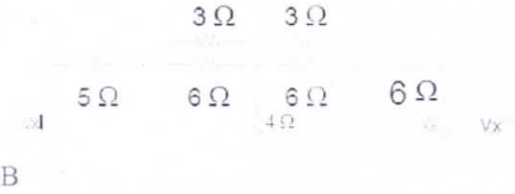

Fig. 2

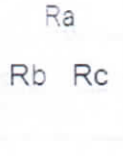

Fig.3

Q2 Using delta star conversion, reduce the circuit shown in Fig.2 to the circuit as shown in Fig.3. Also find the values of R_a, R_b and R_c in the equivalent from of the circuit. [20 Ω, 20 Ω, 17, 14 Ω]

Q3 Find the current in the 132 resistance using node analysis in Fig.4. [0.8503 A]

Fig. 4

Fig.5

Q4 Using Mesh equation method, find the current in 10Ω resistance of network given in Fig.5. [0.625 A]

Q5 Using mesh current method, determine current through 1Ω resistance in the circuit of Fig. 6. [0.090 A]

Fig. 6

Fig. 7

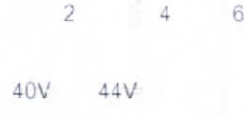

Fig. 8

Q6 Find the currents in the various resistors using nodal analysis in the Circuit at Fig.7.

Q7 Two batteries A and b are connected in parallel to a load of 10 ohm. Battery A has an emf of 12 V and an internal resistance of 2 ohm and battery B has an emf of 10 V and internal resistance of 1 ohm. Using nodal analysis, determine the currents supplied by each battery and load and load current.

Fig.9

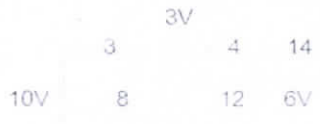

Fig.10

Q8 Fig. 8 shows 2 batteries connected in parallel each represented by an emf along with its internal resistance. A load resistance of 6 is connected across the ends of the batteries. Calculate the current through each battery and the load.

Q9 Find the current through 10 ohm resistor in Fig.9.

Q10 For the circuit shown in Fig.10, find voltage of nodes B and C and determine current in 8 resistor.

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In Pursuit of Excellence	**ASSIGNMENT - 2**	SESSION-2019-2020 SEM-Ist

Q. No.	Questions	Marks
1	A 100Ω resistance is carrying a sinusoidal current given by 3cosωt. Determine- (i) instantaneous power taken by resistance and (ii) average power. **[450 (1+cos 2ωt) W; 450 W]**	5
2	The current in a 2.2kΩ resistor is i=5sin (2π x 100t +45°) mA. (i) Write the mathematical expression for the voltage across the resistor. **[11 sin (2π x 100t + 45°)]** (ii) What is the RMS value of the resistor voltage? **[7.78 V]** (iii) What is the instantaneous value of resistor voltage at t=0.4 ms. **[9.47 V]**	5
3	A pure inductive coil allows a current of 10 A flows from a 230 V, 50 Hz supply. Find (i) inductive reactance; (ii) inductance of the coil; (iii) power absorbed. Write down the equations for voltage and current. **[23 Ω; 0.073 H; Zero; *v*=325.27 sin 314t; *i*= 14.14 sin (314t – π/2)]**	5
4	A choke coil takes a current of 2A lagging 60° behind the applied voltage of 200 V at 50 Hz. (i) Calculate impedance, resistance and inductance of the coil. **[100 Ω; 50 Ω; 0.275 H]** (ii) Find the power consumed when the coil is connected across 100 V, 25 Hz supply. **[113.5 W]**	5
5	Calculate the capacitance of a condenser to be connected in series with a 100 V, 80 W lamp to enable it to be used on a 200 V, 50 Hz supply. **[14.7 x 10^{-6} F]**	5
6	A 230 V, 50 Hz a.c. supply is applied to a coil of 0.06 H inductance and 2.5 Ω resistance connected in series with 6.8 μF capacitor. Calculate (i) impedance; (ii) current; (iii) phase angle between current and voltage; (iv) power factor and (v) power consumed. **[449.2 Ω; 0.512 A; 89.7° Lead; 0.00557 Lead; 0.656 W]**	5
7	Q7. A coil of resistance 100Ω and inductor 100 μH is connected in series with a 100pf capacitor. The circuit is connected to a 10 V variable frequency source. Calculate (i) resonant frequency; (ii) current at resonance; (iii) voltage across L & C at resonance and (iv) Q-factor of the circuit. **[1.59 x 10^6 Hz; 0.1 A; V_L=100 V; V_C=100 V; 10]**	5
8	A series LC circuit is composed of a 15 μH, 10Ω inductor and a 100 pF capacitor. Determine its Bandwidth. **[106.15 kHz]**	5
9	A 3 wire, 3-phase supply feeds a load consisting of three equal resisters. By how much is the load reduced if one of the resistor be removed? (i) When the load is star connected (ii) When the load is delta connected **(In star-50%, In delta-33.33%)**	5
10	A balanced star connected load of (8+j6) per phase is connected to a balanced 3- phase, 400V supply. Find the line current power factor, power and total volt amperes. **(I_L=23.1A, P=12.8KW, S=16KVA,P.f.=0.8 lagging)**	5

In Pursuit of Excellence	**ASSIGNMENT - 3**	SESSION-2019-2020 SEM-Ist

Q. No.	Questions	Marks
1	Q1. An iron ring has a x- section of 4cm2. An air gap of 0.5 mm has been made by a cut across its section. The effective iron path is 75 cm. The ring is wound with a coil of 500 turns through which a current of 1.5 A is passed. If the total flux in the air gap is 0.3 m Wb, find the relative permeability of iron. **[991.2]**	5
2	Q2. A coil of 150 turns is linked with a flux of 0.001 wb when carrying a current of 10A if the current is uniformly reversed in 0.1 sec, calculate the induced emf. **[3 V]**	5
3	Q3. An electromagnet has an gap of 4mm and flux density in the gap is 1.3wb/m2. Determine the compare turns for the gap. **[4140]**	5
4	Q4. To coil having 100 and 50 turns respectively are wound on a core with μ = 40,00μ0 effective core length =60 cm and core area =9 cm2. Find the mutual inductance between the coil. **[37.7 mH]**	5
5	Q5. A toroid has a core of square x section 2500 mm2 is area and mean diameter of 250mm. The core material has a relative permeability 1,000. Calculate the number of turns wound on the core to obtain an inductance of 1H. **[500]**	5
6	Q6. Two coils A of 1,200 turns and B of 800 turns lie near each other so that 60 percent of the flux produced is one links the other it is found that a current of 5Amp is a produces a flux of 0.25 mWb while the same current in B produces a flux of 0.15 mwb. Determine the mutual inductance and co-efficient of coupling between the coils. **[0.024 H; 0.6325]**	5
7	Q7. Find the induced emf in a conductor of length 150 cm moving at angle of 300 to the direction of uniform magnetic field of flux density 1.2 wb/m2 with a velocity of 60m/sec. **[54 V]**	5
8	Q8. A 50k VA, 4400/220 V transformer has R1 = 3.45Ω, R2 = 0.009Ω. The values of reactances are X1= 5.2Ω and X2= 0.015Ω. Calculate for the transformer (i) equivalent resistance as referred to primary (ii) equivalent resistance referred to secondary (iii) equivalent reactance as referred to both primary and secondary (iv) equivalent impedance as referred to both primary and secondary (v) total copper loss, first using individual resistance of the two windings and secondly using equivalent resistances as referred to each side. **[7.05 Ω; 0.0176 Ω; 11.2 Ω; 0.028 Ω; 13.23∟57.81°; 0.0331∟57.81°; 910.4 W]**	5
9	Q9. The parameters of the equivalent circuit of a 200KVA, 2500/250V single phase transformer are as follows. Primary resistance = 0.2 Ω, Secondary resistance = 2x 10-3 Ω, Primary leakage reactance = 4.5 Ω, Core loss resistance = 10 x103Ω, Magnetizing reactance = 1.55 x 103Ω, Using the circuit referred to primary determine: Voltage regulation and Efficiency of the transformer at rated load and with 0.8 lagging pf. **[2.686 %; 98.04 %]**	5
10	Q10. A transformer with normal voltage impressed has a flux density of 1.4 Wb/m2 and a core loss comprising of 1,000 W eddy current loss and 3,000 W hysteresis loss. What do these losses become under the following conditions? (a) increasing the applied voltage by 10% at rated frequency. **[3494 W; 1210 W]** (b) reducing the frequency by 10% with normal voltage impressed. **[3196 W; 1000 W]** (c) increasing both impressed voltage and frequency by 10%. **[3300 W; 1210 W]**	5

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In Pursuit of Excellence	**ASSIGNMENT - 4**	SESSION-2019-2020 SEM-Ist

Q. No.	Questions	Marks
1	A 25 hp. 250V dc series motor has armature resistance of 0.1Ω & field resistance of 0.05Ω & brush contact drop 3V. When the line current is 80A, the speed is 600 rpm. Find the speed when the line current is 100A. **[N=473.9 rpm]**	5
2	A 250v dc shunt motor having an armature resistance of 0.25 ohm carries an armature current of 50 A and runs at 750 rpm. If flux is reduced by 10%, find speed. Assume that torque remain the same. **[N=828.5 rpm]**	5
3	The armature of a 6-pole lap wound dc shunt motor takes 400A at a speed of 350 rpm. The flux per pole is 80 mWb, the no. of turns is 600 & 3% of torque is lost in friction. Calculate the brake horse power. **[T=295.13]**	5
4	A 3-phase, 50 Hz induction motor has 6 poles and operates with a slip of 5% at a certain load. Determine (a) The speed of the rotor with respect to the stator. **[N=950 rpm]** (b) The frequency of rotor current. **[f=2.5 hz]** (c) The speed of the rotor magnetic field with respect to rotor. **[N=50 rpm]** (d) The speed of the rotor magnetic field with respect to stator. **[N=1000 rpm]** (e) The speed of the rotor magnetic field with respect to the stator magnetic field. **[N=0 rpm]**	5
5	A 3- phase, 4-pole induction motor is supplied from 3- phase, 50Hz ac supply calculate (a) The synchronous speed. **[N=1500 rpm]** (b) The rotor speed when sleep in 4%. **[N= 1440 rpm]** (c) The rotor frequency when rotor runs at 600 rpm. **[f=3Hz]**	5
6	A dc generator has an armature emf of 100 v when the useful flux per pole is 20mWb and the speed is 800 rpm. Calculate the generated emf (i) with the same flux and a speed of 1000 rpm (ii) with a flux per pole of 24 mWb and a speed of 900 rpm. **[E=125 V; E=135 V]**	5
7	A 4 pole lap wound armature has 144 slot with two coil sides per slot each coil having 2 turns. If the flux per pole is 20 mWb and armature rotates at 720 rpm. What is induced voltage? **[E=138.24 V]**	5
8	A 20 kW, 200 V shunt generator has an armature resistance of 0.05 ohm and a shunt field resistance of 200 ohm. Calculate the power developed in armature when it delivers rated output. **[P=20.71kW]**	5
9	A 3-phase delta connected 440 volts, 50Hz, 4- pole induction motor has a rotor stand still emf per phase of 130 volts if the motor is running at 1440 rpm calculate for this speed. (a) The slip (b) The frequency of rotor induced emf. (c) The value of the rotor induced emf per phase (d) Stator to rotor turn ratio	5
10	A 3- phase, 4-pole induction motor is supplied from 3- phase, 50Hz ac supply calculate (d) The synchronous speed. (e) The rotor speed when slip in 4%. (f) The rotor frequency when rotor runs at 600 rpm.	5

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In Pursuit of Excellence	**ASSIGNMENT - 5**	SESSION-2019-2020 SEM-Ist

Q. No.	Questions	Marks
1	If a 40 watt lamp is turned on for one hour, how many joules of electrical energy have been converted by the lamp? (Ans: 14,400 joules)	5
2	A consumer uses a 6 kW immersion heater, a 4 kW electric stove and three 100 watt lamps for 10 hours. How many units (kWh) of electrical energy have been converted. (Ans: 103 kilowatt hours)	5
3	Calculate the heat produced by an electric iron, which has a resistance of 30 ohms and takes a current of 3 amperes when it is switched on for 15 seconds. (Ans.: 4050 joules	5
4	A d-c generator has an e.m.f of 200 volts and provides a current of 10 amps. How much energy does it provide each minute? (Ans: 120 kJ.)	5
5	An escalator is used to move 20 passengers every minute from the first floor of a department store to the second. The second floor is located 5.20 meters above the first floor. The average passenger's mass is 54.9 kg. Determine the power requirement of the escalator in order to move this number of passengers in this amount of time.	5
6	A battery has taken a charging a current of 5.2 A for 24 hours at a voltage of 2.25 V, while discharging it gave a current of 4.5 A for 24 hrs at an average voltage of 1.85 V. Calculate the quantity efficiency and the energy of the battery. (Ans: 71.15 %)	5
7	A battery is charged for 24 hours at a constant current of 5A with initial voltage of 1.8V and final voltage of 2V Calculate the Watt-hour efficiency of the battery if it is charged at a constant current of 6A at 1.9 V for 18 hours. (Ans: 81%)	5
8	You are given two fuse wires A and B with current rating 2A and 5A respectively. Which of the two wires would you select for fuse with a 1000W, 220V room heater. Justify your answer.	5
9	If 5A, 10A, and 13A fuse wires are available select the appropriate wires for two appliances which are both connected to 240 V (a) Toaster of 1kWh (b) AC of 3kWh. Justify.	5
10	Calculate the charging time of a 2200mAh battery with a load that draws 300mA.	5

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In Pursuit of Excellence	List of Students	SESSION-2019-2020 SEM-Ist

B. Tech. 1st Semester [2019 – 20]

SECTION-E Branch – CE, EC, EE, ME, CS

S.No	ST.NO.	Reg. No	Name	Father's Name	Branch Alloted	MOB.NO.
1.	1940185	RB80	PANKAJ KUMAR	RAJENDRA SINGH	ME	9837384910, 7253820903
2.	1940084	RB7	PRANAV KUMAR SINGH	RAJNESH KUMAR SINGH	ME	9837154954, 6397409646
3.	1940177	RB212	PRASHANT TIWARI	KAMLESH TIWARI	ME	8882841652, 8896572188
4.	1940101	RB41	PRYANSH KUMAR TYAGI	SATISH CHANDRA TYAGI	ME	8384849499, 9411407043
5.	1940208	RB158	RATNESH KUMAR ARYA	VEER SINGH ARYA	ME	9412454058, 8630715213
6.	1940159	CB12	RIZWAN ALI	ANEES AHMAD	ME	7500588418
7.	1940136	RB103	SAAD ULLAH	LAIQ HUSSAIN	ME	8273705902, 8171294401
8.	1940057	RB61	SAURABH KUMAR	OMPRAKASH SINGH	ME	7060147193, 7983082039
9.	1910181	RB20	SHAHROZ HUSSAIN	RASHID HUSSAIN	ME	7983287540
10.	1940140	CB18	SHIVA GUPTA	VINISH GUPTA	ME	**9758202175**
11.	1940003	RB40	SIDDHARTH BANSAL	KULDEEP GUPTA	ME	7830750386, 9837544233
12.	1940246	RB232	SIMRAN	OMPRAKSH SINGH	ME	7248705674
13.	1940010	RB37	SUDIKSH KUMAR	SHIV KUMAR	ME	9528658607, 8755562597
14.	1940051	RB114	SYED ZAYYAN ALI	MR. SYED MAHMOOD ALI	ME	8394965110, 9760529648
15.	1940222	RB220	UDAY VERMA	MAHESH CHANDRA VERMA	ME	9760786921, 9927103591
16.	1940237	RB227	VAIBHAV KUMAR SINGH	VIJAY PAL SINGH	ME	8171858792, 7017085369
17.	1940144	CB20	VINAYAK VERMA	ANAND KUMAR VERMA	ME	8077530635
18.	1940189	CB36	YUVRAJ KHANNA	VIPIN KHANNA	ME	6265793345
19.			MOHD. FAIZAN		**ME Re Adm**	
20.			FARZAND ALI	LATEHAIDER ALI	**ME Re Adm**	
21.	1900162	RB117	PRIYANSHU KUMAR	PRADEEP KUMAR	CE	9837065655
22.	1900017	RB98	SOAYAB ALAM	FAKRUDDIN	CE	7248030337, 9599351386
23.	1910098	RB44	SONU ARYA	NARAYAN RAM	CE	9837402765, 9410865216
24.	1900179	RB194	SUMIT KUMAR	PRAMOD KUMAR	CE	7500572758, 7248570976
25.	1900221	RB204	SUMIT SHARMA	MAHESH SHARMA	CE	9756847778, 9837159095
26.	1900149	CB21	VISHAL SINDHU	NARESH SINGH	CE	9837754140
27.	1920008	RB26	RISHI SAXENA	NITIN SAXENA	EE	9917085577, 8630768009
28.	1920217	RB156	SHEETAL SINGH	RATAN SINGH	EE	9355422682
29.	1920110	RB82	SUDHEER KUMAR	KOMAL SINGH	EE	8445554070, 9821458813
30.	1920206	RB155	SUMIT KUMAR	VISHESH KUMAR	EE	7248728524
31.	1920167	RB207	VIKAS PAL	GANGA RAM SINGH	EE	7302394586, 8194075084
32.	1920198	CB13	VINAY DEEP	BHARAT SINGH	EE	7251024030
33.	1931062	RB110	SACHIN KUMAR	RAM SINGH	EC	9027485115, 9927575055
34.	1931239	RB190	SAURABH SHARMA	PRAMOD SHARMA	EC	8979579957, 7017160407
35.	1931156	RB180	SHIVAM SINGH	ANIL KUMAR SINGH	EC	7456859271, 7318080067

Dr. Nitish Saxena
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M.I.T., Moradabad

36.	1931187	RB164	SHIVANSH CHAUHAN	MR. SHAILENDRA CHAUHAN	EC	9012458028
37.	1931160	CB26	SHUBHI CHAUDHARY	YOGESH SINGH	EC	8218006991
38.	1931174	RB141	VAIBHAV TOMAR	LATE RAJENDRA TOMAR	EC	9690935125
39.	1931161	RB144	VASU AGARWAL	VIKAS KUMAR AGARWAL	EC	8755096935, 8057223341
40.	1931209	RB159	WASEEM AKRAM	IRFAN ALI	EC	9548843764
41.	1910097	RB179	VINAY SHRESTHA	HEM BAHADUR SHRESTHA	CS	8477838286, 9548840488
42.	1910232	RB223	VISHAKHA CHAUDHARY	DHARMENDRA SINGH	CS	8006703672, 9412664097
43.	1910139	RB133	VISHAL KUMAR	PATRAM SINGH	CS	7055884758, 9690576826
44.	1910009	RB12	VISHAL SHARMA	AJAY KUMAR SHARMA	CS	8938065363
45.	1910044	RB55	VISHNU KUMAR	GOPAL SINGH	CS	7505383489
46.	1910100	RB124	VISHWAS GUMAN	KAPIL KUMAR	CS	9927289555, 9627929474
47.	1910028	RB45	YASH KUMAR	SANJEEV KUMAR	CS	9756493450
48.	1910163	RB181	YOGENDRA KUMAR	BALRAJ SINGH	CS	8477908125, 9917759920
49.	1910006	RB22	YOGENDRA MISHRA	MR. SANJAY MISHRA	CS	9410285326, 9058091583

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In Pursuit of Excellence	**Record of Monthly Attendance**	SESSION-2019-2020 SEM-Ist

Month wise attendance is mentioned in the attendance register

Before CT-① CT-② CT-③ } Attendance Record is attached

In Pursuit of Excellence	**Class Test Attendance**	SESSION-2019-2020 SEM-Ist

CT attendance Sheet is attached herewith

CT-1
CT-2
CT-3
} Attendance Record attached

In Pursuit of Excellence	**List of Students having short attendance**	SESSION-2019-2020 SEM-Ist

List of student is attached herewith

Short attendance record before CT-① CT-② & CT-③ are attached here.

** Attendance Record of all students of section E upto 05.09.2019 from beginning of semester.
Subject Name: Electrical Engg. (KEE-101)

FINAL CLASS LIST

MIT, Moradabad

B. Tech. 1st Semester [2019 – 20]

SECTION-E

Branch – CE, EC, EE, ME, CS

S.No	ST.NO.	Reg. No	Name	Father's Name	Branch Alloted	(L+T) Attend	(L+T) Held
1.	1940185	RB80	PANKAJ KUMAR	RAJENDRA SINGH	ME	11+01=12	16
2.	1940084	RB7	PRANAV KUMAR SINGH	RAJNESH KUMAR SINGH	ME	14+02=16	
3.	1940177	RB212	PRASHANT TIWARI	KAMLESH TIWARI	ME	14+02=16	
4.	1940101	RB41	PRYANSH KUMAR TYAGI	SATISH CHANDRA TYAGI	ME	14+02=16	
5.	1940208	RB158	RATNESH KUMAR ARYA	VEER SINGH ARYA	ME	13+02=15	
6.	1940159	CB12	RIZWAN ALI	ANEES AHMAD	ME	09+00=09	
7.	1940136	RB103	SAAD ULLAH	LAIQ HUSSAIN	ME	06+01=07	
8.	1940057	RB61	SAURABH KUMAR	OMPRAKASH SINGH	ME	14+02=16	
9.	1910181	RB20	SHAHROZ HUSSAIN	RASHID HUSSAIN	ME	13+01=14	
10.	1940140	CB18	SHIVA GUPTA	VINISH GUPTA	ME	13+02=15	
11.	1940003	RB40	SIDDHARTH BANSAL	KULDEEP GUPTA	ME	14+02=16	
[illegible]	1940246	RB232	SIMRAN	OMPRAKSH SINGH	ME	14+02=16	
13.	1940010	RB37	SUDIKSH KUMAR	SHIV KUMAR	ME	09+00=09	
14.	1940051	RB114	SYED ZAYYAN ALI	MR. SYED MAHMOOD ALI	ME	11+02=13	
15.	1940222	RB220	UDAY VERMA	MAHESH CHANDRA VERMA	ME	14+02=16	
16.	1940237	RB227	VAIBHAV KUMAR SINGH	VIJAY PAL SINGH	ME	14+02=16	
17.	1940144	CB20	VINAYAK VERMA	ANAND KUMAR VERMA	ME	14+02=16	
18.	1940189	CB36	YUVRAJ KHANNA	VIPIN KHANNA	ME	13+01=14	
19.			MOHD. FAIZAN		ME Re Adm	10+00=10	
20.			FARZAND ALI	LATEHAIDER ALI	ME Re Adm	08+00=08	
21.	1900162	RB117	PRIYANSHU KUMAR	PRADEEP KUMAR	CE	14+02=16	16
22.	1900017	RB98	SOAYAB ALAM	FAKRUDDIN	CE	11+02=16	
23.	1910098	RB44	SONU ARYA	NARAYAN RAM	CE	14+02=16	
24.	1900179	RB194	SUMIT KUMAR	PRAMOD KUMAR	CE	14+02=16	
25.	1900221	RB204	SUMIT SHARMA	MAHESH SHARMA	CE	03+00=03	
[illegible]	1900149	CB21	VISHAL SINDHU	NARESH SINGH	CE	14+02=16	
27.	1920008	RB26	RISHI SAXENA	NITIN SAXENA	EE	13+02=15	16
28.	1920217	RB156	SHEETAL SINGH	RATAN SINGH	EE	14+02=16	
29.	1920110	RB82	SUDHEER KUMAR	KOMAL SINGH	EE	14+02=16	
30.	1920206	RB155	SUMIT KUMAR	VISHESH KUMAR	EE	07+01=08	
31.	1920167	RB207	VIKAS PAL	GANGA RAM SINGH	EE	12+02=14	
32.	1920198	CB13	VINAY DEEP	BHARAT SINGH	EE	11+01=12	
33.	1931062	RB110	SACHIN KUMAR	RAM SINGH	EC	14+02=16	16
34.	1931239	RB190	SAURABH SHARMA	PRAMOD SHARMA	EC	14+02=16	
35.	1931156	RB180	SHIVAM SINGH	ANIL KUMAR SINGH	EC	13+02=15	
36.	1931187	RB164	SHIVANSH CHAUHAN	MR. SHAILENDRA CHAUHAN	EC	11+02=13	
37.	1931160	CB26	SHUBHI CHAUDHARY	YOGESH SINGH	EC	12+02=14	
38.	1931174	RB141	VAIBHAV TOMAR	LATE RAJENDRA TOMAR	EC	12+02=14	
39.	1931161	RB144	VASU AGARWAL	VIKAS KUMAR AGARWAL	EC	14+02=16	
40.	1931209	RB159	WASEEM AKRAM	IRFAN ALI	EC	12+01=13	
41.	1910097	RB179	VINAY SHRESTHA	HEM BAHADUR SHRESTHA	CS	12+3=15	17
42.	1910232	RB223	VISHAKHA CHAUDHARY	DHARMENDRA SINGH	CS	13+2=15	

Subject Teacher: Saurabh Saxena
A.P., EE Deptt.

43.	1910139	RB133	VISHAL KUMAR	PATRAM SINGH	CS	00+01=01
44.	1910009	RB12	VISHAL SHARMA	AJAY KUMAR SHARMA	CS	14+02=16
45.	1910044	RB55	VISHNU KUMAR	GOPAL SINGH	CS	12+03=15
46.	1910100	RB124	VISHWAS GUMAN	KAPIL KUMAR	CS	14+03=17
47.	1910028	RB45	YASH KUMAR	SANJEEV KUMAR	CS	11+02=13
48.	1910163	RB181	YOGENDRA KUMAR	BALRAJ SINGH	CS	14+03=17
49.	1910006	RB22	YOGENDRA MISHRA	MR. SANJAY MISHRA	CS	14+03=17

(17)

Batch – E 1	All ME
Batch – E 2	All CE, EE, EC
Batch – E 3	All CS

Dr Nitin [illegible]
Dean Acad[illegible]

Batch E_1 = Total (L+T) Held = 16
E_2 = Total (L+T) Held = 16
E_3 = Total (L+T) Held = 17

Saurabh
06.09.19

SAURABH SAXENA
A.P., EE Deptt.

Dr. Manish Saxena
HOD (ASH)
M.I.T., Moradabad

Subject Teacher: Mr. Saurabh Saxena

MIT Group of Institutions, Moradabad

ATTENDANCE SHEET

Session: 2019-20

Class Test I / II / III ✓

Date: 14/09/19 Shift: Ist Room No: D-304

Year: Ist Semester: Ist Section/Branch: E/

Subject Name: Basic Electrical Engg Subject Code: KEE-101

S. No	Roll No.	Name of Student	Branch	Signature
1.	1	Pankaj Kumar	ME	Pankaj
2.	2	Pranav Kumar Singh	ME	Pranav K. Singh
3.	3.	Prashant Tiwari	ME	Prashant Tiwari
4	4.	Priyansh Tyagi	M.E	Priyansh
5.	5	Rathesh Kumar Arya	ME.	[illegible]
6.	08	Saurabh Kumar	ME	Saurabh
7.	09	Shahroz Hussain	ME	Shahroz
8.	10	Shive Gupta	ME	Shiva
9.	11	Siddharth Bansal	ME	Siddharth
10.	12	Simran	ME	Simran
11.	13.	Yuvraj Khanna	ME	Yuvraj
12.	14	Syed Zayyan Ali	ME	[illegible]
13.	15	Uday Verma	ME	Uday Verma
14.	16	Vaibhav Kumar Singh	ME	Vaibhav
15.	17	Vinayak Verma	ME	[illegible]
16.				
17.		Rizwan Ali		
18.		Saad Ullah		
19.		Sudiksh Kumar		05 Detained
20.		Mohd. Faizan		
21.		Farzand Ali		
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

Dr. Manish Saxena
HOD (ASH)
M.I.T., Moradabad

Total No. of Students allotted in Room: 15 Students Absent: NIL Students Present: 15

Invigilators: 1) Name Manas Singhal Sign:

2) Name Deepak Singh Sign:

Subject Teacher: Mr. Saurabh Saxena

MIT Group of Institutions, Moradabad

ATTENDANCE SHEET

Session: 2019-20

Class Test I / II / III

Date: 14/09/2019 Shift: 1st Room No: D-307

Year: 1st Semester: 1st Section/Branch: E

Subject Name: Basic Electrical Engineering Subject Code: KEE-101

S. No	Roll No.	Name of Student	Branch	Signature
1.	22	Sayab Alam	(Civil)	[illegible]
2.	23	Sonu Arya	(Civil)	Sonu Arya
3.	24	Sumit Kumar	Civil	Sumit Kumar
4.	26	Vishal Sindhu	Civil	[illegible]
5.	32	Vinay Deep	(EE)	Vinay Deep
6.	31	Vikas Pal	(EE)	[illegible]
7.	29	Sudheer Kumar	EE	Sudheer
8.	28	Bhettal Singh	E.E	[illegible]
9.	29	Rishi Saxena	EE	Rishi
10.	33	Sachin Kumar	EC	Sachin
11.	34	Saurabh Sharma	EC	Saurabh
12.	35	Shivam Singh	E.C	Shivam
13.	36	Shivansh Chauhan	E.C	Shivansh
14.	37	Shubhi Chaudhary	E.C.	Shubhi
15.	38	Vaibhav Tomar	E.C	Vaibhav
16.	39	Vasu Agarwal	EC	Vasu
17.	40	Waseem Akram	E.C.	Waseem
18.		PRIYANSHU KUMAR	Absent	
19.				
20.				
21.				
22.				
23.				
24.				
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26.				
27.				
28.				
29.				
30.				

Dr. Manish Saxena
HOD (ASH)
M.I.T. Moradabad

Total No. of Students allotted in Room: 18 Students Absent: 01 Students Present: 17

Invigilators: 1) Name Sachin K. Agrawal Sign.

2) Name Praveen Saini Sign.

Subject Teacher: Mr. Saurabh Saxena

MIT Group of Institutions, Moradabad

ATTENDANCE SHEET

Session: 2019-20

Class Test I / II / III

Date: 14-9-19 Shift: 1st Room No: B-327

Year: 1st Semester: 1st Section/Branch: E

Subject Name: Basic Electrical Engg. Subject Code: KEE-101

S. No	Roll No.	Name of Student	Branch	Signature
1.	41	Vinay Shreetha	C.S.	[illegible]
2.	42	Vishakha chaudhary	C.S	[illegible]
3.	44	Vishal Sharma	C.S	Vishal
4.	45	Vishnu kumar	CS	Vishnu Kumar
5.	46	Vishwas guman	C.S	Vishwas
6	47	Yash kumar.	CS	Yash
7.	48	Yogendra kumar	C.S	Yogendra
8.				
9				
10.		Yogendra Mishra — ABSENT		
11.				
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Dr. Manish Saxena
HOD (ASH)
MIT Moradabad

Total No. of Students allotted in Room: 08 Students Absent: 01 Students Present: 07

Invigilators: 1) Name A.K. Bansal Sign: [illegible] 14/09/19

2) Name Vipin Kumar Sign: [illegible]

Moradabad Institute of Technology, Moradabad

Department of Electrical Engineering

Class Test:-1

Subject:-Basic Electrical Engineering
Subject Code:-KEE-101

Duration:-1Hr.
Max Marks:-15

Attempt all questions.

Q1. Distinguish between active and passive elements. [CO-1]01 Mark

Q2. What is the relationship between supply voltage and circuit current in a purely capacitive circuit. [CO-2]01 Mark

Q3. Define bilateral and unilateral elements with example. [CO-1]02 Marks

Q4. Calculate Form factor and peak factor for a sinusoidal wave. [CO-2]02 Marks

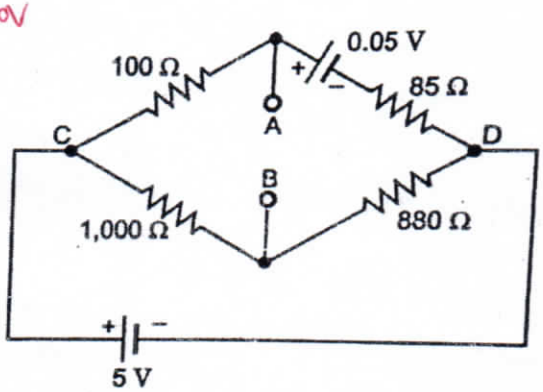
Q5.Calculate the current in a 1000 Ω resistor connected between terminals A and B as shown below by using Thevenin's theorem. [CO-1]03 Marks

$V_{BD} = \frac{5\times 880}{1000+880} = 2.340V$

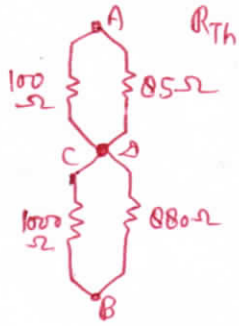
$V_{AD} = \frac{5-.05}{100+85}\times 85 + .05$
$= 2.324V$

$V_{Th} = 2.340 - 2.324 = .016$ V

$I = \frac{V_{Th}}{R_{Th}+R_L} = 10.625\times 10^{-6}$ Amp



⇒



$R_{Th} = (100 \| 85) + (1000 \| 880)$
$\Rightarrow 514\Omega$

Q6. Find current through the 1 Ω resistor using node voltage method for the circuit shown below. [CO-1]03 Marks

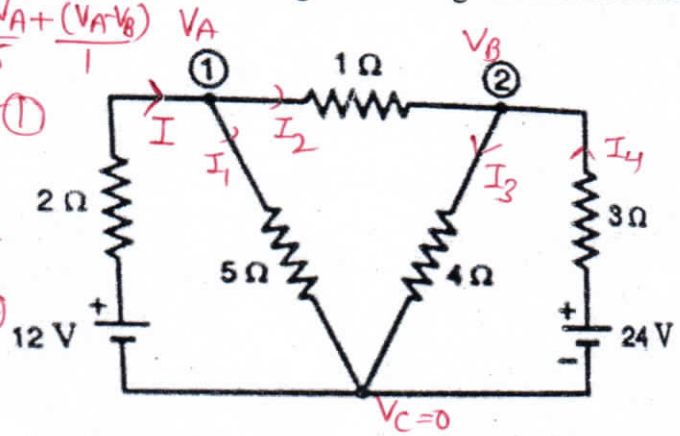
① $I = I_1 + I_2 = \frac{12-V_A}{2} = \frac{V_A}{5} + \frac{(V_A - V_B)}{1}$

$17V_A - 10V_B = 60$ — ①

② $I = I_3 - I_4$

$\frac{V_A - V_B}{1} = \frac{V_B}{4} - \frac{24-V_B}{3}$

$12V_A - 19V_B = -96$ — ②



$V_A = \frac{2100}{203}$ V, $V_B = \frac{2352}{203}$

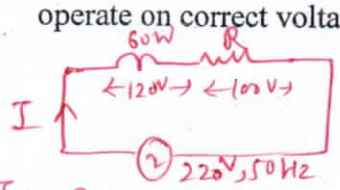
current in 1Ω resistance

$I_2 = -1.24$ Amp

Dr. Manish Saxena

Q7. A 120 V,60 W lamp is to be operated on 220V,50 Hz supply mains. In order that lamp should operate on correct voltage, Calculate value of (a) non-inductive resistance (b) pure inductance [CO-2]03 Marks

①

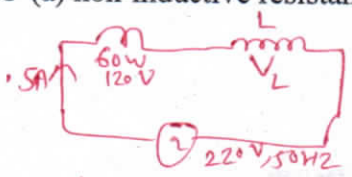


$I = \frac{P}{V} = \frac{60}{120} = .5$ amp

$V_R = 220 - 120 = 100$ V

$\therefore R = \frac{V_R}{I} = \frac{100}{.5} = 200\Omega$

②



$V_L = \sqrt{(220)^2 - (120)^2}$
$= 184.4$ Volt

$IX_L = V_L$

$X_L = \frac{V_L}{I} = \frac{184.4}{.5}$

$\therefore L = \frac{184.4}{.5\times 2\pi\times 50}$
$= 1.174$ H

** Performance Record in CT-(1) Sub- Electrical Engineering (KEE-101)

CT-(1)

MIT, Moradabad B. Tech. 1st Semester [2019 – 20]

SECTION-E Branch – CE, EC, EE, ME, CS

S.No	Name	Father's Name	Branch Alloted	Q1 CO-1/01	Q2 CO-2/01	Q3 CO-1/02	Q4 CO-2/02	Q5 CO-1/03	Q6 CO-1/03	Q7 CO-2/03	Total (15)
1.	PANKAJ KUMAR	RAJENDRA SINGH	ME	0	0	0	0	0	0	0	00
2.	PRANAV KR. SINGH	RAJNESH KUMAR SINGH	ME	1	1	2	1	1	3	1.5	11
3.	PRASHANT TIWARI	KAMLESH TIWARI	ME	1	0	1	.5	1	0	1.5	05
4.	PRYANSH KR. TYAGI	SATISH CHANDRA TYAGI	ME	1	0	2	1.5	0	0	0	05
5.	RATNESH KR. ARYA	VEER SINGH ARYA	ME	1	0	2	0	0	0	0	03
6.	RIZWAN ALI	ANEES AHMAD	ME	DEBAR							
7.	SAAD ULLAH	LAIQ HUSSAIN	ME	DEBAR							
8.	SAURABH KUMAR	OMPRAKASH SINGH	ME	–	.5	–	1	0	1	–	03
9.	SHAHROZ HUSSAIN	RASHID HUSSAIN	ME	1	0	0	0	0	0	0	01
10.	SHIVA GUPTA	VINISH GUPTA	ME	.5	1	–	1	1	1	–	05
11.	SIDDHARTH BANSAL	KULDEEP GUPTA	ME	1	1	.5	–	.5	1.5	–	05
12.	SIMRAN	OMPRAKSH SINGH	ME	1	0	0	0	0	0	0	01
13.	SUDIKSH KUMAR	SHIV KUMAR	ME	DEBAR							
14.	SYED ZAYYAN ALI	MR. SYED MAHMOOD ALI	ME	1	.5	2	0	0	0	1	05
15.	UDAY VERMA	MAHESH CHANDRA VERMA	ME	1	0	0	0	1	0	0	02
16.	VAIBHAV KR. SINGH	VIJAY PAL SINGH	ME	1	1	2	2	2	3	1.5	13
17.	VINAYAK VERMA	ANAND KUMAR VERMA	ME	1	–	0	–	–	3	.5	05
18.	YUVRAJ KHANNA	VIPIN KHANNA	ME	1	1	2	2	3	.5	2.5	12
19.	MOHD. FAIZAN		ME Re Adm	DEBAR							
20.	FARZAND ALI	LATEHAIDER ALI	ME Re Adm	DEBAR							
21.	PRIYANSHU KUMAR	PRADEEP KUMAR	CE	DEBAR							
22.	SOAYAB ALAM	FAKRUDDIN	CE	1	0	1	0	.5	1.5	.5	05
23.	SONU ARYA	NARAYAN RAM	CE	1	0	0	0	.5	0	0	02
24.	SUMIT KUMAR	PRAMOD KUMAR	CE	1	0	0	0	.5	3	.5	05
25.	SUMIT SHARMA	MAHESH SHARMA	CE	Absent							
26.	VISHAL SINDHU	NARESH SINGH	CE	1	0	1	0	.5	0	0	03
27.	RISHI SAXENA	NITIN SAXENA	EE	1	0	2	1.5	.5	2	1	08
28.	SHEETAL SINGH	RATAN SINGH	EE	0	0	0	0	0	0	0	00
29.	SUDHEER KUMAR	KOMAL SINGH	EE	1	0	0	1	0	0	.5	03
30.	SUMIT KUMAR	VISHESH KUMAR	EE	Absent							
31.	VIKAS PAL	GANGA RAM SINGH	EE	0	0	0	0	0	0	0	00
32.	VINAY DEEP	BHARAT SINGH	EE	1	0	0	0	0	0	0	01
33.	SACHIN KUMAR	RAM SINGH	EC	1	0	0	0	0	0	.5	02
34.	SAURABH SHARMA	PRAMOD SHARMA	EC	1	0	0	.5	0	0	0	02
35.	SHIVAM SINGH	ANIL KUMAR SINGH	EC	1	0	2	.5	0	0	0	04
36.	SHIVANSH CHAUHAN	MR. SHAILENDRA CHAUHAN	EC	1	1	2	1.5	1.5	1	.5	09
37.	SHUBHI CHAUDHARY	YOGESH SINGH	EC	1	–	2	1.5	0	3	1	09
38.	VAIBHAV TOMAR	LATE RAJENDRA TOMAR	EC	.5	0	0	0	.5	2	0	03
39.	VASU AGARWAL	VIKAS KR. AGARWAL	EC	0	0	2	.5	.5	0	2	05
40.	WASEEM AKRAM	IRFAN ALI	EC	0	0	0	.5	.5	0	2	03
41.	VINAY SHRESTHA	HEM BAHADUR SHRESTHA	CS	1	0	2	0	0	0	.5	04
42.	VISHAKHA CHAUDHARY	DHARMENDRA SINGH	CS	1	0	2	1	0	1.5	0	06
43.	VISHAL KUMAR	PATRAM SINGH	CS	Absent							
44.	VISHAL SHARMA	AJAY KUMAR SHARMA	CS	1	0	0	1	1	0	1.5	05
45.	VISHNU KUMAR	GOPAL SINGH	CS	0	0	0	0	0	0	0	00
46.	VISHWAS GUMAN	KAPIL KUMAR	CS	0	0	.5	.5	0	0	0	01
47.	YASH KUMAR	SANJEEV KUMAR	CS	0	0	0	0	0	0	0	00
48.	YOGENDRA KUMAR	BALRAJ SINGH	CS	0	0	0	0	0	0	1	01
49.	YOGENDRA MISHRA	MR. SANJAY MISHRA	CS	Absent							

Total no. of students appeared = (39)

Dr. Manish Saxena
HOD (ASH)

(Saurabh)
(SAURABH SAXENA
A.P., EE Deptt)

MORADABAD INSTITUTE OF TECHNOLOGY, MORADABAD

Electrical Engineering Department (2019-20)

Basic Electrical Engg. (KEE-101)

Ist sem sec. E

Class Test...(1).....

List of Students having Short Attendance < 60%

S.N.	Name of Student	S.N.	Name of Student	S.N.	Name of Student
1.	Rizwan Ali (ME)	8.	Vishal Kumar (CS)	15.	
2.	Saad Ullah (")	9.		16.	
3.	Sudiksh Kumar (")	10.		17.	
4.	Mohd. Faizan (")	11.		18.	
5.	Faizand Ali (")	12.		19.	
6.	Sumit Sharma (CE)	13.		20.	
7.	Sumit Kumar (EE)	14.		21	

List of Weak Students (Slow & Medium Learner)

S.N.	Name of Student	S.N.	Name of Student	S.N.	Name of Student
1.	Pankaj Kumar (S)	8.	Siddharth (S)	15.	Sumit Kr. (CE) (S)
2.	Prashant Tiwari (S)	9.	Simran (S)	16.	Vishal Jindhu (S)
3.	Pryansh (S)	10.	Sayyad Zayyan Ali (S)	17.	Sheetal Singh (S)
4.	Ratnesh (S)	11.	Uday Verma (S)	18.	Sudheer Kr. (S)
5.	Saurabh Kr. (S)	12.	Vinayak Verma (S)	19.	Vikas Pal (S)
6.	Shahroj (S)	13.	Soayab Alam (S)	20.	Vinay Deep (S)
7.	Shiva Gupta (S)	14.	Sonu Arya (S)	21	Sachin Kr. (S)

List of Bright Students (Slow, Medium & Fast Learner)

S.N.	Name of Student	S.N.	Name of Student	S.N.	Name of Student
1.	Saurabh Sharma (S)	8.	Vishal Sharma (S)	15.	Shivansh Chauhan (M)
2.	Shivam Singh (S)	9.	Vishnu Kr. (S)	16.	Shubhi Chaudhary (M)
3.	Vaibhav Tomar (S)	10.	Vishwas Gurman (S)	17.	Rishi Saxena (M)
4.	Vasu Ag. (S)	11.	Yash Kr. (S)	18.	
5.	Waseem (S)	12.	Yogendra Kr. (S)	19.	Pranav Singh (F)
6.	Vinay Shrestha (S)	13.		20.	Vaibhav Kr. Singh (F)
7.	Vishakha (S)	14.		21	Yuvraj Khanna (F)

Dr. Manish Saxena
HOD (ASH)
M.I.T., Moradabad

(Saurabh Saxena)
SAURABH SAXENA
A.P., EED

FINAL CLASS LIST

MIT, Moradabad

B. Tech. 1st Semester [2019 – 20]

1st CT Lecture=14, Tute=2 =14+2=16

SECTION-E

Branch – CE, EC, EE, ME, CS

S.No	ST.NO.	Reg. No	Name	Father's Name	Branch Alloted	(L+T) Attend Held 16+5+ 23
1.	1940185	RB80	PANKAJ KUMAR	RAJENDRA SINGH	ME	12+08+01 = 21
2.	1940084	RB7	PRANAV KUMAR SINGH	RAJNESH KUMAR SINGH	ME	16+22+04 = 42
3.	1940177	RB212	PRASHANT TIWARI	KAMLESH TIWARI	ME	16+20+04 = 40
4.	1940101	RB41	PRYANSH KUMAR TYAGI	SATISH CHANDRA TYAGI	ME	16+22+05 = 43
5.	1940208	RB158	RATNESH KUMAR ARYA	VEER SINGH ARYA	ME	15+15+03 = 33
6.	1940159	CB12	RIZWAN ALI	ANEES AHMAD	ME	09+13+02 = 24
7.	1940136	RB103	SAAD ULLAH	LAIQ HUSSAIN	ME	07+17+02 = 26
8.	1940057	RB61	SAURABH KUMAR	OMPRAKASH SINGH	ME	16+18+04 = 38
9.	1910181	RB20	SHAHROZ HUSSAIN	RASHID HUSSAIN	ME	14+19+03 = 36
10.	1940140	CB18	SHIVA GUPTA	VINISH GUPTA	ME	15+21+04 = 40
11.	1940003	RB40	SIDDHARTH BANSAL	KULDEEP GUPTA	ME	16+20+04 = 40
12.	1940246	RB232	SIMRAN	OMPRAKSH SINGH	ME	16+20+01 = 37
13.	1940010	RB37	SUDIKSH KUMAR	SHIV KUMAR	ME	09+05+01 = 15
14.	1940051	RB114	SYED ZAYYAN ALI	MR. SYED MAHMOOD ALI	ME	13+18+01 = 32
15.	1940222	RB220	UDAY VERMA	MAHESH CHANDRA VERMA	ME	16+22+02 = 40
16.	1940237	RB227	VAIBHAV KUMAR SINGH	VIJAY PAL SINGH	ME	16+19+02 = 37
17.	1940144	CB20	VINAYAK VERMA	ANAND KUMAR VERMA	ME	16+19+03 = 38
18.	1940189	CB36	YUVRAJ KHANNA	VIPIN KHANNA	ME	14+20+05 = 39
19.			MOHD. FAIZAN		ME Re Adm	10+05+00 = 15
20.			FARZAND ALI	LATEHAIDER ALI	ME Re Adm	08+13+02 = 23
21.	1900162	RB117	PRIYANSHU KUMAR	PRADEEP KUMAR	CE	16+15+00 = 31
22.	1900017	RB98	SOAYAB ALAM	FAKRUDDIN	CE	16+18+03 = 37
23.	1910098	RB44	SONU ARYA	NARAYAN RAM	CE	16+23+05 = 44
24.	1900179	RB194	SUMIT KUMAR	PRAMOD KUMAR	CE	16+22+04 = 42
25.	1900221	RB204	SUMIT SHARMA	MAHESH SHARMA	CE	03+04+02 = 09
26.	1900149	CB21	VISHAL SINDHU	NARESH SINGH	CE	16+22+02 = 40
27.	1920008	RB26	RISHI SAXENA	NITIN SAXENA	EE	15+19+05 = 39
28.	1920217	RB156	SHEETAL SINGH	RATAN SINGH	EE	16+15+03 = 34
29.	1920110	RB82	SUDHEER KUMAR	KOMAL SINGH	EE	16+21+05 = 42
30.	1920206	RB155	SUMIT KUMAR	VISHESH KUMAR	EE	08+00+00 = 08
31.	1920167	RB207	VIKAS PAL	GANGA RAM SINGH	EE	14+16+02 = 32
32.	1920198	CB13	VINAY DEEP	BHARAT SINGH	EE	12+22+05 = 39
33.	1931062	RB110	SACHIN KUMAR	RAM SINGH	EC	16+20+05 = 41
34.	1931239	RB190	SAURABH SHARMA	PRAMOD SHARMA	EC	16+18+03 = 37
35.	1931156	RB180	SHIVAM SINGH	ANIL KUMAR SINGH	EC	15+22+02 = 39
36.	1931187	RB164	SHIVANSH CHAUHAN	MR. SHAILENDRA CHAUHAN	EC	13+19+05 = 37
37.	1931160	CB26	SHUBHI CHAUDHARY	YOGESH SINGH	EC	14+15+03 = 32
38.	1931174	RB141	VAIBHAV TOMAR	LATE RAJENDRA TOMAR	EC	14+19+02 = 35
39.	1931161	RB144	VASU AGARWAL	VIKAS KUMAR AGARWAL	EC	16+22+04 = 42
40.	1931209	RB159	WASEEM AKRAM	IRFAN ALI	EC	13+19+05 = 37
41.	1910097	RB179	VINAY SHRESTHA	HEM BAHADUR SHRESTHA	CS	15+22+05 = 42
42.	1910232	RB223	VISHAKHA CHAUDHARY	DHARMENDRA SINGH	CS	15+16+04 = 35

Dr. Manish Saxena
HOD (ASH)
M.I.T., Moradabad

43.	1910139	RB133	VISHAL KUMAR	PATRAM SINGH	CS	01+00+00 = 01
44.	1910009	RB12	VISHAL SHARMA	AJAY KUMAR SHARMA	CS	16+18+04 = 38
45.	1910044	RB55	VISHNU KUMAR	GOPAL SINGH	CS	15+20+05 = 40
46.	1910100	RB124	VISHWAS GUMAN	KAPIL KUMAR	CS	17+19+03 = 39
47.	1910028	RB45	YASH KUMAR	SANJEEV KUMAR	CS	13+20+04 = 37
48.	1910163	RB181	YOGENDRA KUMAR	BALRAJ SINGH	CS	17+19+04 = 40
49.	1910006	RB22	YOGENDRA MISHRA	MR. SANJAY MISHRA	CS	17+14+03 = 34

Batch – E 1	All ME
Batch – E 2	All CE, EE, EC
Batch – E 3	All CS

Dr Nitin Agarwal
Dean Academics

Held

$E_1 \& E_2 = 16+23+05 \Rightarrow 44$

$E_3 = 17+23+05 \Rightarrow 45$

Dr. Manish Saxena
HOD (ASH)
M.I.T. Moradabad

Subject Teacher: Mr. Saurabh Saxena

CT-2

MIT Group of Institutions, Moradabad

ATTENDANCE SHEET

Session: 2019-20 | Class Test I / II / III

Date: 24-10-19 | Shift: I | Room No: B-318

Year: I | Semester: I | Section/Branch: E

Subject Name: Basic Electrical Engg. | Subject Code: KEE-101

S. No	Roll No.	Name of Student	Branch	Signature
1.	~~Priyansh~~ 21	Priyanshu Kumar	CE	Priyansh
2.	20	Farzand Ali	ME	Farzand
3.	22	Soayab Alam	CE	[illegible]
4.	23	Sonu Arya	CE	Sonu
5.	24	Sumit Kumar	CE	Sumit
6.	18	Yuvraj Khanna	ME	Yuvraj
7.	17	Vinayak Verma	ME	[illegible]
8.	15	Uday Verma	ME	Uday Verma
9.	16	Vaibhav Kumar Singh	ME	Vaibhav
10.	7	Saad Wasi	ME	Saad
11.	8	Saurabh Kumar	ME	Saurabh
12.	9	Shahroz Hussain	ME	Shahroz
13.	3	Prashant Tiwari	ME	Prashant
14.	4	Priyansh Tyagi	ME	Priyansh
15.	10	Shivu Gupta	ME	Shivu
16.	11	Siddharth Bansal	ME	Siddharth
17.	12	Simran	ME	Simran
18.	13	Rizwan Ali	ME	Rizwan
19.	14	Ratnesh Kumar Arya	ME	Ratnesh
20.	1	Pankaj Kumar	ME	Pankaj
21.	2	Pranav Kumar Singh	ME	Pranav Kr. Singh
22.	SYED ZAYYAN ALI		A B	SENT
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

Dr. Manish Saxena
HOD (ASH)
MIT Moradabad

Total No. of Students allotted in Room: 22 | Students Absent: 01 | Students Present: 21

Invigilators: 1) Name: R.K. Gangwar | Sign: [signature]

2) Name: | Sign: 24/10/19

Subject Teacher: Mr. Gaurabh Saxena

MIT Group of Institutions, Moradabad

CT-2

ATTENDANCE SHEET

Session: 2019-20 | Class Test I / II / III

Date: 24/10/19 | Shift: 1st | Room No: B-327

Year: 1st | Semester: 1st | Section/Branch: D1

Subject Name: Basic Electrical Engg. | Subject Code: KEE-101

S. No	Roll No.	Name of Student	Branch	Signature
1.	44.	Vishal Sharma	C.S	Vishal
2.	45	Vishnu kumar	C.S	Vishnu kumar
3.	47	Yash kumar	CS	yash.
4.	49	Yogendra Pinkra	C.S	Yogendra Pinkra
5.	48	Yogendra kumar	C.S	yogendra kumar
6.	42	Vishakha chaudhary	C.S	Vishakha
7.	41.	Vinay Shrestha	C.S.	Vinay
8.	40	Waseem Akram	EC	Waseem
9.	39	Vasu Agarwal	EC	Vasu
10.	38	Vaibhav Tomar	EC	[illegible]
11.	32	Vinay Deep +1	EE	[illegible]
12	33	Sachin kumar	EC	Sachin
13.	34	Saurabh Sharma	EC	Saurabh
14.	35	Shivam Singh	EC	[illegible]
15.	36	Shivansh Chauhan	EC	[illegible]
16.	37	Shubhi chaudhary	EC	[illegible]
17.	26	Vishal Kindlu	CE	[illegible]
18.	27	Rishi Saxena	EE	Rishi
19.	28.	Sheetal Singh	E.E	[illegible]
20.	29	Sudheer Kumar	EE	Sudheer
21	31	Vikas Pal	EE	Vikas Pal
22.	—	Vishwas Gurnan	ABSENT	—
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

Dr. Manish Saxena
HOD (ASH)
M.I.T., Moradabad

Total No. of Students allotted in Room: 22 | Students Absent: 01 | Students Present: 21

Invigilators: 1) Name Prachi Agarwal Sign: Prachi

2) Name Shilpa Rani Sign: Shilpa

Moradabad Institute of Technology, Moradabad

Electrical Engineering Department

Class Test 2

Course: B.Tech.
Session:-2019-20
Subject: Basic Electrical Engineering
Max Marks: 15

Semester: 1st
Section: D
Subject code: KEE-101
Time: 1 hour and 15 min.

Q.No.	1	2	3	4	5	6
CO No.	2	3	2	2	2	3

Section A (2×3=6)

Q1. A series circuit has R= 10Ω, L= 0.02H and C= 3μF. Calculate Q-factor of the circuit

$Q_{factor} = \frac{1}{R}\sqrt{\frac{L}{C}} = \frac{1}{10}\sqrt{\frac{.02}{3\times10^{-6}}} = 8.16$

Q2. Write the conditions for ideal transformer.

Q3. Draw the resonance curve for a series RLC circuit.

Section B (3x3=9)

Q4. Derive expression of resonance frequency for series RLC circuit.

$X_L = 2\pi fL = 15.7\,\Omega$, $X_C = 31.84\,\Omega$, $Z = 34.06\,\Omega$

OR current $I = \frac{V}{Z} = 6.75$ Amp., P.F. $\cos\phi = .94$

$P = VI\cos\phi = 1459.35$ Watt, $Q = VI\sin\phi = 527.85$ VAR, $S = VI = 1552.5$ VA

A coil having a resistance of 30 Ω and inductance of 0.05 H is connected in series with a capacitor of 100 μF. The whole circuit has been connected to a single phase 230 V,50 Hz supply. Calculate current , power and apparent power of the circuit.

Q5. The two branches of parallel circuit draws currents I_1 and I_2 such that $I_1 = 10\sqrt{2}\sin\omega t$ and $I_2 = 5\sqrt{2}\sin(\omega t - 60^0)$. What is the total current drawn.

X Components of I_1 & I_2 = 17.678
Y Components of I_1 & I_2 = −6.124
$I_T = 18.708\sin(\omega t - 19.1^\circ)$

Q6. The maximum efficiency of a 100 KVA, 1100/440 V, 50 Hz transformer is 96%, This occurs at 75% of full load at 0.8 p.f. lagging. Find the efficiency of transformer at 3/4 of Full Load at 0.6 p.f. leading.

OR

Explain working principle of the single phase transformer and derive the E.M.F. equation for it.

$(P_{out})_{at\ Max.\eta} = 100\times.75\times.8 = 60$ kW also $\eta = \frac{O/P}{O/P + P_i + P_{cu}}$

or $.96 = \frac{60}{60 + P_i + P_{cu}}$

or $P_i + P_{cu} = \frac{60}{.96} - 60 = 2.5$ kW, Iron loss $P_i = \frac{2.5}{2} = 1.25$ k

at $\frac{3}{4}$th full copper loss = 1.25 kW ($\because P_i = P_{cu}$)

(Iron Loss) 3/4 load = 1.25 kW (fix loss)

Power O/p at $\frac{3}{4}$th full load .6 pf leading $= \frac{3}{4}\times100\times.6 = 45$ kW

now $\eta = \frac{O/P}{O/P + P_i + P_{cu}}\times100 = \frac{45}{45+1.25+1.25}\times100 \Rightarrow 94.74\%$

Dr. Manish Saxena
HOD (ASH)
M.I.T., Moradabad

** Performance Record of students in CT-(2) subject Name: Electrical Engineering (KEE-101) CT-(2)

MIT, Moradabad B. Tech. 1st Semester [2019 – 20] Subject Teacher: SAURABH SAXENA

SECTION-E Branch – CE, EC, EE, ME, CS

S.No	Name	Father's Name	Branch Alloted	Q1 (2) CO-2	Q2 (2) CO-3	Q3 (2) CO-2	Q4 (3) CO-2	Q5 (3) CO-2	Q6 (3) CO-3	Total (15)
1.	PANKAJ KUMAR	RAJENDRA SINGH	ME	2	0	–	–	–	1	03
2.	PRANAV KR. SINGH	RAJNESH KUMAR SINGH	ME	2	2	2	3	2	3	14
3.	PRASHANT TIWARI	KAMLESH TIWARI	ME	2	2	2	·5	–	3	10
4.	PRYANSH KR. TYAGI	SATISH CHANDRA TYAGI	ME	2	2	2	3	–	3	12
5.	RATNESH KR. ARYA	VEER SINGH ARYA	ME	–	2	–	–	·5	1	04
6.	RIZWAN ALI	ANEES AHMAD	ME	·5	1·5	1	–	1	–	04
7.	SAAD ULLAH	LAIQ HUSSAIN	ME	2	1·5	1	–	2·5	1	08
8.	SAURABH KUMAR	OMPRAKASH SINGH	ME	2	2	2	–	2·5	1·5	10
9.	SHAHROZ HUSSAIN	RASHID HUSSAIN	ME	2	2	1·5	1	–	1	08
10.	SHIVA GUPTA	VINISH GUPTA	ME	2	·5	2	–	–	–	05
11.	SIDDHARTH BANSAL	KULDEEP GUPTA	ME	2	1	2	2·5	–	1	09
12.	SIMRAN	OMPRAKSH SINGH	ME	2	–	–	–	–	·5	03
13.	SUDIKSH KUMAR	SHIV KUMAR	ME	←						→
14.	SYED ZAYYAN ALI	MR. SYED MAHMOOD ALI	ME	←		ABSENT				→
15.	UDAY VERMA	MAHESH CHANDRA VERMA	ME	0	0	0	0	0	0	00
16.	VAIBHAV KR. SINGH	VIJAY PAL SINGH	ME	2	2	2	3	·5	3	13
17.	VINAYAK VERMA	ANAND KUMAR VERMA	ME	–	2	1	3	–	2	08
18.	YUVRAJ KHANNA	VIPIN KHANNA	ME	2	2	2	3	2	3	14
19.	MOHD. FAIZAN		ME Re Adm	←						→
20.	FARZAND ALI	LATEHAIDER ALI	ME Re Adm	–	–	–	2·5	–	1	04
21.	PRIYANSHU KUMAR	PRADEEP KUMAR	CE	2	–	1·5	2·5	–	1·5	08
22.	SOAYAB ALAM	FAKRUDDIN	CE	1	–	–	2·5	–	–	04
23.	SONU ARYA	NARAYAN RAM	CE	2	–	–	2·5	–	·5	05
24.	SUMIT KUMAR	PRAMOD KUMAR	CE	2	·5	2	1	–	2·5	08
25.	SUMIT SHARMA	MAHESH SHARMA	CE	←						→
26.	VISHAL SINDHU	NARESH SINGH	CE	2	1·5	2	3	–	2·5	11
27.	RISHI SAXENA	NITIN SAXENA	EE	2	2	2	3	–	1	10
28.	SHEETAL SINGH	RATAN SINGH	EE	2	–	2	–	–	1	05
29.	SUDHEER KUMAR	KOMAL SINGH	EE	2	–	2	2·5	–	1·5	08
30.	SUMIT KUMAR	VISHESH KUMAR	EE	←						→
31.	VIKAS PAL	GANGA RAM SINGH	EE	2	2	2	–	–	1·5	08
32.	VINAY DEEP	BHARAT SINGH	EE	2	–	–	3	1	3	08
33.	SACHIN KUMAR	RAM SINGH	EC	0	2	–	3	2·5	3	11
34.	SAURABH SHARMA	PRAMOD SHARMA	EC	0	2	1	3	–	1·5	08
35.	SHIVAM SINGH	ANIL KUMAR SINGH	EC	2	2	2	·5	–	3	10
36.	SHIVANSH CHAUHAN	MR. SHAILENDRA CHAUHAN	EC	2	2	1	3	–	2·5	11
37.	SHUBHI CHAUDHARY	YOGESH SINGH	EC	2	2	2	3	1	3	13
38.	VAIBHAV TOMAR	LATE RAJENDRA TOMAR	EC	0	1·5	2	2·5	–	3	09
39.	VASU AGARWAL	VIKAS KR. AGARWAL	EC	0	1·5	2	·5	2·5	1	08
40.	WASEEM AKRAM	IRFAN ALI	EC	0	1·5	2	·5	–	–	04
41.	VINAY SHRESTHA	HEM BAHADUR SHRESTHA	CS	2	2	2	3	0	1	10
42.	VISHAKHA CHAUDHARY	DHARMENDRA SINGH	CS	2	2	2	3	2	2·5	14
43.	VISHAL KUMAR	PATRAM SINGH	CS	←						→
44.	VISHAL SHARMA	AJAY KUMAR SHARMA	CS	–	2	2	1	–	2·5	08
45.	VISHNU KUMAR	GOPAL SINGH	CS	–	1·5	2	1·5	0	2·5	08
46.	VISHWAS GUMAN	KAPIL KUMAR	CS	←		ABSENT				→
47.	YASH KUMAR	SANJEEV KUMAR	CS	–	1·5	2	1·5	–	2·5	08
48.	YOGENDRA KUMAR	BALRAJ SINGH	CS	0	0	0	0	–	0	00
49.	YOGENDRA MISHRA	MR. SANJAY MISHRA	CS	1	·5	2	0	–	0	04

No. of Students appeared = 42
No. of Students absent = 02
No. of Students Debarred/Dropped = 05
No. of Students < 50% Marks = 13
No. of Students > 50% Marks = 29

Dr. Manish Saxena
HOD (ASH)
M.I.T., Moradabad
31.10.19

SAURABH SAXENA
A.P., EE Deptt.

MORADABAD INSTITUTE OF TECHNOLOGY, MORADABAD

Electrical Engineering Department (2019-20)

Basic Electrical Engg. (KEE-101)

Class Test..(II)..... Ist sem / sec. E

List of Students having Short Attendance (<70%)

S.N.	Name of Student	S.N.	Name of Student	S.N.	Name of Student
1.	Pankaj Kr.	8.		15.	
2.	Rizwan Ali	9.		16.	
3.	Saad Ullah	10.		17.	
4.	Farzand Ali	11.		18.	
5.	Sumit Sharma (CE)	12.		19.	
6.	Vishal Sharma (CS)	13.		20.	
7.		14.		21	

List of Weak Students (slow, medium, fast)

S.N.	Name of Student	S.N.	Name of Student	S.N.	Name of Student
1.	Pankaj Kumar (S)	8.	Soayab Alam (S)	15.	Saad Ullah (M)
2.	Ratnesh (S)	9.	Sonu Arya (S)	16.	Shahroz (M)
3.	Rizwan Ali (S)	10.	Sheetal Singh (S)	17.	Siddharth (M)
4.	Shiva Gupta (S)	11.	Waseem Akram (S)	18.	Vinayak (M)
5.	Simran (S)	12.	Yogendra Kr (S)	19.	Priyanshu (M)
6.	Uday Verma (S)	13.	Yogendra Mishra (S)	20.	Sumit Kr (CE) (M)
7.	Farzand Ali (S)	14.	Vishwas Guman (M)	21	Sudheer Kr. (M)

List of Bright Students (slow, medium, fast)

S.N.	Name of Student	S.N.	Name of Student	S.N.	Name of Student
1.	Vikas Pal (M)	8.	Pranav Kr (F)	15.	Rishi Saxena (F)
2.	Vinay Deep (M)	9.	Prashant (F)	16.	Sachin Kr. (F)
3.	Saurabh Sharma (M)	10.	Priyansh (F)	17.	Shivam (F)
4.	Vaibhav Tomar (M)	11.	Saurabh Kr. (F)	18.	Shivansh (F)
5.	Vasu Agarwal (M)	12.	Vaibhav Singh (F)	19.	Shubhi (F)
6.	Vishal Sharma (M)	13.	Yuvraj Khanna (F)	20.	Vinay (F)
7.	Vishnu Kr. (M)	14.	Vishal Sindhu (F)	21	Vishakha (F)

slow ≤ 07 Marks
Medium = 08-09 "
Fast ≥ 10 "

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HOD (ASH)
M.I.T. Moradabad

(Saurabh Saxena)
(SAURABH SAXENA)

Attendance Register. Dates From: 01-08-2019 to 25-11-2019

CT-3

Paper Code - KEE-101

• Course: B.Tech • Year: 1st • Section: E | Staff Name: Saurabh Saxena

S. No.	Name	Student Id	Roll Number	(P)	(A)	Tot.	Tot. (%age)
1	Pankaj Kumar	1940185		44	23	67	65.67
2	Pranav Kumar Singh	1940084		64	3	67	95.52
3	Prashant Tiwari	1940177		61	6	67	91.04
4	Pryansh Kumar Tyagi	1940101		66	1	67	98.51
5	Ratnesh Kumar Arya	1940208		54	13	67	80.6
6	Rizwan Ali	1940159		52	15	67	77.61
7	Saad Ullah	1940136		52	15	67	77.61
8	Saurabh Kumar	1940057		61	6	67	91.04
9	Shahroz Hussain	1940035		59	8	67	88.06
10	Shiva Gupta	1940140		62	5	67	92.54
11	Siddharth Bansal	1940003		60	7	67	89.55
12	Simran	1940246		57	10	67	85.07
13	Sudiksh Kumar	1940010		15	52	67	22.39
14	Syed Zayyan Ali	1940051		50	17	67	74.63
15	Uday Verma	1940222		58	9	67	86.57
16	Vaibhav Kumar Singh	1940237		60	7	67	89.55
17	Vinayak Verma	1940144		61	6	67	91.04
18	Yuvraj Khanna	1940189		62	5	67	92.54
19	Mohd Faizan	1840030	1808240026	13	50	63	20.63
20	Farzamd Ali	1840280	1808240016	50	13	63	79.37
21	Priyanshu Kumar	1900162		52	22	74	70.27
22	Soayab Alam	1900017		60	14	74	81.08
23	Sonu Arya	1900098		71	3	74	95.95
24	Sumit Kumar	1900179		68	6	74	91.89
25	Sumit Sharma	1900221		12	62	74	16.22
26	Vishal Sindhu	1900149		64	10	74	86.49
27	Rishi Saxena	1920008		67	7	74	90.54
28	Sheetal Singh	1920217		58	16	74	78.38
29	Sudheer Kumar	1920110		70	4	74	94.59
30	Sumit Kumar	1920206		7	67	74	9.46
31	Vikas Pal	1920167		57	17	74	77.03
32	Vinay Deep	1920198		67	7	74	90.54
33	Sachin Kumar	1931062		71	3	74	95.95
34	Saurabh Sharma	1931239		61	13	74	82.43
35	Shivam Singh	1931156		62	12	74	83.78
36	Shivansh Chauhan	1931187		63	11	74	85.14
37	Shubhi Chaudhary	1931160		57	17	74	77.03

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Saurabh

38	Vaibhav Tomar	1931174	60	14	74	81.08
39	Vasu Agarwal	1931161	70	4	74	94.59
40	Waseem Akram	1931209	62	12	74	83.78
41	Vinay Shrestha	1910097	59	5	64	92.19
42	Vishakha Chaudhary	1910232	53	11	64	82.81
43	Vishal Kumar	1910139	-	64	64	0
44	Vishal Sharma	1910009	54	10	64	84.38
45	Vishnu Kumar	1910044	60	4	64	93.75
46	Vishwas Guman	1910100	55	9	64	85.94
47	Yash Kumar	1910028	52	12	64	81.25
48	Yogendra Kumar	1910163	57	7	64	89.06
49	Yogendra Mishra	1910006	52	12	64	81.25

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Subject Teacher: Mr. Saurabh Saxena

CT-3

MIT Group of Institutions, Moradabad

ATTENDANCE SHEET

Session: 2019-20 | **Class Test I / II / III**

Date: 30-11-19 | **Shift:** 1st | **Room No:** B-318

Year: 1st | **Semester:** 1st | **Section/Branch:** E'

Subject Name: Basic Electrical Engineering | **Subject Code:** KEE-101

S. No	Roll No	Name of Student	Branch	Signature
1.	1	Pankaj kumar	ME	Pankaj
2.	2	Pranav Kumar Singh	ME	Pranav Kr Singh
3.	3	Prashant Tiwari	ME	Prashant
4.	4.	Priyansh Tyagi	ME	Priyansh
5.	10	Shiva Gupta	ME	Shiva
6.	11	Siddharth Bansal	ME	Siddharth
7.	12	Simran	ME	Simran
8.	13.	Rizwan Ali	ME	Rizwan Ali
9.	05	Ratnesh Kumar Arya	ME	रत्नेश कुमार
10.	14	Syed Zayyan Ali	ME	[illegible]
11.	21	Priyanshu Kumar	CE	Priyanshu
12.	22	Sohayab Alam	CE	Sohayab
13.	23	Sonu Arya	CE	Sonu Arya
14.	24	Sumit Kumar	CE	Sumit
15.	18	Yuvraj Khanna	ME	Yuvraj
16.	17	Vinayak Verma	ME	[illegible]
17.	16	Vaibhav Kumar Singh	ME	Vaibhav
18.	15	Uday Verma	ME	Uday Verma
19.	09	Shahroz Hussain	ME	Shahroz
20.	08	Saurabh Kumar	ME	Saurabh
21.				
22.		[SAAD ULLAH] [ABSENT]		
23.				
24.				
25.				
26.				
27.				
28				
29				
30				

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M.I.T. Moradabad

Total No. of Students allotted in Room: 21 | **Students Absent:** 01 | **Students Present:** 20

Invigilators: 1) Name PRASHANT SINGH **Sign:**

2) Name **Sign:** 30-11-19

Subject Teacher: Mr. Saurabh Saxena

CT-3

MIT Group of Institutions, Moradabad

ATTENDANCE SHEET

Session: 2019-20 | Class Test I / II / III ✓

Date: 30/11/19 | Shift: 1st | Room No: B-327

Year: 1st | Semester: 1st | Section/Branch: E/CSE/EC

Subject Name: Basic Electrical Engg. | Subject Code: KEE-101

S. No	Roll No.	Name of Student	Branch	Signature
1.	26	Vishal Sindhu	CE	[illegible]
2.	27	Rishi Saxena	EE	[illegible]
3.	28	Sheetal Singh	EE	[illegible]
4.	29	Sudheer Kumar	EE	Sudheer
5.	32	Vinay Deep	EE	[illegible]
6.	37	Shubhi Chaudhary	EC	[illegible]
7.	36	Shivansh Chauhan	EC	Shivam
8.	34	Saurabh Sharma	EC	Saurabh
9.	33	Sachin Kumar	EC	Sachin
10.	39	Vasu Agarwal	EC	Vasu
11.	38	Vaibhav Tomar	EC	[illegible]
12.	45	Vishnu Kumar	CS	Vishnu Kumar
13.	44.	Vishal Sharma	CS	Vishal.
14.	46.	Vishwas Gunan	CS	Vishwas
15.	47	Yash Kumar	CS	Yash.
16.	48	Yogendra Kumar	CS	Yogendra
17.	49	Yogendra Mishra	CS	Yogendra Mishra
18.		Vikas Pal	ABSENT	
19.		Shivam Singh		
20.		Wasim Akram		
21.		Vinay Shrustha	CS	[illegible]
22.	42	Vishakha Chaudhary	CS	Vishakha
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

Dr. Manish Saxena
HOD (ASH)
MIT, Moradabad

Total No. of Students allotted in Room: 22 | Students Absent: 03 | Students Present: 19

Invigilators: 1) Name: Prachi Agarwal | Sign: Prachi

2) Name: Shilpi Rani | Sign: Shilpi

Moradabad Institute of Technology, Moradabad

Electrical Engineering Department

Class Test 3

Course: B.Tech.
Session:-2019-20
Subject: Basic Electrical Engineering
Max Marks: 15

Semester: 1st
Section: D & E
Subject code: KEE-101
Time: 1 hour and 15 min.

Q.No.	1	2	3	4	5	6
CO No.	4	4	5	4	4	5

Note: Be precise in your answer.

Section A **(2×3=6)**

Q1. Write the EMF equation for a DC generator. $E_g = \frac{\phi Z N P}{60 A}$

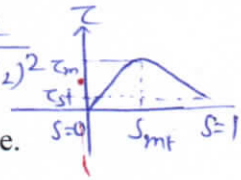
Q2. Define Slip. $S = \frac{N_S - N_r}{N_S}$

Q3. What is the difference between primary and secondary batteries.

Section B **(3x3=9)**

Q4. Draw and explain the torque slip characteristics of the three phase induction motor. Mark the starting torque and max torque from the diagram.

$$\tau = \frac{K S E_2^2 R_2}{R_2^2 + (S X_2)^2}$$



OR

Explain why a single phase induction motor does not develop the starting torque.

Q5. Explain why Synchronous motor can run only on the Synchronous speed.

OR

Draw and explain different characteristics of DC motor.

Q6. Write short notes on any three

1. MCB's
2. ELCB's
3. SFU
4. MCCB

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M.I.T., Moradabad

CT-3

Paper Code: KEE-101 - (EE), Course - B.Tech, Sem - 1, Section - E

Sessional Name: CT-03 (Odd Sem)

S. No.	Student Id	Roll No.	Name	Max. Marks						Total	Per.
				Q. 1	Q. 2	Q. 3	Q. 4	Q. 5	Q. 6		(%)
				2	2	2	3	3	3	15	
1	1940185		Pankaj Kumar	0						-	-
2	1940084		Pranav Kumar Singh	2	2	2	3	0	3	12	80
3	1940177		Prashant Tiwari	2	1	2	1	1	2	9	60
4	1940101		Pryansh Kumar Tyagi	2	1	2	3	3	3	14	93.33
5	1940208		Ratnesh Kumar Arya	2	1	2	0	0	1	6	40
6	1940159		Rizwan Ali	2	0	2	1	0	1	6	40
7	1940136		Saad Ullah	A	A	A	A	A	A	-	-
8	1940057		Saurabh Kumar	2	2	2	3		3	12	80
9	1940035		Shahroz Hussain	2	1	2			3	8	53.33
10	1940140		Shiva Gupta	2	2	1	3		3	11	73.33
11	1940003		Siddharth Bansal	2	1	2		0	2	7	46.67
12	1940246		Simran	1	1	1	3	0	1	7	46.67
13	1940010		Sudiksh Kumar							-	-
14	1940051		Syed Zayyan Ali	2	1	1			3	7	46.67
15	1940222		Uday Verma	2				1	3	6	40
16	1940237		Vaibhav Kumar Singh	2	2	2	3	3	3	15	100
17	1940144		Vinayak Verma	2	1	1			2	6	40
18	1940189		Yuvraj Khanna	2	2	2	3	3	2	14	93.33
19	1840030	1808240026	Mohd Faizan							-	-
20	1840280	1808240016	Farzamd Ali							-	-
21	1900162		Priyanshu Kumar	1	1	2	3		2	9	60
22	1900017		Soayab Alam	2	0	2	2		1	7	46.67
23	1900098		Sonu Arya	1	0	2	3	0	1	7	46.67
24	1900179		Sumit Kumar	2	2	0	3	3	3	13	86.67
25	1900221		Sumit Sharma							-	-
26	1900149		Vishal Sindhu	2	2	2	3	1	3	13	86.67
27	1920008		Rishi Saxena	1	2	2	3	1	3	12	80
28	1920217		Sheetal Singh	1	1	2	0		3	7	46.67
29	1920110		Sudheer Kumar	2	2	2	0	1	3	10	66.67
30	1920206		Sumit Kumar							-	-
31	1920167		Vikas Pal	A	A	A	A	A	A	-	-
32	1920198		Vinay Deep		1		0	0	2	3	20
33	1931062		Sachin Kumar	2	2	2	3		1	10	66.67
34	1931239		Saurabh Sharma	0	0	2	2	2	2	8	53.33
35	1931156		Shivam Singh	A	A	A	A	A	A	-	-
36	1931187		Shivansh Chauhan	2	1	2	3	3	3	14	93.33
37	1931160		Shubhi Chaudhary	2	2	2	3	1	3	13	86.67

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38	1931174		Vaibhav Tomar	2	2	2	2	1	3	12	80
39	1931161		Vasu Agarwal	2	1	2	0	0	3	8	53.33
40	1931209		Waseem Akram	A	A	A	A	A	A	-	-
41	1910097		Vinay Shrestha	2	2	2	2	2	2	12	80
42	1910232		Vishakha Chaudhary	2	2	2	3	2	3	14	93.33
43	1910139		Vishal Kumar							-	-
44	1910009		Vishal Sharma	1	1	1	2	2	2	9	60
45	1910044		Vishnu Kumar	2	1	1	1		2	7	46.67
46	1910100		Vishwas Guman	2	2	2	3	1	3	13	86.67
47	1910028		Yash Kumar	1	1	1			2	5	33.33
48	1910163		Yogendra Kumar						0	-	-
49	1910006		Yogendra Mishra	1	1	1				3	20

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MORADABAD INSTITUTE OF TECHNOLOGY, MORADABAD

Electrical Engineering Department (2019-20)

Basic Electrical Engg. (KEE-101)

Class Test 3 ..... 1st sem / sec. E

List of Students having Short Attendance					
S.N.	Name of Student	S.N.	Name of Student	S.N.	Name of Student
1.	Sumit Sharma (CE)	8.		15.	
2.	Vishal Kr. (CS)	9.		16.	
3.		10.		17.	
4.		11.		18.	
5.		12.		19.	
6.		13.		20.	
7.		14.		21	

List of Weak Students (slow & medium Learner)					
S.N.	Name of Student	S.N.	Name of Student	S.N.	Name of Student
1.	Pankaj Kr. (S)	8.	Vinayak (S)	15.	Yogendra Kr. (S)
2.	Ratnesh (S)	9.	Sohyab Alam (S)	16.	Yogendra Mishra (S)
3.	Rizwan (S)	10.	Sonu (S)	17.	Vishal Sharma (M)
4.	Siddharth (S)	11.	Sheetal (S)	18.	Vasu Agarwal (M)
5.	Simran (S)	12.	Vinay Deep (S)	19.	Saurabh Sharma (M)
6.	S. Zayyan Ali (S)	13.	Vishnu Kr. (S)	20.	Priyanshu Kr. (M)
7.	Uday Verma (S)	14.	Yash Kr. (S)	21	Shahroj (M)

List of Bright Students (fast Learner)					
S.N.	Name of Student	S.N.	Name of Student	S.N.	Name of Student
1.	Prashant Tiwari (M)	8.	Sudheer Kr. (F)	15.	Vaibhav Tomar (F)
2.		9.	Rishi (F)	16.	Vinay Shrestha (F)
3.		10.	Vishal Jindhu (F)	17.	Vishakha (F)
4.		11.	Sumit Kr. (CE) (F)	18.	Vishwas Gurman (F)
5.	Pranav Singh (F)	12.	Yuvraj Khanna (F)	19.	Shubhi (F)
6.	Prayansh (F)	13.	Vaibhav Kr. Singh (F)	20.	Shivansh (F)
7.	Saurabh Kumar (F)	14.	Shiva Gupta (F)	21	Sachin Kr. (F)

Slow Learner ≤ 07 marks
Medium " = 8-9 marks
Fast " ≥ 10 marks

Saurabh
(SAURABH SAXENA)

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M.I.T., Moradabad

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MORADABAD INSTITUTE OF TECHNOLOGY
ELECTRICAL ENGINEERING DEPARTMENT

Questions for Fast Learners

Q1. A 100Ω resistance is carrying a sinusoidal current given by 3cosωt. Determine- (i) instantaneous power taken by resistance and (ii) average power.
[450 (1+cos 2ωt) W; 450 W]

Q2. The current in a 2.2kΩ resistor is i=5sin (2π x 100t +45°) mA.

(i) Write the mathematical expression for the voltage across the resistor.
[11 sin (2π x 100t + 45°)]

(ii) What is the RMS value of the resistor voltage? **[7.78 V]**

(iii) What is the instantaneous value of resistor voltage at t=0.4 ms. **[9.47 V]**

Q3. A pure inductive coil allows a current of 10 A flows from a 230 V, 50 Hz supply. Find (i) inductive reactance; (ii) inductance of the coil; (iii) power absorbed.
Write down the equations for voltage and current.
[23 Ω; 0.073 H; Zero; *v*=325.27 sin 314t; *i*= 14.14 sin (314t – π/2)]

Q4. A choke coil takes a current of 2A lagging 60° behind the applied voltage of 200 V at 50 Hz.

(i) Calculate impedance, resistance and inductance of the coil. **[100 Ω; 50 Ω; 0.275 H]**

(ii) Find the power consumed when the coil is connected across 100 V, 25 Hz supply. **[113.5 W]**

Q5. Calculate the capacitance of a condenser to be connected in series with a 100 V, 80 W lamp to enable it to be used on a 200 V, 50 Hz supply. **[14.7 x 10^{-6} F]**

Q6. A 230 V, 50 Hz a.c. supply is applied to a coil of 0.06 H inductance and 2.5 Ω resistance connected in series with 6.8 μF capacitor. Calculate (i) impedance; (ii) current; (iii) phase angle between current and voltage; (iv) power factor and (v) power consumed.
[449.2 Ω; 0.512 A; 89.7° Lead; 0.00557 Lead; 0.656 W]

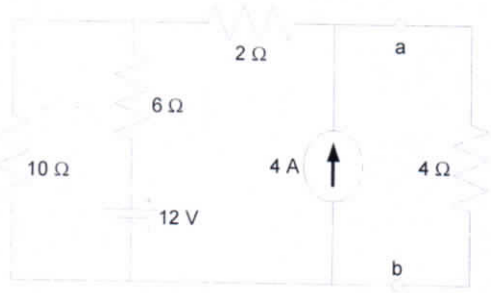
Q7. A coil of resistance 100Ω and inductor 100 μH is connected in series with a 100pf capacitor. The circuit is connected to a 10 V variable frequency source. Calculate (i) resonant frequency; (ii) current at resonance; (iii) voltage across L & C at resonance and (iv) Q-factor of the circuit.
[1.59 x 10^6 Hz; 0.1 A; V_L=100 V; V_C=100 V; 10]

Dr. Vansh Kapoor
HOD (EE)
M.I.T. Moradabad

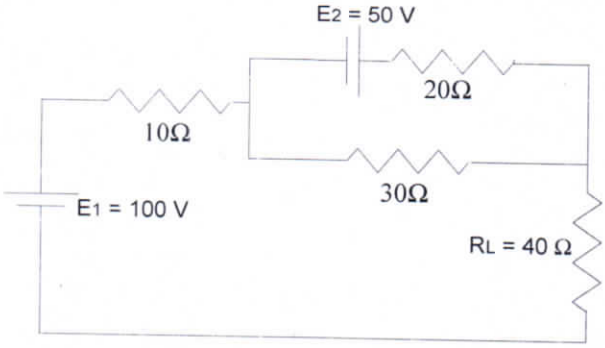
Q8. A series LC circuit is composed of a 15 μH, 10Ω inductor and a 100 pF capacitor. Determine its Bandwidth. **[106.15 kHz]**

Q9. A series RLC circuit which resonates at f_r=500 kHz has L= 100 μH, R= 25 Ω and C=1000 pF. Determine (i) Q-factor of the circuit; (ii) the new value of C required to resonate at 500 kHz when the value of L is doubled and new Q-factor. **[12.6; 500 pF; 25]**

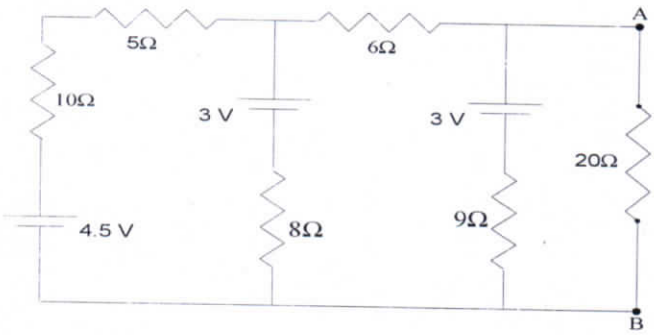
Q10. Find the current I in the circuit shown in figure by using Thevenin's theorem. **[2.5 A]**



Q11. Find Thevenin's equivalent in the circuit in figure **[V_{th}= 130 V; R_{th}= 22 Ω]**



Q12. Find the voltage between points A & B in the network shown in figure 3.3 using Norton's theorem. **[2.56 V]**



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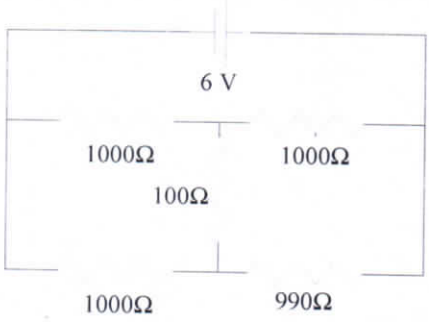
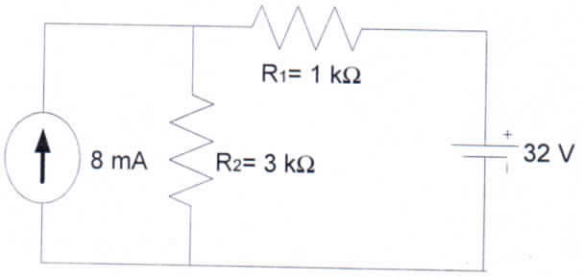
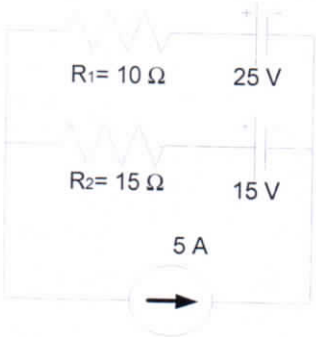
Q13. What is the current in 100 Ω resistor in figure 3.4 if the 990 Ω resistor is changed to 1010 Ω? Use Norton's theorem to obtain the result. **[13.45 μA]**



Q14. Use the Superposition theorem to find the current through R_l= 1 kΩ in the circuit shown in figure 3.5. **[2mA from right to left]**



Q15. Use the Superposition theorem to find the current through R_l= 10 Ω in the circuit shown in figure 3.6. **[4.6 A from left to right]**



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M.I.T., Moradabad

MORADABAD GROUP OF INSTITUTIONS, MORADABAD

ELECTRICAL ENGINEERING DEPARTMENT

Questions for S/F/L

Q1. A 25 hp, 250V dc series motor has armature resistance of 0.1Ω & field resistance of 0.05Ω & brush contact drop 3V. When the line current is 80A, the speed is 600 rpm. Find the speed when the line current is 100A. **[N=473.9 rpm]**

Q2.A 250v dc shunt motor having an armature resistance of 0.25 ohm carries an armature current of 50 A and runs at 750 rpm. If flux is reduced by 10%, find speed. Assume that torque remain the same. **[N=828.5 rpm]**

Q.3. The armature of a 6-pole lap wound dc shunt motor takes 400A at a speed of 350 rpm. The flux per pole is 80 mWb, the no. of turns is 600 & 3% of torque is lost in friction. Calculate the brake horse power. **[T=295.13]**

Q4. A 3-phase, 50 Hz induction motor has 6 poles and operates with a slip of 5% at a certain load. Determine

(a) The speed of the rotor with respect to the stator. **[N=950 rpm]**
(b) The frequency of rotor current. **[f=2.5 hz]**
(c) The speed of the rotor magnetic field with respect to rotor. **[N=50 rpm]**
(d) The speed of the rotor magnetic field with respect to stator. **[N=1000 rpm]**
(e) The speed of the rotor magnetic field with respect to the stator magnetic field. **[N=0 rpm]**

Q5. A 3- phase, 4-pole induction motor is supplied from 3- phase, 50Hz ac supply calculate

(a) The synchronous speed. **[N=1500 rpm]**
(b) The rotor speed when sleep in 4%. **[N= 1440 rpm]**
(c) The rotor frequency when rotor runs at 600 rpm. **[f=3Hz]**

Q6. A dc generator has an armature emf of 100 v when the useful flux per pole is 20mWb and the speed is 800 rpm. Calculate the generated emf (i) with the same flux and a speed of 1000 rpm (ii) with a flux per pole of 24 mWb and a speed of 900 rpm. **[E=125 V; E=135 V]**

Q7.A 4 pole lap wound armature has 144 slot with two coil sides per slot each coil having 2 turns. If the flux per pole is 20 mWb and armature rotates at 720 rpm. What is induced voltage? **[E=138.24 V]**

Q8. A 20 kW, 200 V shunt generator has an armature resistance of 0.05 ohm and a shunt field resistance of 200 ohm. Calculate the power developed in armature when it delivers rated output. **[P=20.71kW]**

Q9. A 3-phase delta connected 440 volts, 50Hz, 4- pole induction motor has a rotor stand still emf per phase of 130 volts if the motor is running at 1440 rpm calculate for this speed.

(a) The slip
(b) The frequency of rotor induced emf.
(c) The value of the rotor induced emf per phase
(d) Stator to rotor turn ratio

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ELECTRICAL ENGINEERING DEPARTMENT

Questions for S/F/L

Q1. Given a balanced 3- Ø, 3-wire system with Y- connected load for which line voltage is 230 V,50Hz and impedance of each phase is (8 + j6) ohm. Find the line current, pf, power, volt-amperes and reactive power. Draw the phasor diagram of the above circuit. (I_L=13.28A, P.f.=0.8 lagging, P=4.232KW, S=5290VA, Q=3.174KVAR) (J.B.G. P.no.-233)

Q2. A 3- phase balanced load connected across a 3- phase, 400V ac supply draws a line current is 10Amp .Two wattmeters are used to measure input power. The ratio of two wattmeter's readings in 2:1. Find the readings of the two wattmeters. (W_1=4000W, W_2=2000W) (J.B.G. P.no.-249)

Q3. In a 2 wattmeter method power measured was 30KWat 0.7 p.f. lagging. Find the reading of each wattmeter. (W_1=23.835KW, W_2=6.165KW)(J.B.G. P.no.-249)

Q4. In a 2 wattmeter method of power measurement in a 3-phase circuit, the readings of the wattmeters are 1,200 watt and 300 watt. What is the p.f. of the load, prove the formula used. (P.f.=0.6934 lagging) (J.B.G. P.no.-248)

Q5. A 3 wire, 3-phase supply feeds a load consisting of three equal resisters. By how much is the load reduced if one of the resistor be removed?

(i) When the load is star connected (ii) When the load is delta connected

(In star-50%, In delta-33.33%) (J.B.G. P.no.-242)

Q6. A balanced star connected load of (8+j6) per phase is connected to a balanced 3- phase, 400V supply. Find the line current power factor, power and total volt amperes. (I_L=23.1A, P=12.8KW, S=16KVA,P.f.=0.8 lagging) (J.B.G. P.no.-231)

Q7. A moving coil instrument has a resistance of 5 ohm and gives a full scale deflection of 100 mV. Show how the instrument may be used to measure.

(i) Voltage up to 50V.

(ii) Current up to 10A. (R=2.495 Ω, R=5/499 Ω) (J.B.G. P.no.-277)

Q8.A moving coil meter gives full scale deflection with 15 mA and has a resistance of 5 ohm. Calculate the resistance to be connected to make the meter usable as an ammeter of 10A range and the same meter as the voltmeter of 100 V range. Indicate their suitable connections. (R_s=0.0075113Ω, R=6.66K Ω) (J.B.G. P.no.-277)

Q9. A balanced delta connected load of (12+j9)Ω/phase is connected to 3-phase 400V supply. Find: (i) Line Current (ii) Power Factor (iii) Power drawn (iv) Reactive volt-amperes (v) Total volt-amperes.(I_L=46.2 A,P.f.=0.8 lagging, P=25.6KW, Q=19.2KVAR, S=32KVA) (J.B.G. P.no.-237)

Q10. Three identical resistors of 20Ω each are connected in star to a 415V, 50Hz, three-phase supply. Calculate (i) the total power consumed, (ii) the total power consumed, if they are connected in delta (iii) the total power consumed, if one of the resistors is opened. (P_s=8.61KW, P_D=25.83KW, P_s=4.3KW, P_D=17.2KW) (J.B.G. P.no.-242)

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S.N	Name of Student	Branch	CT-1
1	PANKAJ KUMAR	ME	6
2	PRANAV KR. SINGH	ME	14
3	PRASHANT TIWARI	ME	5
4	PRYANSH KR. TYAGI	ME	5
5	RATNESH KR. ARYA	ME	3
6	RIZWAN ALI	ME	D
7	SAAD ULLAH	ME	D
8	SAURABH KUMAR	ME	3
9	SHAHROZ HUSSAIN	ME	1
10	SHIVA GUPTA	ME	5
11	SIDDHARTH BANSAL	ME	5
12	SIMRAN	ME	1
13	SUDIKSH KUMAR	ME	D
14	SYED ZAYYAN ALI	ME	5
15	UDAY VERMA	ME	3
16	VAIBHAV KR. SINGH	ME	13
17	VINAYAK VERMA	ME	5
18	YUVRAJ KHANNA	ME	12
19	MOHD. FAIZAN	ME Re Adm	D
20	FARZAND ALI	ME Re Adm	D
21	PRIYANSHU KUMAR	CE	A
22	SOAYAB ALAM	CE	5
23	SONU ARYA	CE	2
24	SUMIT KUMAR	CE	5
25	SUMIT SHARMA	CE	A
26	VISHAL SINDHU	CE	3
27	RISHI SAXENA	EE	8
28	SHEETAL SINGH	EE	0
29	SUDHEER KUMAR	EE	3
30	SUMIT KUMAR	EE	A
31	VIKAS PAL	EE	4
32	VINAY DEEP	EE	1
33	SACHIN KUMAR	EC	2
34	SAURABH SHARMA	EC	2
35	SHIVAM SINGH	EC	8
36	SHIVANSH CHAUHAN	EC	9
37	SHUBHI CHAUDHARY	EC	9
38	VAIBHAV TOMAR	EC	3
39	VASU AGARWAL	EC	5
40	WASEEM AKRAM	EC	6
41	VINAY SHRESTHA	CS	4
42	VISHAKHA CHAUDHARY	CS	6
43	VISHAL KUMAR	CS	A
44	VISHAL SHARMA	CS	5
45	VISHNU KUMAR	CS	0
46	VISHWAS GUMAN	CS	1
47	YASH KUMAR	CS	0
48	YOGENDRA KUMAR	CS	1
49	YOGENDRA MISHRA	CS	A

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Electrical Engineering Department

Electrical Engineering (KEE-101) (1st Yr E)

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1	PANKAJ KUMAR	ME	7
2	PRANAV KR. SINGH	ME	15
3	PRASHANT TIWARI	ME	11
4	PRYANSH KR. TYAGI	ME	12
5	RATNESH KR. ARYA	ME	5
6	RIZWAN ALI	ME	5
7	SAAD ULLAH	ME	11
8	SAURABH KUMAR	ME	10
9	SHAHROZ HUSSAIN	ME	8
10	SHIVA GUPTA	ME	7
11	SIDDHARTH BANSAL	ME	10
12	SIMRAN	ME	4
13	SUDIKSH KUMAR	ME	D
14	SYED ZAYYAN ALI	ME	A
15	UDAY VERMA	ME	0
16	VAIBHAV KR. SINGH	ME	13
17	VINAYAK VERMA	ME	8
18	YUVRAJ KHANNA	ME	14
19	MOHD. FAIZAN	ME Re Adm	D
20	FARZAND ALI	ME Re Adm	4
21	PRIYANSHU KUMAR	CE	7
22	SOAYAB ALAM	CE	4
23	SONU ARYA	CE	5
24	SUMIT KUMAR	CE	8
25	SUMIT SHARMA	CE	A
26	VISHAL SINDHU	CE	11
27	RISHI SAXENA	EE	10
28	SHEETAL SINGH	EE	9
29	SUDHEER KUMAR	EE	8
30	SUMIT KUMAR	EE	A
31	VIKAS PAL	EE	8
32	VINAY DEEP	EE	13
33	SACHIN KUMAR	EC	11
34	SAURABH SHARMA	EC	10
35	SHIVAM SINGH	EC	13
36	SHIVANSH CHAUHAN	EC	12
37	SHUBHI CHAUDHARY	EC	14
38	VAIBHAV TOMAR	EC	10
39	VASU AGARWAL	EC	8
40	WASEEM AKRAM	EC	6
41	VINAY SHRESTHA	CS	12
42	VISHAKHA CHAUDHARY	CS	14
43	VISHAL KUMAR	CS	A
44	VISHAL SHARMA	CS	8
45	VISHNU KUMAR	CS	8
46	VISHWAS GUMAN	CS	A
47	YASH KUMAR	CS	8
48	YOGENDRA KUMAR	CS	0
49	YOGENDRA MISHRA	CS	6

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S.N	Name of Student	Branch	CT-3
1	PANKAJ KUMAR	ME	0
2	PRANAV KR. SINGH	ME	12
3	PRASHANT TIWARI	ME	9
4	PRYANSH KR. TYAGI	ME	14
5	RATNESH KR. ARYA	ME	7
6	RIZWAN ALI	ME	7
7	SAAD ULLAH	ME	0
8	SAURABH KUMAR	ME	12
9	SHAHROZ HUSSAIN	ME	8
10	SHIVA GUPTA	ME	11
11	SIDDHARTH BANSAL	ME	7
12	SIMRAN	ME	8
13	SUDIKSH KUMAR	ME	D
14	SYED ZAYYAN ALI	ME	7
15	UDAY VERMA	ME	8
16	VAIBHAV KR. SINGH	ME	15
17	VINAYAK VERMA	ME	6
18	YUVRAJ KHANNA	ME	14
19	MOHD. FAIZAN	ME Re Adm	D
20	FARZAND ALI	ME Re Adm	D
21	PRIYANSHU KUMAR	CE	9
22	SOAYAB ALAM	CE	7
23	SONU ARYA	CE	7
24	SUMIT KUMAR	CE	13
25	SUMIT SHARMA	CE	A
26	VISHAL SINDHU	CE	13
27	RISHI SAXENA	EE	12
28	SHEETAL SINGH	EE	9
29	SUDHEER KUMAR	EE	12
30	SUMIT KUMAR	EE	A
31	VIKAS PAL	EE	A
32	VINAY DEEP	EE	3
33	SACHIN KUMAR	EC	11
34	SAURABH SHARMA	EC	10
35	SHIVAM SINGH	EC	A
36	SHIVANSH CHAUHAN	EC	14
37	SHUBHI CHAUDHARY	EC	14
38	VAIBHAV TOMAR	EC	12
39	VASU AGARWAL	EC	8
40	WASEEM AKRAM	EC	A
41	VINAY SHRESTHA	CS	12
42	VISHAKHA CHAUDHARY	CS	14
43	VISHAL KUMAR	CS	A
44	VISHAL SHARMA	CS	9
45	VISHNU KUMAR	CS	7
46	VISHWAS GUMAN	CS	13
47	YASH KUMAR	CS	5
48	YOGENDRA KUMAR	CS	0
49	YOGENDRA MISHRA	CS	6

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S.N	Name of Student	Branch	Attendance (AT) (10)
1	PANKAJ KUMAR	ME	8
2	PRANAV KR. SINGH	ME	10
3	PRASHANT TIWARI	ME	10
4	PRYANSH KR. TYAGI	ME	10
5	RATNESH KR. ARYA	ME	9
6	RIZWAN ALI	ME	9
7	SAAD ULLAH	ME	9
8	SAURABH KUMAR	ME	10
9	SHAHROZ HUSSAIN	ME	10
10	SHIVA GUPTA	ME	10
11	SIDDHARTH BANSAL	ME	10
12	SIMRAN	ME	10
13	SUDIKSH KUMAR	ME	D
14	SYED ZAYYAN ALI	ME	9
15	UDAY VERMA	ME	10
16	VAIBHAV KR. SINGH	ME	10
17	VINAYAK VERMA	ME	10
18	YUVRAJ KHANNA	ME	10
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23	SONU ARYA	CE	10
24	SUMIT KUMAR	CE	10
25	SUMIT SHARMA	CE	D
26	VISHAL SINDHU	CE	10
27	RISHI SAXENA	EE	10
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43	VISHAL KUMAR	CS	D
44	VISHAL SHARMA	CS	10
45	VISHNU KUMAR	CS	10
46	VISHWAS GUMAN	CS	10
47	YASH KUMAR	CS	9
48	YOGENDRA KUMAR	CS	10
49	YOGENDRA MISHRA	CS	9

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In Pursuit of Excellence	**Previous Year Question Papers**	SESSION-2019-2020 SEM-Ist

Last year question papers are attached.

→ P.T.O.

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 Sub Code:KEE101

Paper Id: 120101 **Roll No:** | | | | | | | | | | | | | |

B TECH
(SEM-I) THEORY EXAMINATION 2019-20
BASIC ELECTRICAL ENGG.

Time: 3 Hours ***Total Marks: 100***

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

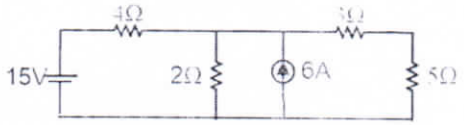
SECTION A

1. Attempt *all* questions in brief. **2 x 10 = 20**

Qno.	Question	Marks	CO
a.	What do you understand by unilateral and bilateral elements? Give examples.	2	1
b.	What is the utility of superposition theorem?	2	1
c.	Determine the form factor of AC current $i = 200 \sin(157t + \pi/6)$.	2	2
d.	Explain the term "Dynamic Impedence" in AC circuits	2	2
e.	How MMF is related to Reluctance. Explain	2	3
f.	Define voltage regulation of a transformer.	2	3
g.	Why commutator is needed?	2	4
h.	Give the expression of speed in terms of poles and frequency of supply.	2	4
i.	Write full form of (i) MCB (ii) MCCB (iii) ELCB (iv) SFU.	2	5
j.	What are the factors that affect the battery capacity?	2	5

SECTION B

2. Attempt any *three* of the following: **10 x 3 = 30**

Qno.	Question	Marks	CO
a.	Determine the current flowing through 5 ohms resistance in the network shown below (fig-1) using Thevenin's theorem.  Fig (1)	10	1
b.	The instantaneous values of two alternating voltages are represented by $V_1 = 60 \sin \theta$ and $V_2 = \sin(\theta - \pi/3)$. Derive expressions for the instantaneous values of (i) the sum and (ii) the difference of these voltages.	10	2
c.	Explain different types of Magnetic materials with examples.	10	3
d.	Derive the expression of torque for dc motor. Also discuss the applications of it.	10	4
e.	An alkaline cell is discharged at a steady current of 4 A for 12 hours, the average terminal voltage being 1.2 V. To restore it to original state of voltage, a steady current of 3 A for 20 hours is required, the average terminal voltage being 1.44 V. Calculate the ampere-hour and watt-hour efficiencies in this particular case.	10	5

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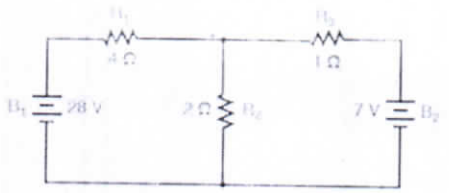
Sub Code:KEE101

Paper Id: 120101

Roll No: | | | | | | | | | | | | | |

SECTION C

3. Attempt any *one* part of the following: 10 x 1 = 10

Qno.	Question	Marks	CO
a.	Using superposition, find the current flowing through 2 ohm resistance in following circuit (fig-2).  Fig (2)	10	1
b.	Derive an expression of delta to star and star to delta transformation with example and satisfy the condition of both expressions.	10	1

4. Attempt any *one* part of the following: 10 x 1 = 10

Qno.	Question	Marks	CO
a.	Derive an expression of resonance frequency in series resonance circuit. If the bandwidth of a resonant circuit is 10 KHz and the lower half power frequency is 120 KHz, find out the value of the upper half power frequency and the quality factor of the circuit.	10	2
b.	Derive the relationship between line and phase current & voltage for a star connected 3-phase balanced system. A balanced delta connected load of (12 + j 9) Ω/ phase is connected to 3-phase 400 V supply. Calculate line current, power factor and power drawn by it.	10	2

5. Attempt any *one* part of the following: 10 x 1 = 10

Qno.	Question	Marks	CO
a.	Draw and explain the no load and full load phasor diagrams for a single phase transformer.	10	3
b.	(i) Explain single phase Auto transformer and give its application. (ii) In a 25 KVA, 2000/200 V transformer, the constant and variable losses are 350 W and 400 W respectively. Calculate the efficiency on unity power factor at (i) full load and (ii) half load.	10	3

6. Attempt any *one* part of the following: 10 x 1 = 10

Qno.	Question	Marks	CO
a.	Draw the slip-torque characteristics of three phase induction motor. A 3-phase, 50 Hz induction motor has 6 poles and operates with a slip of 5 % at a certain load. Determine (i) the speed of the rotor with respect to the stator (ii) the frequency of rotor current (iii) the speed of the rotor magnetic field with respect to rotor.	10	4
b.	(i) Describe any one method of starting single phase induction motor with neat diagram. (ii) Why Synchronous motor is not self starting?	10	4

7. Attempt any *one* part of the following: 10 x 1 = 10

Qno.	Question	Marks	CO
a.	Explain the requirement of earthing for electrical equipment. What is the difference between neutral and earthing	10	5
b.	Name the various cables used in electrical system based on insulation. Explain any two. What are the features of good conductor in electrical circuit	10	5

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B.TECH.

THEORY EXAMINATION (SEM–II) 2016-17

BASIC ELECTRICAL ENGINEERING

Time : 3 Hours *Max. Marks : 70*

Note : Be precise in your answer. In case of numerical problem assume data wherever not provided.

SECTION – A

1. Attempt any seven of the following: **7 x 2 = 14**

a) Write two characteristics of Active elements

b) The two voltage waves are given: $V_A = 150\sin(wt+45^o)$ $V_B = 75\sin(wt-15^o)$
Which voltage wave is leading with other and what will be the phase angle between V_A and V_B.

c) What is series resonance?

d) State Norton's Theorem.

e) Write four advantages of Three Phase System.

f) Why Damping torque is provided to an indicating instrument?

g) Define Magnetomotive Force (mmf).

h) Write two differences between a transformer and an autotransformer.

i) Write two applications of Synchronous motor.

SECTION – B

2. Attempt any three parts of the following questions: **3 x 7 = 21**

a) Using Nodal analysis find the current through 1 Ω resistance shown in Fig. 1.

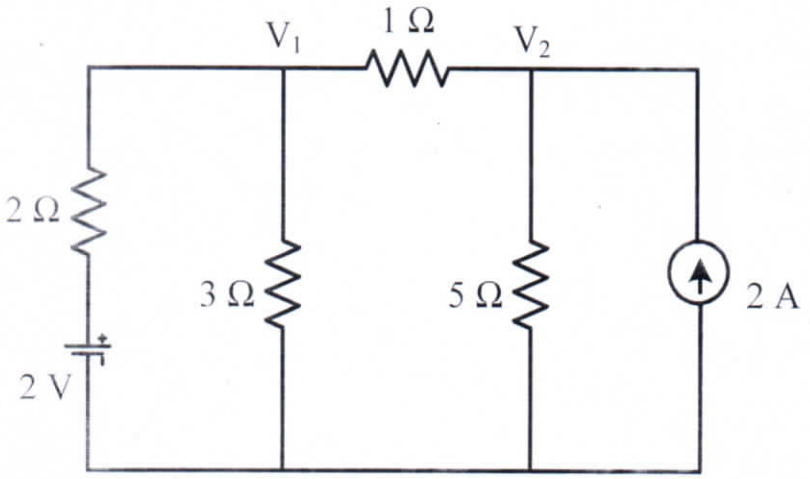

Fig.1

b) Draw the phasor diagram for the following voltages. Calculate the resultant voltage. Also find the r.m.s. voltage.

$v_1 = 100\sin 500t$ $v_2 = 200\sin(500t + \Pi/3)$

$v_3 = -50\cos 500t$ $v_4 = 150\sin(500t - \Pi/4)$

c) Explain the principle and construction of PMMC type instruments. Discuss their merits and demerits.

d) Deduce analogy between electric circuits and magnetic circuits. Also explain B-H curve and discuss its effect on hysteresis loss

e) Derive emf equation of D.C. machine. Also deduce the expression for torque of a dc machine.

SECTION – C

Attempt any five parts of the following questions: **5 x 7 = 35**

3. In a 25 kVA, 2000 V/200 V transformer the iron and copper losses are 200 W and 400 W respectively. Calculate the efficiency of half load and 0.8 pf. lagging. Also determine the maximum efficiency and corresponding load.
4. Single phase induction motor is not self-starting. Explain? Name various starting methods of single phase induction motor and explain capacitor run motor.
5. Explain series resonance in RLC circuit. What are the bandwidth and quality factor of the circuit? Derive expressions for lower and upper half power frequencies for a series RLC circuit.
6. A 46 mH inductive coil has a resistance of 10 ohm. How much current will it draw, if connected across 100 V, 50 Hz source? Also determine the value of capacitance that must be connected across the coil to make the power factor of the circuit to be unity.
7. A balanced star connected load of (8 + j6) Ω per phase is connected to a 3-phase 400 V supply. Find the line current, power factor, 3-phase power and 3-phase volt-amperes. Also draw the phasor diagram.
8. Define power factor. Discuss reasons for poor power factor. How can power factor be improved?
9. A dc shunt generator delivers 50 kW at 250 V when running at 500 rpm. The armature and field resistances are 0.05 Ω and 125 Ω respectively. Calculate the speed of the same machine and developed torque when running as a shunt motor and taking 50 kW at 250 V.
10. State and prove maximum power transfer theorem. Find the Value of R_L that we can transfer maximum power to it & also calculate the maximum power transferred as shown in Fig.2.

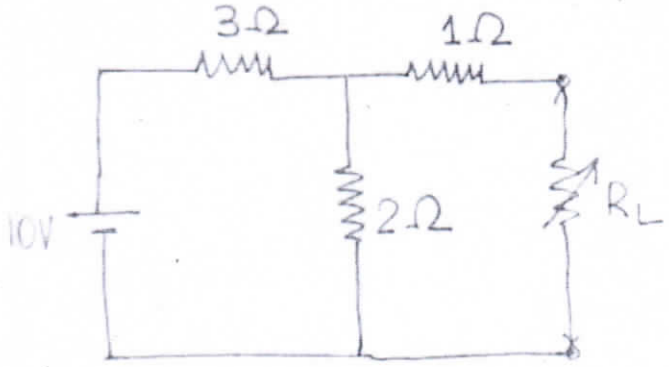

Fig. 2

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B.TECH.

THEORY EXAMINATION (SEM–II) 2016-17

BASIC ELECTRICAL ENGINEERING

Time : 3 Hours *Max. Marks : 100*

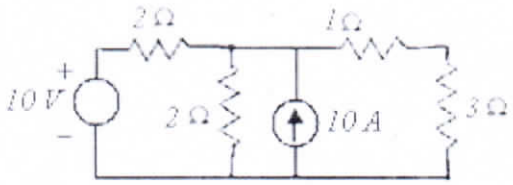
Note : Be precise in your answer. In case of numerical problem assume data wherever not provided.

SECTION – A

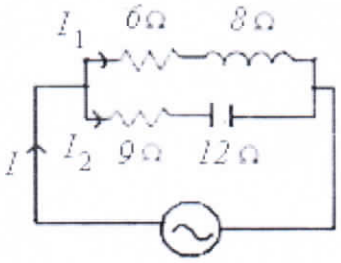
1. **Explain the following:** **10 x 2 = 20**
   - (a) Define unilateral and bi-lateral elements.
   - (b) What are the advantages of three phase system over the single phase system?
   - (c) Why the series resonance is called the voltage resonance?
   - (d) What do you understand by an accepter and rejector circuit?
   - (e) Why damping torque in necessary for an analog type instruments?
   - (f) What do you know about phase sequence in a three phase supply system?
   - (g) How hysteresis loss can be minimised in a transformer?
   - (h) Write the function of commutator in a DC generator.
   - (i) Name any two motors, which can be used for purpose of constant speed.
   - (j) Why condensor is necessary to be connected in ceiling fan?

SECTION – B

2. **Attempt any five parts of the following questions:** **5 x 10 = 50**
   - (a) Find the current in 3 ohm resistance by loop current method and verify the answer by node voltage method.



   - (b) For the parallel circuit shown in figure, calculate the following;
     - (i) Current through each branch
     - (ii) Total current drawn and power factor of complete circuit.
     - (iii) Equivalent impedance of the circuit.
     - (iv) Draw phasor diagram



230 V 50 Hz

   - (c) Define power factor? What are causes and effects of low power factor? What are the methods to improve the power factor of an ac circuit?
   - (d) A Series R-L-C circuit consists of a resistance of 10Ω an inductance of 0.1H and a capacitance of 8μf. Determine;
     - (i) the resonance frequency, (ii) the Q factor of the circuit at resonance,
     - (iii) Band width (iv) the half power frequencies

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(e) What are the power losses in a transformer? Define efficiency and obtain the condition for a transformer, when it operates at its maximum efficiency.

(f) Explain construction and working of attraction type moving iron instrument. List the advantages and disadvantages of these instruments.

(g) A 20 KW, 250V dc shunt machine has armature and field resistances 0.1 ohm and 125 ohm respectively. Calculate the emf developed in armature when running (i) as a generator delivering 20 KW output (ii) as a motor taking 20 KW input.

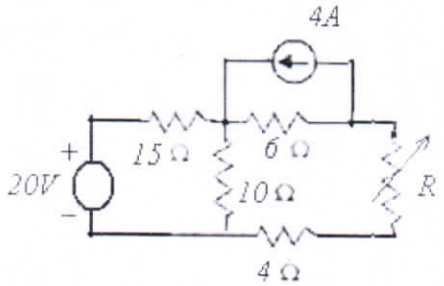
(h) Write the working principle of a three phase induction motor. Draw its torque-slip characteristics and show operating, breaking and generating regions of motor.

SECTION – C

Attempt any two of the following questions: **2 x 15 = 30**

3. (a) State and prove maximum power transfer theorem.

(b) Find the value of resistance R for maximum power transfer in the circuit shown. Also obtain the value of maximum power.



4. (a) Discuss the Quality factor and Bandwidth in detail.

The power of a 400 volts, 3-phase, star connected 3-phase circuit is measured by two-wattmeter method. If the readings of both wattmeter's are found to be 50 kW and 30 kW, then calculate the followings:

(i) Circuit power factor

(ii) Total active and reactive power.

(iii) Line current drawn by the circuit.

(iv) Impedance per phase

5. (a) A moving coil instrument gives a full scale deflection of 20 mA when a potential difference of 50 mV is applied. Calculate the series resistance to measure 500 V on full scale.

(b) Explain double field revolving theory.

(c) Write applications of three phase synchronous motor.

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Printed Pages : 2 **Roll No.** | | | | | | | | | | | **NEE201**

B.TECH.

THEORY EXAMINATION (SEM–II) 2016-17

BASIC ELECTRICAL ENGINEERING

Time : 3 Hours *Max. Marks : 100*

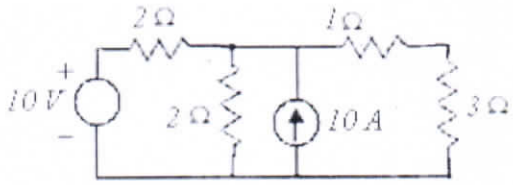
Note : Be precise in your answer. In case of numerical problem assume data wherever not provided.

SECTION – A

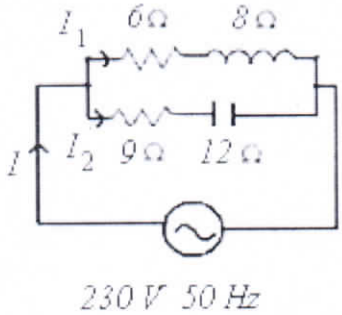
1. **Explain the following:** **10 x 2 = 20**
   - (a) Define unilateral and bi-lateral elements.
   - (b) What are the advantages of three phase system over the single phase system?
   - (c) Why the series resonance is called the voltage resonance?
   - (d) What do you understand by an accepter and rejector circuit?
   - (e) Why damping torque in necessary for an analog type instruments?
   - (f) What do you know about phase sequence in a three phase supply system?
   - (g) How hysteresis loss can be minimised in a transformer?
   - (h) Write the function of commutator in a DC generator.
   - (i) Name any two motors, which can be used for purpose of constant speed.
   - (j) Why condensor is necessary to be connected in ceiling fan?

SECTION – B

2. **Attempt any five parts of the following questions:** **5 x 10 = 50**
   - (a) Find the current in 3 ohm resistance by loop current method and verify the answer by node voltage method.



   - (b) For the parallel circuit shown in figure, calculate the following;
     - (i) Current through each branch
     - (ii) Total current drawn and power factor of complete circuit.
     - (iii) Equivalent impedance of the circuit.
     - (iv) Draw phasor diagram



   - (c) Define power factor? What are causes and effects of low power factor? What are the methods to improve the power factor of an ac circuit?
   - (d) A Series R-L-C circuit consists of a resistance of 10Ω an inductance of 0.1H and a capacitance of 8μf. Determine;
     - (i) the resonance frequency,
     - (ii) the Q factor of the circuit at resonance,
     - (iii) Band width
     - (iv) the half power frequencies

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(e) What are the power losses in a transformer? Define efficiency and obtain the condition for a transformer, when it operates at its maximum efficiency.

(f) Explain construction and working of attraction type moving iron instrument. List the advantages and disadvantages of these instruments.

(g) A 20 KW, 250V dc shunt machine has armature and field resistances 0.1 ohm and 125 ohm respectively. Calculate the emf developed in armature when running (i) as a generator delivering 20 KW output (ii) as a motor taking 20 KW input.

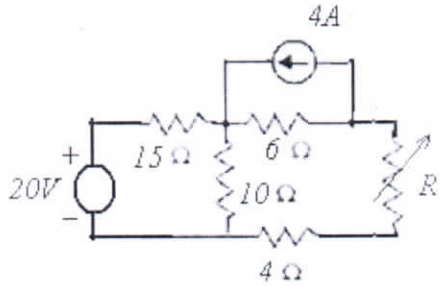
(h) Write the working principle of a three phase induction motor. Draw its torque-slip characteristics and show operating, breaking and generating regions of motor.

SECTION – C

Attempt any two of the following questions: **2 x 15 = 30**

3. (a) State and prove maximum power transfer theorem.

(b) Find the value of resistance R for maximum power transfer in the circuit shown. Also obtain the value of maximum power.



4. (a) Discuss the Quality factor and Bandwidth in detail.

The power of a 400 volts, 3-phase, star connected 3-phase circuit is measured by two-wattmeter method. If the readings of both wattmeter's are found to be 50 kW and 30 kW, then calculate the followings;

(i) Circuit power factor

(ii) Total active and reactive power.

(iii) Line current drawn by the circuit.

(iv) Impedance per phase

5. (a) A moving coil instrument gives a full scale deflection of 20 mA when a potential difference of 50 mV is applied. Calculate the series resistance to measure 500 V on full scale.

(b) Explain double field revolving theory.

(c) Write applications of three phase synchronous motor.

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Printed Pages: 7 **REE - 101**

(Following Paper ID and Roll No. to be filled in your Answer Books)

Paper ID : 2289964 **Roll No.** | | | | | | | | | | |

B.TECH

Regular Theory Examination (Odd Sem-I), 2016-17

BASIC ELECTRICAL ENGINEERING

Time : 3 Hours *Max. Marks : 70*

Note: Attempt all sections. Answer any data if found missing.

SECTION - A

1. **Attempt all the following parts.** **(7×2=14)**

   a) Give two comparison between unilateral and bilateral elements

   b) Give two limitation of Thevenin's theorem.

   c) What will be the RMS value of voltage for v = 416 sinwt waveform.

d) In case two wattmeters are having same reading in a two wattmeter method of power measurement what will be the power factor of the circuit?

e) What do you mean by back emf in dc motor.

f) Write emf equation of single phase transformer.

g) Give two causes of Low power factor.

SECTION - B

2. Attempt any three from the following: (3×7=21)

a) State and Explain Kirhchoff's Law. What are the limitations and applications of Kirchoff's Law in circuit theory explain.

b) What do you understand by "Series Resonance" and "Parallel Resonance"? What are the application of tank circuits?

c) Derive relation between line and phase values in delta connected 3-phase balance system. A 3 phase voltage source has a phase voltage of 120V and

supplies star connected load having impedance of $24 + j36\,\Omega$ per phase.

Calculate

i) Line Voltage

ii) Line current

iii) Total 3-phase power supplied to the load.

d) Explain the working of induction type of single phase energy meter with neat diagrams.

e) A 120 V dc shunt motor having an armature circuit resistance of $0.2\,\Omega$ and field circuit resistance of $60\,\Omega$, draw a line current of 40 A at full load. The brush voltage drop is 3V and rated full load speed is 1800 rpm. Calculate

i) The speed at half load

ii) The speed at 125% of full load.

SECTION - C

Attempt any five questions from the following

(5×7=35)

3. Using mesh analysis, find the current s I_1, I_2 and I_3 in the following circuit of Fig.1

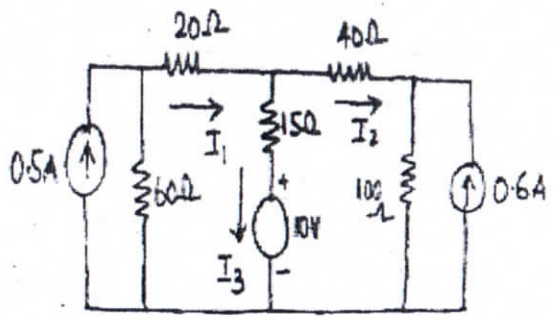

Fig 1.

4. A series ac circuit has a resistance of 15 Ω and inductive reactance of 10 Ω. Calculate the value of a capacitor which is connected across this series combination so that system has unit power factor. The frequency of ac supply is 50Hz

5. A 1-pahse 250/500 V transformer gave the following results.

Open circuit test 250V, 1A, 80W (LV side)

Short circuit test 20V, 12A, 100W (H.V.Side)

Calculate the equivalent circuit parameters and show them on an equivalent circuit.

6. i) Explain why the hysteresis loss and eddy current loss occur in a transformer. Explain how these losses can be reduced in a transformer. **(4)**

   ii) What do you understand by the efficiency of a transformer? Deduce the condition for maximum efficiency. **(3)**

7. i) Explain B-H loop for magnetic circuit. **(3)**

   ii) An iron ring 10 cm mean diameter is made of round iron rod 1.5cm in diameter of relative permeability of 900 and has an air gap of 5mm in length. It has a winding of 400 turns. If the current through winding is 3.4 amp. Determine:

a) mmf

b) Flux in the ring

c) flux density in the ring

d) Total reluctance of the circuit.

8. Explain three wattmeter method to measure 3-ϕ power in a Y connected load. Derive the phase angle in terms of wattmeter reading and also draw phasor diagram also.

9. a) Explain the speed-torque characteristics of dc shunt and series motors.

b) Explain why a synchronous motor does not develop starting torque.

c) Explain the working principle of three phase induction motor.

10. The induced emf between the slip-ring terminals of 3-phase induction motor, when the rotor is stand still is 100V. The rotor windings are star connected and have resistance and stand still reactance of 0.05 Ω and 0.1 Ω per phase respectively. Calculate the rotor current and phase difference between rotor voltage and current at 4% slip.

Printed Pages: 6 NEE-201/NEE-101/EEE-201/EE-201

(Following Paper ID and Roll No. to be filled in your Answer Books)

Paper ID : 199227 Roll No. [ ][ ][ ][ ][ ][ ][ ][ ][ ][ ]

B.TECH.

Theory Examination (Semester-II) 2015-16

BASIC ELECTRICAL ENGINEERING

Time : 3 Hours *Max. Marks : 100*

Section-A

1. Answer all parts in few sentences/words : (10×2=20)

(a) Distinguish between active and passive elements.

(b) A 40 V d.c. source has internal resistance of 2 ohm and supplies a resistive load. What can be maximum power drawn by the load ?

(c) The equation of an alternating current is i = 141.4 sin 314t. What is r.m.s. value of current and frequency ?

(d) What do you mean by apparent power, active power and reactive power ?

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(e) In two watt meter method of power measurement in three phase circuit the readings of both watt meters are equal. What is power factor ?

(f) Why is scale of moving iron instruments nonlinear ?

(g) Large ampere turns are needed to create flux in the air gap as compured to steel. why ?

(h) A 400v/200v single phase transformer has primary winding resistance 1.0 ohm and secondary winding resistance 0.2 ohm. What will be total resistance of transformer referred to the primary side ?

(i) Draw torque v/s speed characteristics of a d.c. series motor and explain why the motor should not be started at no load.

(j) Draw slip v/s torque characteristics of a three phase induction motor and indicate

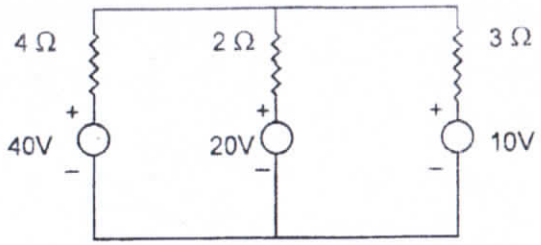
(i) Stable operating zone

(ii) induction generator operating zone.

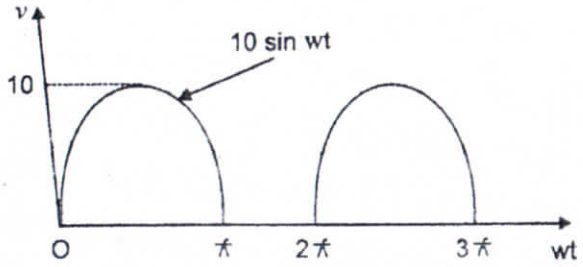
Section-B

2. Answer any five questions : (10 × 5 = 50)

(a) Find current in 2 ohm resistance in the following figure using loop analysis method.



(b) Find average and r.m.s. values of following voltage waveform



(c) Explain resonance in a series RLC circuit with the help of impedance v/s frequency diagram and derive an expression for resonant frequency. Write properties of sereis resonance circuit.

(d) Three similar coils each having a resistunce of 10 ohm and an inductance of 0.0318 H in series are connected in delta. The line voltage is 400V, 50 HZ. Calculate :

(i) phase current

(ii) line current

(iii) power factor

(iv) total power in the circuit

(e) Explain construction and principle of operation of a permanent magnet moving coil instrument with the help of a neat diagrams. Why is scale uniform ?

(f) Define following with respect to a magnetic circuit :

(i) magnetomotive force

(ii) flux

(iii) Veluctance

(iv) Flux density

(v) magnetic field intensity.

Give analogous of each term in corresponding electric circuit.

(g) A 50 KVa transformer has a cove loss of 400 w and a full load copper loss of 800 w. The power factor of the load is 0.9 lossing calculate

(i) full load efficiency

(ii) the maximum efficiency and the load at which maximum efficiency occurs.

(h) A 6-pole lap wound dc shunt motor has 250 armature conductors, a flux of 0.04 wb/pole and runs at 1200 rpm. The armature and field winding resistances are 1 ohm and 220 ohm respectively. It is connected to a 220V dc supply. Determine

(i) induced emf in the motor

(ii) armature current

(iii) input supply current

(iv) mechanical power developed in the motor

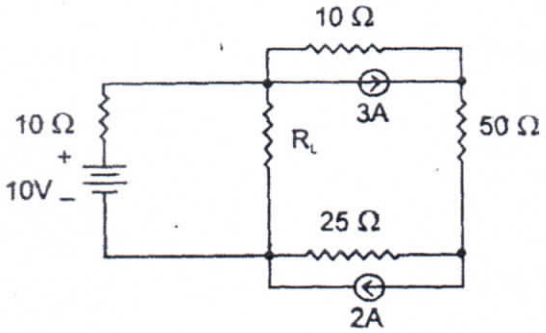
(v) torque developed.

Section - C

Note : Answer any questions of the following : (15×2=30)

3. (a) State and prove maximum power transfer theorm.(7)

(b) In the circuit shown below, determine value of R_L for maximum power transfer condition and also obtain maximum power transferred to the load. (8)



Using double revolving field theory explain why single phase induction motor is not self starting. Describe capacitor start - capacitory run method for starting single phase induction motor and give two applications of such motor. (15)

(a) Why a three phase synchronous motor is not self starting ? Discuss use of damper winding for starting a synchronous motor. (10)

(b) Explain single phase auot transformer and give its two applications. (5)

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Printed Pages : 5 | 1162 | NEE-101

(Following Paper ID and Roll No. to be filled in your Answer Book)

Paper ID : 121101 | Roll No. | | | | | | | | | | |

B.Tech.

(SEM. I) THEORY EXAMINATION, 2015-16

BASIC ELECTRICAL ENGINEERING

[Time:3 hours] [Total Marks:100]

SECTION-A

1. Attempt **all** questions. All questions carry equal marks. (10×2=20)

(a) Define Bilateral & Unilateral Elements with example.

(b) What will happen if the primary of a transformer is connected to D.C. supply?

(c) What are the advantages of wound rotor motors over squirrel cage motors?

(d) State Superpostion Theorem & Norton's Theorem.

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(e) What happens when one phase of a delta connected alternator is reversed?

(f) What do you mean by the term Resonance?

(g) What is meant by Current magnification?

(h) Define RMS value & Average value.

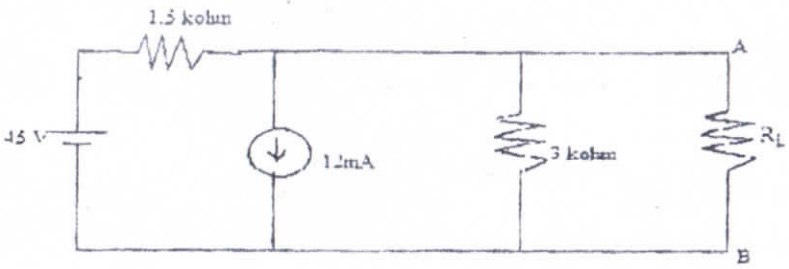
(i) Define the terms: Permeability, Relative permeability & Reluctance applied to magnetic circuits.

(j) How does magnetic circuit differ from Electric circuit?

SECTION-B

Attempt **any five** questions. All questions carry equal marks. (10×5=50)

2. (a) How Norton's Theorem is equivalent to Thevnin's Theorem? Also write the Limitations of Thevnin's Theorem and find the voltage across load resistance R_L using Thevnin's theorem when load resistance is 2 kΩ.



(b) Explain with a neat diagram, the constructional features and working of Dynamometer type Wattmeter. Also write its merits & demerits.

(c) Explain the principle of operation of a transformer. Derive E.M.F. equation of Single phase transformer.

(d) What are the causes of low power factor in supply system? Discuss its effect & how power factor is improved?

(e) List the various Losses occurring in transformer & the condition for maximum efficiency. In a 25 KVA, 2000/200 V transformer the iron & copper losses are 200 W & 400 W respectively. Calculate the efficiency at half load & 0.8 power factor lagging. determine also the maximum efficiency & the corresponding load.

(f) What are the methods of power measurement in 3-phase Ac circuits? explain Two-Wattmeter method for delta connected load.

(g) Derive the expression for Generated E.M.F. in Dc Machine. Explain the term Back E.M.F. when applied to Dc motor. Briefly explain what role Back E.M.F plays in starting & running of motor.

(h) Why is the Synchronous motor not self starting? Explain the advantages & disadvantages along with applications of Synchronous motor.

SECTION–C

Attempt **any two** parts of the following. (15×2=30)

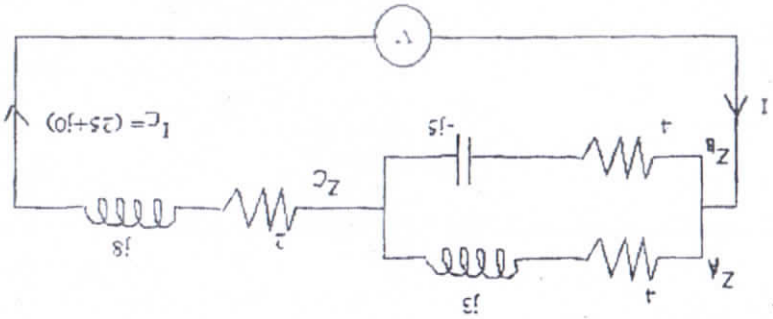
3. (a) Derive the expression of resonant frequency of parallel R-L-C circuit. In series-parallel circuit A & B are in series with C. The Impedances are: Z_A=4+j3 Ω, Z_B=4-j5 Ω, Z_C=2+j8 Ω. If the current I_C=(25+j0), calculate:

i) Branch Voltage

ii) Branch Currents

iii) Total Power

iv) Phasor Diagram



(b) Explain the working of 3-phase Induction motor. what is meant by slip? Explain Slip-Torque characteristics of 3-phase Induction motor.

(c) Obtain the relation between line & phase voltages in balanced Star connected load system. Also draw its Phasor diagram. A3-phase, star connected balanced load is supplied by 400 V, 50 Hz. The load takes a leading current of 100 √ 3 A & power 20 kW.Calculate power factor of load and Resistance & Inductance per phase.

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Printed Pages : 4

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NEE101/NEE201

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 199227

Roll No. | | | | | | | | | | |

B. Tech.

(SEM. II) THEORY EXAMINATION, 2014-15

BASIC ELECTRICAL ENGINEERING

Time : 3 Hours] [Total Marks : 100

SECTION – A

Attempt all parts of this question. Each part carries equal marks. 10×2=20

1 (a) Define ideal voltage and current source.

(b) State maximum power transfer theorem.

(c) Define Form Factor and Peak Factor.

(d) A series circuit has R = 10 ohm, L = 0.02 H and C = 3 μF. Calculate Q-factor of the circuit.

(e) What is the major difference between PMMC type and dynamometer type of instruments ?

(f) Draw connection diagram for power measurement in three phase delta circuit using two wattmeter methods.

(g) Define MMF and write its unit.

(h) Draw equivalent circuit diagram of single phase transformer.

(i) Draw speed – torque characteristic of DC series motor.

(j) Write applications of single phase induction motor.

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SECTION - B

Attempt any three questions from 2, 3, 4, 5 & 6. 3×10=30

2 (a) Use superposition theorem to compute the current through 1 Ω resistor of Fig. 1 5

(b) Derive the delta to star transformation. 5

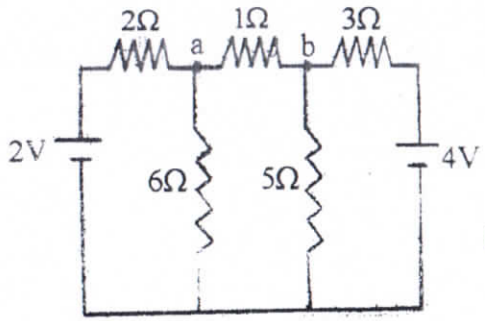

Fig.1

3 (a) Derive resonance conditions in series circuit. Also derive the expression for Bandwidth. 5

(b) A coil having a resistance of 30 Ω and inductance of 0.05 H is connected in series with a capacitor of 100 μF The whole circuit has been connected to a single phase 230 V, 50 Hz supply. Calculate impedance, current, power factor, power and apparent power of the circuit. 5

4 (a) In the two wattmeter method of power measurement in a three phase circuit, the readings of the wattmeter's are 2000 W and 500 W. What is the total power and power factor of the load ? 5

(b) Explain with neat diagram, working principle of PMMC type electrical measuring instruments. 5

5 (a) Derive and explain the equivalent circuit of a transformer. 5

(b) Define efficiency of transformer. Find condition for maximum efficiency of transformer. 5

6 (a) Why single phase induction motor is not self-starting machine ? Explain it. 5

(b) Classify DC motors and write current and voltage equation for each type. 5

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SECTION - C

Attempt any one part from each question of this section. Each part carries equal marks. 5×10=50

7 (a) Use source transformation method to compute the current through 6 Ω resistor of Fig. 2. 10

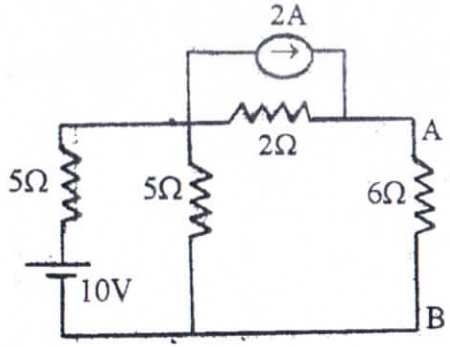

Fig.2

(b) Determine the effective resistance between terminals A-B in the network of Fig. 3. 10

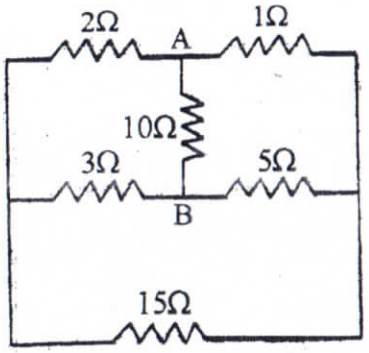

Fig.3

8 (a) Explain Parallel Resonance. A circuit of a resistance of 20 Ω, and inductance of 0.3 H and a variable capacitance in series across a 220 V, 50 Hz supply. Calculate: 10

(i) The value of capacitance to produce resonance

(ii) The voltage across the capacitance and inductance

(iii) The Q-factor of the circuit.

(b) Find form factor and peak factor for given waveform. 10

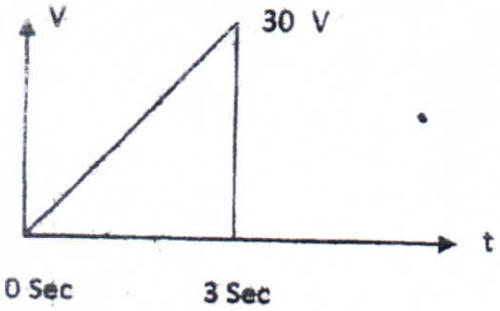

Fig.4

9 (a) Explain the principle of operation of attraction type of moving iron instruments. 10

A moving coil instrument gives a full scale deflection of 30 mA when a potential difference of 70 mV is applied. Calculate the series resistance to measure 750 V on full scale.

(b) Derive the relation between line and phase voltage and current for a delta connected 3 phase balanced system. A balanced delta-connected load of impedance, $Z=30 \angle 60^\circ \Omega$ is connected to line voltage of 440 V. Obtain the current and power supplied to load. 10

10 (a) A coil of 200 turns is wound uniformly on an iron ring of mean circumference 10 cm and across sectional area 5 cm^2. Current 10 Amp is flowing through coil. Relative permeability of the material is 3000. Find 10

(i) MMF (ii) Magnetizing force

(iii) Total flux (iv) Reluctance.

(b) Derive the emf equation of a single phase transformer. 10

A single phase 100 kVA, 6.6 kV/230 V, 50 Hz transformer has 90% efficiency at .8 lagging power factor both at full load and also at half load. Determine iron and copper loss at full load for transformer.

11 (a) (i) Draw and explain the torque-slip characteristics of a three phase induction motor. 10

(ii) Explain working principle of synchronous motor and two applications.

(b) (i) Find Torque equation of a dc Motor. 10

(ii) Explain the principle of operation of an Alternator.

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In Pursuit of Excellence	**QUESTION BANK**	SESSION-2019-2020 SEM-Ist

Question Bank is attached herewith.

P.T.O. (See on next page)

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ELECTRICAL ENGINEERING (KEE-101) QUESTION BANK

Q.1 Write down the statements, applications & limitations of:
(a) Thevenin's Theorem
(b) Norton Theorem
(c) Superposition Therem

Q2. Derive formula for star to delta & delta to star transformation.

Q3. Write a short note on-
(a) KVL (b) KCL (c) Ohm's low (d) Unilateral, Bilateral Circuit
(e) Active-Passive Element (f) Lumped-Distributed (g) Linear-Nonlinear element

Q4. With the help of figure explain constructional detail of each part of dc. Machine?

Q5. Derive emf & torque equation of d.c. machine, also write importance of back emf.?

Q6. Draw & explain torque-speed, speed current characteristics for dc series, shunt & compound motor? Also write 2 applications of each motor?

Q7. Explain the constructional detail of 3-phase induction motor or compare wound type 3phase I. Motor with squirrel cage 3-phase Induction motor?

Q8. Write down the working principle of 3-phase motor or explain how the rotating magnetic field produces in 3-phase Induction motor?

Q9. Define 'slip' in 3-phase Induction motor? Derive formula for torque produce in 3-phase Induction motor, also establish relation between starting torque & maximum torque?

Q10. Draw & explain torque, slip characteristics in 3-phase Induction Motor?

Q11. Why synchronous motor is not self starting or explain the working principle of synchronous motor?

Q12. Write short note on:- (i) 'V' curve (ii) Inverted 'V' curve (iii) Starting methods of synchronous motor (iv) Rotating Armature type & Rotating field type synchronous motor.

Q13. Why single phase induction motor is not self starting or explain double revolving field theory?

Q14. Explain various starting methods of 1-phase Induction motor; also write applications of each motor?

Q15. Explain the need of electrical earthling of equipments & derives?

Q16. Write a short note on:-
(i) Effect of Magnetic Hysteresis or B-H curve
(ii) Coefficient of self & mutual Induction
(iii)Hysteresis & Edducurrent losses
(iv) Statically & dynamically induced emf
v) SFU, MCB, MCCB, ELCB, HRC Fuse
vi) Working of Lead Acid, Nickel Iron Battery
vii) Types of Cables
viii) Important Characteristics of battery

Q17. Derive emf equation of transformer? Also provide constructional detail of 1-phase transformer?

Q18. What do you mean by Autotransformer, write it's applications, merits & demerit.

Q19. Find the formula for maximum efficiency in transformer, also define voltage regulation?

Q20. Derive formula for Line-voltage relation in
(i)3-phase star circuit
(ii)3-phase delta circuit

Q21. What are the various methods of power calculation in 3-phase circuit? Explain 2 wattmeter methods for power calculation in 3-phase circuit.

Q22. Derive formula of resonance in 1-phase ac series circuit & for parallel circuit.

Q23. Define Bandwidth, Q factor, form factor, peak factor, power factor, admittance, impedance, and resonating frequency.

Q24. What are the causes of low power factor? Write it's disadvantages & how P.F. is improve.

Q25. Derive formula for average power in R-L series circuit.

Q26. Find the value of 'RMS' & 'average' values of-
(i) pure sine wave (ii)half wave rectified wave (iii) triangular wave (iv) square wave.

⇒ Also Prepare some numericals related to Module (2), Transformer, D.C. Machine, 3Ø A.C. System, 3Ø I. Motor, Batteries

"All the Best"

Saurabh Saxena
(A.P.EED)

Dr. Manish Saxena
HOD (ASH)
M.I.T. Moradabad

In Pursuit of Excellence	**Final Internal Marks**	SESSION-2019-2020 SEM-Ist

Internal Marks List is attached herewith

→ see on next page

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Dr. A.P.J. Abdul Kalam Technical University, Uttar Pradesh, Lucknow

(Formerly Uttar Pradesh Technical University)

Sessional Marks Examination (सैश्रिक अंक)

Sessional Brief (सैश्रिक संक्षिप्त)

Print (प्रिंट करें)

Institute Code & Name	:	MORADABAD INSTITUTE OF TECHNOLOGY,MORADABAD(082)
Course Code & Name	:	B.Tech
Branch Code & Name	:	Electrical Engineering
Semester	:	1
FacultyName	:	SAURABH SAXENA
SubjectCode	:	KEE101
Marks Type	:	Theory Sessional
Is Finally Submitted to University	:	True (* will be **TRUE** after submitting to university by your college.)

Sessional Marks (सैश्रिक अंक)

Sr.no. (क्रम संख्या)	Roll No. (अनुक्रमांक)	Name (नाम)	Obt.(CT) प्राप्त (CT)	Max.(CT) अधिकतम (CT)	Obt. TA (Assign./Att.)	Max. TA (Assign./Att.)	Obt. CT+TA	Max. CT+TA	Remark (टिप्पणी)
1	1900820200001	ARIN SINGH	12	30	18	20	30	50	
2	1900820200002	AYUSHMANN PARASHAR	13	30	18	20	31	50	
3	1900820200003	BHOOMIKA RANA	26	30	20	20	46	50	
4	1900820200004	HARSHIT KUMAR KHARDONIA	23	30	20	20	43	50	
5	1900820200005	KANISHKA SINGH	24	30	20	20	44	50	
6	1900820200006	KAUSHIK CHAUHAN	10	30	20	20	30	50	
7	1900820200007	RISHI SAXENA	22	30	20	20	42	50	
8	1900820200008	SHEETAL SINGH	18	30	19	20	37	50	
9	1900820200009	SUDHEER KUMAR	20	30	20	20	40	50	
10	1900820200011	VIKAS PAL	12	30	19	20	31	50	
11	1900820200012	VINAY DEEP	16	30	20	20	36	50	

Director's Signature

Director
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Moradabad

Faculty Signature

Dr. Manish Saxena
(ASH)
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Institute Code & Name	:	MORADABAD INSTITUTE OF TECHNOLOGY,MORADABAD(082)
Course Code & Name	:	B.Tech
Branch Code & Name	:	Civil Engineering
Semester	:	1
FacultyName	:	SAURABH SAXENA
SubjectCode	:	KEE101
Marks Type	:	Theory Sessional
Is Finally Submitted to University	:	True (* will be **TRUE** after submitting to university by your college.)

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1	1900820000001	GAURAV KUMAR	12	30	18	20	30	50	
2	1900820000002	HEMENDRA SINGH	11	30	19	20	30	50	
3	1900820000003	JAY BHARAT		30	0	20	0	50	DEBARRED
4	1900820000004	MANVEER SINGH BEDI	14	30	17	20	31	50	
5	1900820000005	MOHAMMAD DANISH	12	30	18	20	30	50	
6	1900820000006	MOHAMMAD ANAS	21	30	20	20	41	50	
7	1900820000007	MOHD SHAHRUKH	15	30	18	20	33	50	
8	1900820000008	PRIYANSHU KUMAR	16	30	19	20	35	50	
9	1900820000009	SOAYAB ALAM	12	30	19	20	31	50	
10	1900820000010	SONU ARYA	12	30	20	20	32	50	
11	1900820000011	SUMIT SHARMA		30	0	20	0	50	DEBARRED
12	1900820000012	SUMIT KUMAR	21	30	20	20	41	50	
13	1900820000013	VISHAL SINDHU	24	30	20	20	44	50	

Director's Signature

Director
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Institute Code & Name	:	MORADABAD INSTITUTE OF TECHNOLOGY,MORADABAD(082)
Course Code & Name	:	B.Tech
Branch Code & Name	:	Electronics and Communication Engineering
Semester	:	1
FacultyName	:	SAURABH SAXENA
SubjectCode	:	KEE101
Marks Type	:	Theory Sessional
Is Finally Submitted to University	:	True (* will be **TRUE** after submitting to university by your college.)

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1	1900820310001	ARVIND CHAUHAN	17	30	19	20	36	50	
2	1900820310002	ASHISH RANA	12	30	18	20	30	50	
3	1900820310003	BAWAR HUSAIN	11	30	19	20	30	50	
4	1900820310004	DHARMENDRA RANA	10	30	20	20	30	50	
5	1900820310005	DIVYANSHU SHARMA	24	30	20	20	44	50	
6	1900820310006	MOHAMMAD ZUBEEN	21	30	20	20	41	50	
7	1900820310007	PREET SHARMA	12	30	18	20	30	50	
8	1900820310008	SACHIN KUMAR	22	30	20	20	42	50	
9	1900820310009	SAURABH SHARMA	20	30	20	20	40	50	
10	1900820310010	SHIVAM SINGH	21	30	20	20	41	50	
11	1900820310011	SHIVANSH CHAUHAN	26	30	20	20	46	50	
12	1900820310012	SHUBHI CHAUDHARY	28	30	19	20	47	50	
13	1900820310013	VAIBHAV TOMAR	22	30	19	20	41	50	
14	1900820310014	VASU AGARWAL	16	30	20	20	36	50	
15	1900820310015	WASEEM AKRAM	12	30	19	20	31	50	

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Faculty Signature

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(Formerly Uttar Pradesh Technical University)

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Sessional Brief (सैश्रिक संक्षिप्त)

Institute Code & Name	:	MORADABAD INSTITUTE OF TECHNOLOGY,MORADABAD(082)
Course Code & Name	:	B.Tech
Branch Code & Name	:	Mechanical Engineering
Semester	:	1
FacultyName	:	SAURABH SAXENA
SubjectCode	:	KEE101
Marks Type	:	Theory Sessional
Is Finally Submitted to University	:	True (* will be **TRUE** after submitting to university by your college.)

Print (प्रिंट करें)

Sessional Marks (सैश्रिक अंक)

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1	1900820400002	ARUN YADAV	13	30	17	20	30	50	
2	1900820400003	AVEE PANDEY	15	30	20	20	35	50	
3	1900820400004	CHANDRA PRAKASH	21	30	20	20	41	50	
4	1900820400005	DEEPAK SAINI	12	30	20	20	32	50	
5	1900820400006	GOUTAM	2	30	16	20	18	50	
6	1900820400007	HARISH PAL	22	30	19	20	41	50	
7	1900820400008	HIMANSHU SINGH	21	30	20	20	41	50	
8	1900820400009	HITESH CHAUHAN	15	30	18	20	33	50	
9	1900820400010	HUSSAIN ABBAS		30	0	20	0	50	DEBARRED
10	1900820400011	KAUSHAL NAGAR	21	30	20	20	41	50	
11	1900820400012	KRISHAN AVTAR		30	0	20	0	50	DEBARRED
12	1900820400013	MANIKYA AGARWAL	25	30	20	20	45	50	
13	1900820400014	MOHD AASIM	11	30	19	20	30	50	
14	1900820400015	MOHD SAIF	15	30	19	20	34	50	
15	1900820400016	NOOR ALAM	12	30	18	20	30	50	
16	1900820400017	PANDIT SWARNIM SHARMA	13	30	17	20	30	50	
17	1900820400018	PANKAJ KUMAR	13	30	17	20	30	50	
18	1900820400019	PRANAV KUMAR SINGH	29	30	20	20	49	50	
19	1900820400020	PRASHANT TIWARI	20	30	20	20	40	50	
20	1900820400021	PRYANSH KUMAR TYAGI	26	30	20	20	46	50	
21	1900820400022	RATNESH KUMAR ARYA	12	30	19	20	31	50	
22	1900820400023	RIZWAN ALI	12	30	19	20	31	50	
23	1900820400024	SAADULLAH	11	30	19	20	30	50	
24	1900820400025	SAURABH KUMAR	22	30	20	20	42	50	
25	1900820400026	SHAHROZ HUSSAIN	16	30	20	20	36	50	
26	1900820400027	SHIVA GUPTA	18	30	20	20	38	50	
27	1900820400028	SIDDHARTH BANSAL	17	30	20	20	37	50	
28	1900820400029	SIMRAN	12	30	20	20	32	50	
29	1900820400030	SUDIKSH KUMAR		30	0	20	0	50	DEBARRED
30	1900820400031	SYED ZAYYAN ALI	12	30	19	20	31	50	
31	1900820400032	UDAY VERMA	11	30	20	20	31	50	
32	1900820400033	VAIBHAV KUMAR SINGH	28	30	20	20	48	50	
33	1900820400034	VINAYAK VERMA	14	30	20	20	34	50	
34	1900820400035	YUVRAJ KHANNA	28	30	20	20	48	50	

Director's Signature

Director
Moradabad Institute of Technology
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Dr. Manish Saxena
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Course Code & Name	:	B.Tech
Branch Code & Name	:	Computer Science and Engineering
Semester	:	1
FacultyName	:	SAURABH SAXENA
SubjectCode	:	KEE101
Marks Type	:	Theory Sessional
Is Finally Submitted to University	:	True (* will be **TRUE** after submitting to university by your college.)

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1	1808210035	ARPIT VERMA	13	30	17	20	30	50	
2	1808210112	PIYUSH SHARMA	12	30	18	20	30	50	
3	1808210169	VISHAL KUMAR	16	30	19	20	35	50	
4	1900820100154	UNNATI GUPTA	24	30	20	20	44	50	
5	1900820100155	URVASHI RASTOGI	20	30	20	20	40	50	
6	1900820100156	UTKARSH KAUSHIK	14	30	17	20	31	50	
7	1900820100157	UTKARSH MISHRA	23	30	19	20	42	50	
8	1900820100158	UTKARSH TYAGI	22	30	20	20	42	50	
9	1900820100159	UTKARSH TOMAR	15	30	18	20	33	50	
10	1900820100160	VAIBHAV DIXIT	12	30	18	20	30	50	
11	1900820100161	VAISHALI MATHUR	25	30	20	20	45	50	
12	1900820100162	VANSHIKA SINGH	22	30	20	20	42	50	
13	1900820100163	VEERPAL SINGH	13	30	19	20	32	50	
14	1900820100164	VIDIT AGARWAL	19	30	20	20	39	50	
15	1900820100165	VINAY SHRESTHA	24	30	20	20	44	50	
16	1900820100166	VISHAKHA CHAUDHARY	28	30	20	20	48	50	
17	1900820100168	VISHAL SHARMA	17	30	20	20	37	50	
18	1900820100169	VISHNU KUMAR	15	30	20	20	35	50	
19	1900820100170	VISHWAS GUMAN	14	30	20	20	34	50	
20	1900820100171	YASH KUMAR	13	30	19	20	32	50	
21	1900820100172	YASHIKA ROHILLA	28	30	20	20	48	50	
22	1900820100173	YOGENDRA KUMAR	13	30	18	20	31	50	
23	1900820100174	YOGENDRA MISHRA	12	30	19	20	31	50	

Director's Signature

Director
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Ganga Vihar, Phase-2
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Course Code & Name	:	B.Tech
Branch Code & Name	:	Electrical Engineering
Semester	:	1
FacultyName	:	SAURABH SAXENA
SubjectCode	:	KEE101
Marks Type	:	Practical sessional
Is Finally Submitted to University	:	True (* will be **TRUE** after submitting to university by your college.)

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2	1900820200002	AYUSHMANN PARASHAR		0	21	25	21	25	
3	1900820200003	BHOOMIKA RANA		0	24	25	24	25	
4	1900820200004	HARSHIT KUMAR KHARDONIA		0	23	25	23	25	
5	1900820200005	KANISHKA SINGH		0	25	25	25	25	
6	1900820200006	KAUSHIK CHAUHAN		0	20	25	20	25	
7	1900820200007	RISHI SAXENA		0	24	25	24	25	
8	1900820200008	SHEETAL SINGH		0	23	25	23	25	
9	1900820200009	SUDHEER KUMAR		0	24	25	24	25	
10	1900820200011	VIKAS PAL		0	22	25	22	25	
11	1900820200012	VINAY DEEP		0	24	25	24	25	

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1	1808210035	ARPIT VERMA		0	20	25	20	25	
2	1808210112	PIYUSH SHARMA		0	20	25	20	25	
3	1808210169	VISHAL KUMAR		0	21	25	21	25	
4	1900820100154	UNNATI GUPTA		0	23	25	23	25	
5	1900820100155	URVASHI RASTOGI		0	23	25	23	25	
6	1900820100156	UTKARSH KAUSHIK		0	20	25	20	25	
7	1900820100157	UTKARSH MISHRA		0	23	25	23	25	
8	1900820100158	UTKARSH TYAGI		0	24	25	24	25	
9	1900820100159	UTKARSH TOMAR		0	21	25	21	25	
10	1900820100160	VAIBHAV DIXIT		0	20	25	20	25	
11	1900820100161	VAISHALI MATHUR		0	23	25	23	25	
12	1900820100162	VANSHIKA SINGH		0	23	25	23	25	
13	1900820100163	VEERPAL SINGH		0	20	25	20	25	
14	1900820100164	VIDIT AGARWAL		0	22	25	22	25	
15	1900820100165	VINAY SHRESTHA		0	24	25	24	25	
16	1900820100166	VISHAKHA CHAUDHARY		0	25	25	25	25	
17	1900820100168	VISHAL SHARMA		0	22	25	22	25	
18	1900820100169	VISHNU KUMAR		0	22	25	22	25	
19	1900820100170	VISHWAS GUMAN		0	23	25	23	25	
20	1900820100171	YASH KUMAR		0	22	25	22	25	
21	1900820100172	YASHIKA ROHILLA		0	25	25	25	25	
22	1900820100173	YOGENDRA KUMAR		0	20	25	20	25	
23	1900820100174	YOGENDRA MISHRA		0	22	25	22	25	

Director Director's Signature

Moradabad Institute of Technology
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Faculty Signature

Dr. Manish Saxena
HOD (ASH)
M.I.T., Moradabad

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Dr. A.P.J. Abdul Kalam Technical University, Uttar Pradesh, Lucknow

(Formerly Uttar Pradesh Technical University)

Sessional Marks Examination (सैश्रिक अंक)

Sessional Brief (सैश्रिक संक्षिप्त)

Print (प्रिंट करें)

Institute Code & Name	:	MORADABAD INSTITUTE OF TECHNOLOGY,MORADABAD(082)
Course Code & Name	:	B.Tech
Branch Code & Name	:	Mechanical Engineering
Semester	:	1
FacultyName	:	SAURABH SAXENA
SubjectCode	:	KEE101
Marks Type	:	Practical sessional
Is Finally Submitted to University	:	True (* will be **TRUE** after submitting to university by your college.)

Sessional Marks (सैश्रिक अंक)

Sr.no. (क्रम संख्या)	Roll No. (अनुक्रमांक)	Name (नाम)	Obt.(CT) प्राप्त (CT)	Max.(CT) अधिकतम (CT)	Obt. TA (Assign./Att.)	Max. TA (Assign./Att.)	Obt. CT+TA	Max. CT+TA	Remark (टिप्पणी)
1	1900820400002	ARUN YADAV		0	20	25	20	25	
2	1900820400003	AVEE PANDEY		0	22	25	22	25	
3	1900820400004	CHANDRA PRAKASH		0	23	25	23	25	
4	1900820400005	DEEPAK SAINI		0	21	25	21	25	
5	1900820400006	GOUTAM		0	20	25	20	25	
6	1900820400007	HARISH PAL		0	23	25	23	25	
7	1900820400008	HIMANSHU SINGH		0	22	25	22	25	
8	1900820400009	HITESH CHAUHAN		0	21	25	21	25	
9	1900820400010	HUSSAIN ABBAS		0	0	25	0	25	DEBARRED
10	1900820400011	KAUSHAL NAGAR		0	22	25	22	25	
11	1900820400012	KRISHAN AVTAR		0	0	25	0	25	DEBARRED
12	1900820400013	MANIKYA AGARWAL		0	24	25	24	25	
13	1900820400014	MOHD AASIM		0	20	25	20	25	
14	1900820400015	MOHD SAIF		0	21	25	21	25	
15	1900820400016	NOOR ALAM		0	20	25	20	25	
16	1900820400017	PANDIT SWARNIM SHARMA		0	20	25	20	25	
17	1900820400018	PANKAJ KUMAR		0	20	25	20	25	
18	1900820400019	PRANAV KUMAR SINGH		0	25	25	25	25	
19	1900820400020	PRASHANT TIWARI		0	23	25	23	25	
20	1900820400021	PRYANSH KUMAR TYAGI		0	24	25	24	25	
21	1900820400022	RATNESH KUMAR ARYA		0	23	25	23	25	
22	1900820400023	RIZWAN ALI		0	20	25	20	25	
23	1900820400024	SAADULLAH		0	21	25	21	25	
24	1900820400025	SAURABH KUMAR		0	23	25	23	25	
25	1900820400026	SHAHROZ HUSSAIN		0	22	25	22	25	
26	1900820400027	SHIVA GUPTA		0	23	25	23	25	
27	1900820400028	SIDDHARTH BANSAL		0	23	25	23	25	
28	1900820400029	SIMRAN		0	22	25	22	25	
29	1900820400030	SUDIKSH KUMAR		0	0	25	0	25	DEBARRED
30	1900820400031	SYED ZAYYAN ALI		0	22	25	22	25	
31	1900820400032	UDAY VERMA		0	22	25	22	25	
32	1900820400033	VAIBHAV KUMAR SINGH		0	25	25	25	25	
33	1900820400034	VINAYAK VERMA		0	23	25	23	25	
34	1900820400035	YUVRAJ KHANNA		0	24	25	24	25	

Director's Signature

Director
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Faculty Signature

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Dr. A.P.J. Abdul Kalam Technical University, Uttar Pradesh, Lucknow

(Formerly Uttar Pradesh Technical University)

Sessional Marks Examination (सैश्रिक अंक)

Sessional Brief (सैश्रिक संक्षिप्त)

Institute Code & Name	:	MORADABAD INSTITUTE OF TECHNOLOGY,MORADABAD(082)
Course Code & Name	:	B.Tech
Branch Code & Name	:	Electronics and Communication Engineering
Semester	:	1
FacultyName	:	SAURABH SAXENA
SubjectCode	:	KEE101
Marks Type	:	Practical sessional
Is Finally Submitted to University	:	True (* will be TRUE after submitting to university by your college.)

Print (प्रिंट करें)

Sessional Marks (सैश्रिक अंक)

Sr.no. (क्रम संख्या)	Roll No. (अनुक्रमांक)	Name (नाम)	Obt.(CT) प्राप्त (CT)	Max.(CT) अधिकतम (CT)	Obt. TA (Assign./Att.)	Max. TA (Assign./Att.)	Obt. CT+TA	Max. CT+TA	Remark (टिप्पणी)
1	1900820310001	ARVIND CHAUHAN		0	22	25	22	25	
2	1900820310002	ASHISH RANA		0	20	25	20	25	
3	1900820310003	BAWAR HUSAIN		0	20	25	20	25	
4	1900820310004	DHARMENDRA RANA		0	20	25	20	25	
5	1900820310005	DIVYANSHU SHARMA		0	24	25	24	25	
6	1900820310006	MOHAMMAD ZUBEEN		0	23	25	23	25	
7	1900820310007	PREET SHARMA		0	20	25	20	25	
8	1900820310008	SACHIN KUMAR		0	24	25	24	25	
9	1900820310009	SAURABH SHARMA		0	24	25	24	25	
10	1900820310010	SHIVAM SINGH		0	23	25	23	25	
11	1900820310011	SHIVANSH CHAUHAN		0	25	25	25	25	
12	1900820310012	SHUBHI CHAUDHARY		0	25	25	25	25	
13	1900820310013	VAIBHAV TOMAR		0	23	25	23	25	
14	1900820310014	VASU AGARWAL		0	23	25	23	25	
15	1900820310015	WASEEM AKRAM		0	21	25	21	25	

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Dr. A.P.J. Abdul Kalam Technical University Uttar Pradesh, Lucknow

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Sessional Marks Examination (सैश्रिक अंक)

Sessional Brief (सैश्रिक संक्षिप्त)

Institute Code & Name	:	MORADABAD INSTITUTE OF TECHNOLOGY,MORADABAD(082)
Course Code & Name	:	B.Tech
Branch Code & Name	:	Civil Engineering
Semester	:	1
FacultyName	:	SAURABH SAXENA
SubjectCode	:	KEE101
Marks Type	:	Practical sessional
Is Finally Submitted to University	:	True (* will be **TRUE** after submitting to university by your college.)

Print (प्रिंट करें)

Sessional Marks (सैश्रिक अंक)

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1	1900820000001	GAURAV KUMAR		0	20	25	20	25	
2	1900820000002	HEMENDRA SINGH		0	20	25	20	25	
3	1900820000003	JAY BHARAT		0	0	25	0	25	DEBARRED
4	1900820000004	MANVEER SINGH BEDI		0	20	25	20	25	
5	1900820000005	MOHAMMAD DANISH		0	20	25	20	25	
6	1900820000006	MOHAMMAD ANAS		0	23	25	23	25	
7	1900820000007	MOHD SHAHRUKH		0	21	25	21	25	
8	1900820000008	PRIYANSHU KUMAR		0	23	25	23	25	
9	1900820000009	SOAYAB ALAM		0	22	25	22	25	
10	1900820000010	SONU ARYA		0	24	25	24	25	
11	1900820000011	SUMIT SHARMA		0	0	25	0	25	DEBARRED
12	1900820000012	SUMIT KUMAR		0	25	25	25	25	
13	1900820000013	VISHAL SINDHU		0	24	25	24	25	

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Course Name	Basic Electrical Engineering
Course Code	KEE-101
Batch	2019-2023
Semester	1
Session	2019 2020
L:T:P	3.1.0

CO Attainment Gap

Course Code	CO	CO Targets	CO Attainment	CO Attainment Gap (Target - Attainment)
KEE-101	CO1	55	45.87	9.13
	CO2	55	51.16	3.84
	CO3	55	52.04	2.96
	CO4	55	54.67	0.33
	CO5	55	49.39	5.61

If Gap > 0 : Target not attained
If Gap ≤ 0 : Target attained

Closure of Quality Loop

Course Code	CO	CO Targets	CO Attainment Gap	Action proposed to bridge the gap where targets are not achieved	Modification of targets where Achieved
KEE-101	CO1	55	9.13	more numerical problems on circuit theorems will be added in lectures & assignment in next offering of course.	
	CO2	55	3.84	more emphasis on numerical problems on 1-phase AC circuit and parallel circuits in next offering of course	
	CO3	55	2.96	Examples of megnetic circuit analysis and on 3-phase transformer will be added in lectures & assignment in next offering of course	
	CO4	55	0.33	Examples on functions will be added in lectures and assignments in next offering of course	
	CO5	55	5.61	Examples on battery back up, efficency calculation will be added in lecture & assignment in next offering of course.	

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Course Objectives

At the end of the course students will be able:

1. To understand the basic concepts of magnetic, AC & DC circuits
2. To explain the working principle, construction, applications of DC machines, AC machines & measuring instruments.
3. To Gain knowledge about the fundamentals of wiring and earthling.

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E-link to study Basic Electrical Engineering

1. http://www.electronics-tutorials.ws/dccircuits/voltage-source.html
2. http://www.electronics-tutorials.ws/dccircuits/current-source.html
3. http://nptel.ac.in/courses/122104013/node3.html
4. http://nptel.ac.in/courses/122104013/node4.html
5. http://nptel.ac.in/courses/122104013/node5.html
6. http://nptel.ac.in/courses/122104013/node6.html
7. http://nptel.ac.in/courses/122104013/node7.html
8. http://nptel.ac.in/courses/122104013/node8.html
9. http://nptel.ac.in/courses/122104013/node9.html
10. http://nptel.ac.in/courses/122104013/node10.html
11. http://nptel.ac.in/courses/122104013/node11.html
12. http://www.electronics-tutorials.ws/accircuits/series-circuit.html
13. http://www.electronics-tutorials.ws/accircuits/parallel-circuit.html
14. https://www.electrical4u.com/rlc-circuit/
15. https://www.youtube.com/watch?v=1bIRwZtSurg
16. https://www.electrical4u.com/electrical-measuring-instruments-types-accuracy-precision-resolution-speed/
17. https://www.electrical4u.com/errors-in-measurement-classification-of-errors/
18. https://www.electrical4u.com/permanent-magnet-moving-coil-instrument/
19. http://www.brighthubengineering.com/hvac/49317-what-are-measuring-instruments/
20. https://www.electrical4u.com/electrical-power-transformer-definition-and-types-of-transformer/
21. https://www.electrical4u.com/step-up-transformer/
22. https://www.electrical4u.com/step-down-transformers/
23. https://www.electrical4u.com/what-is-auto-transformer/
24. https://www.electrical4u.com/high-voltage-transformer/
25. https://www.electrical4u.com/distribution-transformer-efficiency-of-distribution-transformer-all-day-efficiency/
26. https://www.electrical4u.com/electrical-motor-types-classification-and-history-of-motor/
27. https://www.electrical4u.com/working-of-electric-motor/
28. https://www.electrical4u.com/dc-motor-or-direct-current-motor/
29. https://www.electrical4u.com/working-or-operating-principle-of-dc-motor/
30. https://www.electrical4u.com/speed-control-of-dc-motor/
31. https://www.electrical4u.com/shunt-wound-dc-motor-dc-shunt-motor/
32. https://www.electrical4u.com/series-wound-dc-motor-or-dc-series-motor/
33. https://www.electrical4u.com/induction-motor-types-of-induction-motor/
34. https://www.electrical4u.com/working-principle-of-three-phase-induction-motor/
35. https://www.electrical4u.com/types-of-three-phase-induction-motor/
36. https://www.electrical4u.com/types-of-single-phase-induction-motor/
37. https://www.electrical4u.com/synchronous-motor-working-principle/
38. https://www.electrical4u.com/synchronous-motor-excitation/

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Reference Books

Text Books:

1 ."Basic Electrical Engineering", S N Singh; Prentice Hall International

2. "Basic Electrical Engineering", Kuldeep Sahay, New Age International Publishers

3."Fundamentals of Electrical Engineering", B Dwivedi, A Tripathi; Wiley India

4."Principles of Electrical Engineering", V. Del Toro,; Prentice Hall International

5. "Electrical Engineering", J. B. Gupta, Kataria and Sons

Reference Books:

1."Electrical and Electronics Technology", Edward Hughes; Pearson

2."Engineering Circuit Analysis", W.H. Hayt& J.E. Kimerly; Mc Graw Hill

3."Basic Electrical Engineering", C L Wadhwa; New Age International

4."Basic Electrical Engineering", T.K. Nagsarkar,M.S. Shukhija; Oxford University Press

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3 phase Induction Motor

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** Syllabus Contains:

1: Principle of Operation 2: Types of 3ø I.M. & Applications
3: Torque-Slip Characteristics 4: Numericals

⇒ **Introduction of 3ø I.M.:** It is a.c. Type rotary machine, which have low cost, good Power Factor (generally .8 to .9), good efficiency & good speed regulation.

→ **Why 3ø I.M. is singly excited:** In 3ø I.M. stator (field) winding is connected to ac supply & there is no electrical connection from rotor (armature) to any source of supply. Generally current flow in rotor by induction which interact with field produced by stator winding & there by produce a net unidirectional Torque

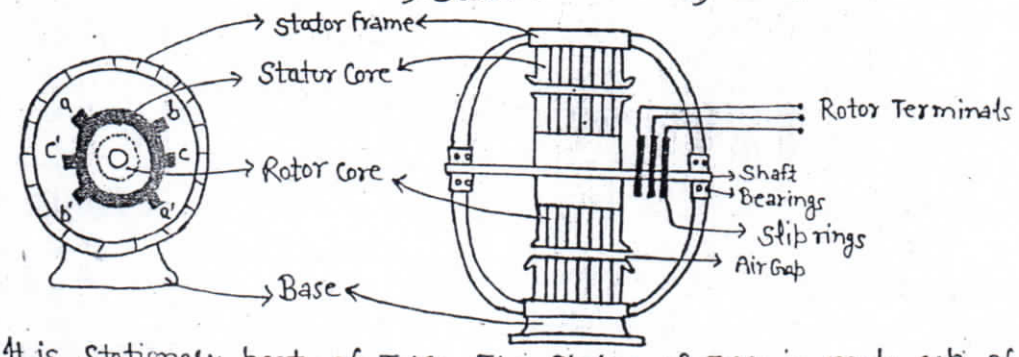
→ The mode of operation of machine is determined by speed of rotating field in relation to rotor.

→ 3ø I.M. are also called 'Asynchronous Machine' because these machine can't run at synchronous speed.

→ 3ø I.M. is reversible machine, **That mean it can operate as both Motor & Generator**. In such type of machine the power is transfered from stator to Rotor by mutual Induction.

—— X ——

⇒ **Construction of 3ø I.M.:** An I.M. consist mainly 2 parts.
i) Stator ii) Rotor



i) **Stator:** It is Stationary part of I.M., The Stator of I.M. is made up of number of stamping which core slotted to recieve the 3 phase winding. Stator is wound for definite number of poles. The exact number of poles can be determined requirement of speed. $\{N = \frac{120f}{P}\}$ ⇒ for High speed the no. of poles will be less.

→ **Main parts of Stator:** a) **Stator Core:** It carries alternating flux. for reducing hysteresis eddy current loss we use High grade silicon steel.

b) **Stator Or Field Winding:** Cu winding is used. It can be connected either in star or delta depending upon the method of starting of 3ø I.M.

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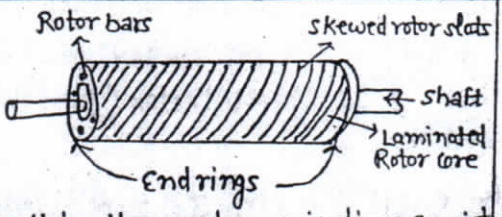
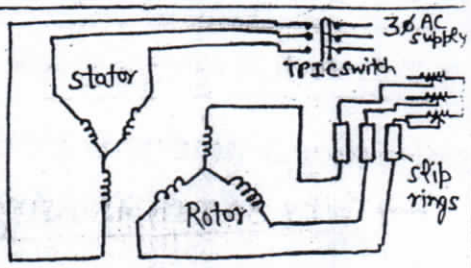
(i) Rotor :- Rotor is rotating part. It is cylindrical laminated iron core. (Construction is nearly same as d.c. machine's armature). On the basis of rotor construction, the 3ø I.M. are of 2 types :-

a) Squirrel Cage Rotor b) Slip Ring Or Wound Type Rotor

⇒ Difference between Squirrel cage rotor & Wound Type rotor :-

Parameters	Squirrel Cage I.M.	Slip Ring/wound Type I.M.
⇒ Constructional Figure	 In this the rotor windings consist of uninsulated conductors in form of Cu or Al bars embeded in semiclosed slots. These solid bars are short circuited at both ends. In absence of rotor core, the stator bar & end rings are look like cage of squirrel. Therefore it is called squirrel cage rotor.	 The rotor winding is uniformly distributed & usually connected in star connection. This connection is connected with 3 slip rings. On slip rings the carbon brushes are present to allow external resistance in series for controlling speed & Torque. Since rotor is wound with poly-phase, Therefore it is called wound rotor.
⇒ Space factor in slots	Better	Poor
⇒ Cost (initial + Maintenance)	Less	More
⇒ Copper Loss	Small	High
⇒ Power factor	Better	Poor
⇒ Efficiency	High (For small Machines)	Less
⇒ Speed Control	No possiblity	Possible (External rotor resistance presence)
⇒ Protection	Explosion Proof	Not Explosion proof
⇒ Starting Torque	Low	Can be more by inserting resistance
⇒ Speed ~~Control~~ Regulation	Better {speed remains nearly constant}	Poor
⇒ Applications	Mainly used where constant speed & High Overload Capacity required.	Printing press, Lifts, Elevators, Compressors etc.

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** Principle of Operation of 3ø Induction Motor:

The stator winding of 3ø I.M. is connected to 3ø balanced supply produces the rotating Magnetic field in stator winding. The speed of rotating magnetic field is synchronous speed $n_s = \frac{120f}{P}$.

The rotating field cuts the rotor conductors, therefore an emf is induced in rotor conductors, since the rotor conductors are short circuited, therefore an emf is induced to rise the current in rotor conductors whose direction is given by Leng's Law. {opposes that cause by which it produce

→ In case of 3ø I.M. the cause is relative velocity between rotating flux of stator & stationary rotor conductors.

→ Why 3ø I.M. can't run at synchronous speed: If rotor speed becomes n_s that time the relative motion between rotating flux of stator & stationary rotor conductors become zero, therefore no emf will induce, hence there will be no torque & motor comes at rest position.

→ **Rotating Magnetic field:** Can be defined as field or flux having constant amplitude but whose axis is continously rotating in a plane with a certain speed.

$I_a = I_0 \cos\omega t$, $I_b = I_0 \cos(\omega t - 120)$, $I_c = I_0 \cos(\omega t - 240)$

$F(\alpha, t) = F_m \cos\omega t \cos\alpha$

Direction of R.M.F. is always from axis of leading phase of 3ø winding towards lagging phase of winding.

$F = F_a + F_b + F_c \Rightarrow F_m\left\{\frac{2}{2}\cos\omega t\cos\alpha + \frac{2}{2}\cos(\omega t - 120)\cos(\alpha - 120) + \frac{2}{2}\cos(\omega t - 240)\cos(\alpha - 240)\right\}$

The resultant mmf wave in production of R.M.F. is:

$$F_R = \frac{3}{2} F_{max} \cos(\alpha - \omega t)$$

where α = space angle
ωt = time angle

→ **Frequency of rotor current:** At stationary condition the rotor frequency will equal to the supply frequency (f), But on running at speed N_r, the rotor frequency becomes f'.

Stationary Condition $N_s = \frac{120f}{P}$ —(I)

& for slip speed $N_s - N_r = \frac{120f'}{P}$ —(II)

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$$\frac{(II)}{(I)} \Rightarrow \frac{N_s - N_r}{N_s} = \frac{f'}{f} \quad \text{or} \quad \boxed{\text{slip } s = \frac{f'}{f}} \quad \text{or} \quad \boxed{f' = sf}$$

Q: A 3ø, 4 Pole I.M. is supplied from 3ø, 50Hz AC supply. Calculate:
i) Synchronous speed b) Rotor speed when slip = 4% c) Rotor frequency when rotor runs at 600 rpm.

Ans: a) Syn. speed $N_s = \frac{120f}{P} = \frac{120 \times 50}{4} = 1500$ rpm

b) As we know $s = \frac{N_s - N_r}{N_s}$ or $N_r = N_s(1-s) = 1500\left(1 - \frac{4}{100}\right) = 1440$ rpm

c) Slip s' when $N_r = 600$ rpm, $s' = \frac{1500 - 600}{1500} = .6$

& rotor frequency $f' = s'f = .6 \times 50 = 30$ Hz

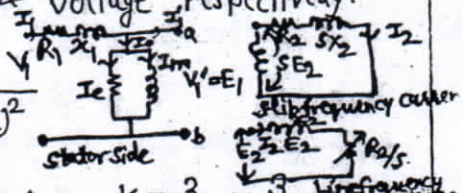
Saurabh

* **Torque-Slip Characteristic :** Torque produce by I.M. depends on Following Factors:
Rotor Power factor under running condition ii) Rotor Current (I_2) iii) Stator Voltage V_1

where P.F. $\cos\phi = \left(\frac{R_2}{Z_2}\right)_{\text{at running}} = \frac{R_2}{\sqrt{R_2^2+(SX_2)^2}}$ —i , $(I_2)_{\text{at running}} = \frac{SE_2}{\sqrt{R_2^2+(SX_2)^2}}$ —ii

& Stator Voltage $V_1 \propto E_2$ —iii)

where R_2, X_2 & E_2 are rotor side resistance, reactance & Voltage respectively.



Now the Torque $\tau \propto E_2 \times \frac{SE_2}{\sqrt{R_2^2+(SX_2)^2}} \times \frac{R_2}{\sqrt{R_2^2+(SX_2)^2}}$

or $\tau \propto \frac{SE_2^2 R_2}{R_2^2+(SX_2)^2}$ or $\boxed{\tau = \frac{K S E_2^2 R_2}{R_2^2+(SX_2)^2}}$ Nm, where $K = \frac{3}{\omega_s} = \frac{3}{2\pi N_s}$

→ **9 types of Torque develop in 3ϕ I.M. :**

a) **Starting Torque:** in starting $N_r = 0$, $S = 1$ & $S = \frac{N_s - N_r}{N_s}$ $\therefore \tau_{st} = \frac{3}{\omega_s} \cdot \frac{E_2^2 R_2}{R_2^2+(X_2)^2}$

b) **Maximum Torque:** For maximum torque $\frac{d\tau}{ds} = 0$

On solving we get condition for maximum torque $S_{mt} = R_2/X_2$

& $\tau_m = \frac{K(R_2/X_2)\cdot E_2^2 \cdot R_2}{R_2^2 + (R_2/X_2)^2 \cdot X_2^2} = \frac{KE_2^2}{2X_2}$

slip $S = \frac{N_s - N_r}{N_s}$

⇒ Relation between both 2 Torques $\boxed{\frac{\tau_{st}}{\tau_m} = \frac{2S_{mt}}{1+S_{mt}^2}}$

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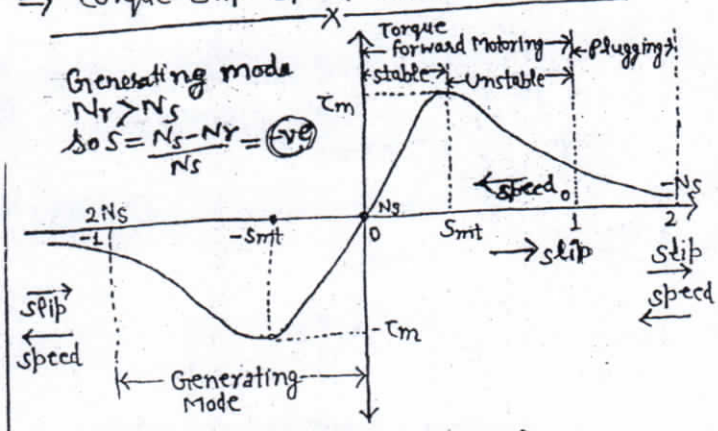
⇒ **Torque-slip-speed Characteristics :**



3 sections appear:
i) Forward motoring — Stable Region / Unstable Region
ii) Plugging or Counter current braking
iii) Regeneration

for origin pt. speed is max & equal to N_s & slip = 0 so $\tau_{st} = 0$ on increasing slip τ is also increases upto S_{mt}.

i) **Forward Motoring:** $(0 < \text{slip} < 1)$
a) **Stable Region:** $(S = 0 \text{ to } S = S_{mt})$ $\tau = \frac{KSE_2^2R_2}{R_2^2+(SX_2)^2}$

in stable Region S is small so $SX_2 \cong 0$ (Negligible) so $\boxed{\tau \propto S}$

b) **Unstable Region:** For Higher Value S, $\boxed{\tau \propto 1/S}$ after S_{mt} pt. SX_2 is also increases so in denomi there is S^2 & in numerator there is S so $\tau \propto 1/S$

ii) **Plugging:** $(1 < \text{slip} < 2)$, $N_r > N_s$, On changing the phase direction rotor moves in opposite direction, Due to this motor gone to stopping position. In this condition slip $S = \frac{N_s}{r}$ & SX_2 becomes very much high & τ becomes very less so machi comes in rest position

iii) **Generating Mode:** just Vice Versa of motoring mode.

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* Synchronous Machine *

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* Syllabus Contains:

1: Principle of Operation of Alternator & Synchronous Motor & their Applicatio

*Introduction Related to Synchronous Machine: Synchronous Machines are ac Type rotary Machine which rotates at constant speed (Synchronous speed n_s). Synchronous Machines are "doubly" excited machine that means both ac & dc powers are fed into it.

⇒ Synchronous Motors are used for constant speed, constant load drives (large rating), power factor correction.

** Classification of Synchronous Machine:

a) On the basis of Application:

i) Synchronous Generator or Alternator: With the help of prime mover mechanical Energy is converted into electrical Energy

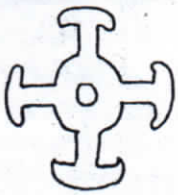
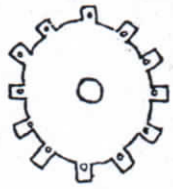
ii) Synchronous Motor: Receives ac supply mains & delivers it to drive mechanical Load.

b) On the basis of Construction:

i) Rotating Armature Type: This type of alternator is similar to d.c. generator Only the difference is that there are 3 or 4 slip rings in place of commutator. In such type of machines the rotating magnetic field is produced by dc electromagnets placed on Stator & generated current is collected by brushes & slip rings on Rotor. {Mainly used for small rating

ii) Rotating Field Type: Basically Used for Large Ratings. Generally the rotating Armature type machine consist weaker armature (Less copper wt.), Therefore the mechanical stress is weak Hence on Higher Voltage range machine can be damage. Another advantage of rotating field is that, the field winding needs a low voltage for producing magnetic flux, & field winding can be easily insulate on running.

→ 2 Types of Synchronous Machine:

SALIENT POLE MACHINE	NON SALIENT POLE "OR" CYLINDRICAL
	
1- Having Large diameter & short axial length.	1- Having smaller diameter & Long axial length
2- Pole shoes covers $\frac{2}{3}$ Pole pitch. Less Mechanical stablity.	2- More Mechanical Stability, Less windage Loss, Noiseless operation
3- Used for Lesser speed. (Upto 375rpm)	3- Higher operating speed { $N_S = 3000$ rpm at 50Hz, $N_S = 3600$ rpm at 60Hz

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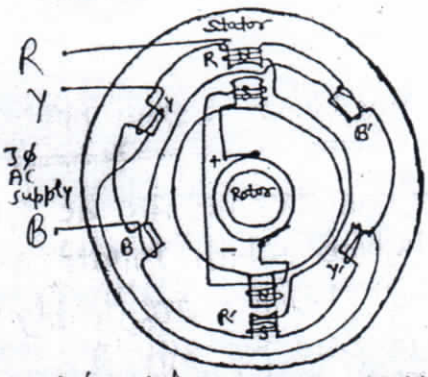
Principle of Operation of Synchronous Motor:



3ϕ, 2 pole Synchronous Machine

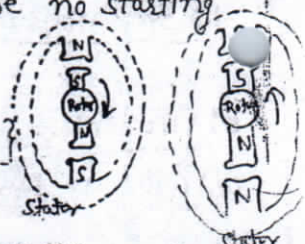
A Synchronous Motor has same relationship to an alternator as a dc motor has to a dc generator. If an alternator is supplied ac power it is capable of rotating as a motor & doing mechanical work. If the mechanical power supplied to rotating alternator is removed while the dc field remains energized, and then ac supply is connected across armature terminals, torque will be developed & the alternator will continue to rotate a speed determined by ac supply frequency & No. of poles.

In synchronous machine the field is energized by dc supply & armature wdg. is energized by ac supply.

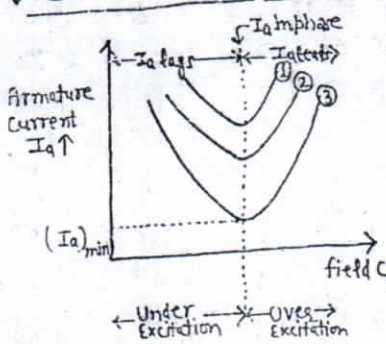
Principle: Initially rotor is at rest. At this instant the S pole of rotor is attracted with N pole of stator. Therefore rotor tends to rotate in clockwise direction at After Half cycle, the polarity of stator poles is reversed while rotor poles remains same, therefore they repell eachother. Therefore therewill be no starting orque, So we use some auxilary means for starting:

) By Using prime Mover

i) By Using short circuited winding on rotor { damper winding }

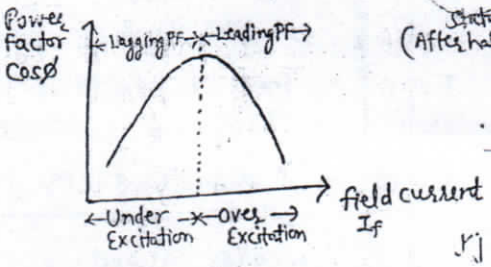


⇒ EFFECT OF LOADING ON SYNCHRONOUS MOTOR: ["V" curve]



curve① = Full load
curve② = Half load
curve③ = No load

("V" curve)



Inverted "V" curve

⇒ **Principle of operation of Alternator:** Due to rotation of conductor, Both conductors A & B cut the magnetic field produce by permanent magnet. According faraday's Electromagnetic Induction Law, an emf is induce into rotating conductors, Due to this induced emf, a current will flow through load.

$$\boxed{\text{Generated EMF} = E_{ph} = 4.44\,\phi f\, T_{ph} \times K_c \times K_d} \text{ Volts}$$

Where K_c = Coil span factor, K_d = Distribution Factor, & $(EMF)_{Line} = \sqrt{3}\, E_{ph}$

emf. equation derivation: Let Z_p = no. of conductors in series/phase, P = no. of poles, ϕ = useful flux/pole, N = speed in rpm, $f = \frac{PN}{120}$ Hz, turns $T_{ph} = Z_p/2$

The emf wave completes half cycle, ∴ time taken is $\frac{1}{2f}$ second for changing value of flux from zero to ϕ.

$\therefore \frac{d\phi}{dt} = \frac{\phi}{\frac{1}{2f}} = 2f\phi$ wb/sec. = average emf induced in each conductor in volts

or average emf/phase = $E_{av/phase}$ = No. of conductors in series/phase × $2f\phi$ = $Z_p \times 2f\phi = 2T \times 2f\phi = 4f\phi T_{ph}$

if K_c = coil span factor, K_d = distribution factor & K_f = form factor then $E_{av/phase} = 4f\phi T_{ph} K_d \times K_c$

& $E_{rms/phase} = 4f T_{ph} \phi K_c K_d K_f = 4\phi f T_{ph} K_c K_d \times 1.11 = 4.44\,\phi f T_{ph} K_c K_d$

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