Year: II
Semester: I

6. **Name of the Faculty: Dr. Rituparna Mitra** — **Course Code: EEE42101**
7. **Course** : **Electric Circuits** — **L: 3**
8. **Program** : **B.Tech, EE** — **T: 0**
9. **Target** : **60 %** — **P: 0**
C: 3

THEORY COURSE FILE CONTENTS

Check list Course Outcomes Attainment

S. No.	Contents	Available (Y/N/NA)	Date of Submission	Signature of HOD
1.	Authenticated Syllabus Copy	Y		
2.	Individual Time Table	Y		
3.	Students' Name List (Approved Copy)	Y		
4.	Course Plan, PO, PSO, COs, CO-PO Mapping, COA Plan, Session Plan and Periodic Monitoring	Y		
5.	Previous Year End Semester Question Papers	Y		
6.	Question Bank (All Units - Part A, Part B & C)	NA		
7.	Dissemination of Syllabus and Course Plan to Students	Y		
8.	Lecture Notes - Unit I, II & III	Y	31.08.2020	
9.	**Sample Documents and Evaluation Sheet for Internal Assessment** – Tutorials / Assignments / Class Test / Open Book Test / Quiz / Project / Seminar / Role Play if any (Before Mid Term)			
10.	**Mid Term Examination** A. Question Paper / Any Other Assessment Tools Used B. Sample Answer Scripts (Best, Average, Poor) if required C. Evaluation Sheet D. Slow Learners List and Remedial Measures			
11.	Lecture Notes – Unit IV & V			
12.	**Sample Documents and Evaluation Sheet for Internal Assessment** – Tutorials / Assignments / Class Test /Open Book Test / Quiz / Project / Seminar / Role Play if any (After Mid Term)			
13.	Course End Survey (Indirect Assessment) & Consolidation			
14.	**End Term Examination** A. Question Paper & Answer Key B. Sample Answer Scripts (Best, Average, Poor) if required C. Evaluation Sheet			

Year: II
Semester: I

6. Name of the Faculty: Dr. Rituparna Mitra **Course Code: EEE42101**
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C: 3

	D. Slow Learners List and Remedial Measures.			
15.	Content Beyond the Syllabus (Proof)			
16.	Innovative Teaching Tools Used for TLP			
17.	Details of Visiting Faculty Session / Industry Expert / Guest Lecture / Seminar / Field Visit / Webinars / Flipped Class Room / Blended Learning / Online Resources etc.			
18.	Consolidated Mark Statement			
19.	CO Attainment (Mid Term + Internal Assessment + End Term)			
20.	Gap Analysis & Remedial Measures			
21.	CO - PO Attainment			
22.	Class Record (Faculty Logbook)			

Signature of HOD/ Dean **Signature of Faculty**

Date: **Date:**

Year: II
Semester: I

6. Name of the Faculty: Dr. Rituparna Mitra **Course Code: EEE42101**

7. Course : Electric Circuits **L: 3**

8. Program : B.Tech, EE **T: 0**

9. Target : 60 % **P: 0**

C: 3

Syllabus Copy

EEE42101	ELECTRIC CIRCUITS	L	T	P	C
Version 1.0		3	0	0	3
Pre-requisites/Exposure	Electrical and Electronics Technology				
Co-requisites	--				

Course Objectives

1. To understand the importance of different network theorems in solving complex electrical circuits.
2. To study the effect of resonance in AC circuits.
3. To explain the working principles of magnetic circuits.
4. To explain uses of Laplace transform in different areas of electrical engineering.
5. Apply the concepts of two port network in different circuits of electrical engineering.

Course Content

Unit I: 12 Lecture Hours

NETWORK THEOREMS IN A.C. CIRCUITS: Mesh analysis, nodal analysis, Thevenin's theorem, Norton's theorem, Superposition theorem, maximum power transfer theorem, Millman's theorem, reciprocity theorem.

Unit II: 12 Lecture Hours

RESONANCE AND COUPLED CIRCUIT: Series and parallel resonance, their frequency response, quality factor and Bandwidth, magnetic circuits, self and mutual inductance, coefficient of coupling, tuned circuits, single tuned circuits.

Unit III: 10 Lecture Hours

TRANSIENT ANALYSIS: Review of ordinary linear non homogeneous first and second order differential equations with constant coefficients, transient analysis of dc circuits (with R-L, R-C, R-L-C) by classical method for unit step input, transient behavior of circuit under switching actions, evaluation of initial conditions.

Unit IV: 14 Lecture Hours

LAPLACE TRANSFORM ANALYSIS OF CIRCUITS: Laplace transformation (LT), LT of impulse, step, ramp, sinusoidal signals and shifted functions, waveform synthesis, initial and final value theorems, application of LT in network analysis and obtaining time domain solution for R-L, R-C and R-L-C networks with ac and dc excitations.

Year: II
Semester: I

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Unit V: **12 Lecture Hours**

TWO PORT NETWORKS ANALYSIS: Open circuit impedance and short circuit admittance parameter, transmission parameters, hybrid parameters and their inter relations, driving point impedance and admittance, solution of problems.

Text Books:

1. William H. HaytJr., Jack E. Kemmerly and Steven M. Durbin, Engineering Circuits Analysis, 8th Ed., Indian Edition, McGraw Hill Education, 2013.
2. C. K. Alexander and Matthew N. O. Sadiku, Fundamentals of Electric Circuits, 6th Ed., McGraw Hill Education, 2019.
3. M. E. Van Valkenburg and T. S. Rathore, Network Analysis, Pearson Education, 2019.

Reference Books:

1. William H. Hayt and Jack E. Kemmerly, Problems and Solutions in Engineering Circuit Analysis, McGraw Hill Education, 2017.
2. M. Nahvi, Joseph Edminister and K. Rao, Electric Circuits (Schaum's Outlines Series), 5th Ed., McGraw Hill Education, 2017.

Faculty Individual Time Table

ADAMAS UNIVERSITY, KOLKATA

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF ELECTRICAL ENGINEERING

Programme: B.Tech

Course Code & Course: EEE42101 and Electric Circuits
Faculty Coordinator: Dr. Rituparna Mitra

Day & Time	10.30 - 11.20	11.20 - 12.10	12.10 - 01.00	01.00 - 01.50	01.50 - 02.40	02.40 - 03.30	03.30 - 04.20	04.20 - 05.10
Monday				LUNCH				
Tuesday								
Wednesday								

Year: II
Semester: I

6. **Name of the Faculty: Dr. Rituparna Mitra** — **Course Code: EEE42101**
7. **Course : Electric Circuits** — **L: 3**
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9. **Target : 60 %** — **P: 0**
C: 3

Thursday								
Friday								

Signature of HOD **Signature of Class Coordinator**

Date: **Date:**

Students Name List

Roll Number	Registration Number	Name of the Student
UG/02/BTEE/2020/001	AU-2020-0004481	Saptarshi Bhattacharjee
UG/02/BTEE/2020/002	AU/2020/0004560	Arkajyoti Das

Signature of HOD/Dean **Signature of Class Coordinator**

Date: **Date:**

COURSE PLAN

Target	60% (marks)
Level-1	50% (population)
Level-2	60% (population)
Level-3	70% (population)

1. Method of Evaluation

UG	PG
Internal Assessment (30%) (Quizzes/Tests, Assignments & Seminars etc.)	Internal Assessment (30%) (Quizzes/Tests, Assignments & Seminars etc.)
Mid Semester Examination (20%)	Mid Semester Examination (20%)
End Semester Examination (50%)	End Semester Examination (50%)

*Keep as per Program (UG/PG)

Year: II
Semester: I

6. **Name of the Faculty: Dr. Rituparna Mitra** — **Course Code: EEE42101**
7. **Course** : **Electric Circuits** — **L: 3**
8. **Program** : **B.Tech, EE** — **T: 0**
9. **Target** : **60 %** — **P: 0**
C: 3

2. **Passing Criteria**

Scale	**PG**	**UG**
Out of 10 Point Scale	CGPA – "5.00" Min. Individual Course Grade – "C" Passing Minimum – 40	CGPA – "5.00" Min. Individual Course Grade – "C" Passing Minimum – 35

*Keep as per Program (UG/PG)

3. **Pedagogy**
   - **Direct Instruction**
   - Kinesthetic Learning
   - **Flipped Classroom**
   - Differentiated Instruction
   - Expeditionary Learning
   - Inquiry Based Learning
   - Game Based Learning
   - Personalized Learning
4. **Topics introduced for the first time in the program through this course**
   - (New Topics Related to this Course – Syllabus Revision if any/Content Beyond Syllabus)

5. **References:**

Text Books	Web Resources	Journals	Reference Books
3	0	0	2

Signature of HOD/Dean — **Signature of Faculty**

Date: — **Date:**

Year: II
Semester: I

6. **Name of the Faculty: Dr. Rituparna Mitra** — **Course Code: EEE42101**
7. **Course : Electric Circuits** — **L: 3**
8. **Program : B.Tech, EE** — **T: 0**
9. **Target : 60 %** — **P: 0**
C: 3

GUIDELINES TO STUDY THE SUBJECT

Instructions to Students:

1. Go through the 'Syllabus' in the LMS in order to find out the Reading List.
2. Get your schedule and try to pace your studies as close to the timeline as possible.
3. Get your on-line lecture notes (Content, videos) at Lecture Notes section. These are our lecture notes. Make sure you use them during this course.
4. check your LMS regularly
5. go through study material
6. check mails and announcements on blackboard
7. keep updated with the posts, assignments and examinations which shall be conducted on the blackboard
8. Be regular, so that you do not suffer in any way
9. C**ell Phones and other Electronic Communication Devices:** Cell phones and other electronic communication devices (such as Blackberries/Laptops) are not permitted in classes during Tests or the Mid/Final Examination. Such devices MUST be turned off in the class room.
10. **E-Mail and online learning tool:** Each student in the class should have an e-mail id and a pass word to access the LMS system regularly. Regularly, important information – Date of conducting class tests, guest lectures, via online learning tool. The best way to arrange meetings with us or ask specific questions is by email and prior appointment. All the assignments preferably should be uploaded on online learning tool. Various research papers/reference material will be mailed/uploaded on online learning platform time to time.
11. **Attendance:** Students are required to have minimum attendance of 75% in each subject. Students with less than said percentage shall NOT be allowed to appear in the end semester examination.

This much should be enough to get you organized and on your way to having a great semester! If you need us for anything, send your feedback through e-mail rituparna.mitra@adamasuniversity.ac.in Please use an appropriate subject line to indicate your message details.

There will no doubt be many more activities in the coming weeks. So, to keep up to date with all the latest developments, please keep visiting this website regularly.

Year: II
Semester: I

6. **Name of the Faculty: Dr. Rituparna Mitra** — **Course Code: EEE42101**
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C: 3

RELATED OUTCOMES

1. **The expected outcomes of the Program are:**

PO1	**Engineering Knowledge:** Apply the knowledge of mathematics, science, engineering Fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO2	**Problem Analysis:** Identify, formulate, review research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO3	**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 the public health and safety, and the cultural, societal, and environmental considerations.
PO4	**Conduct Investigations of Complex Problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PO5	**Modern Tool Usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.
PO6	**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.
PO7	**Environment and Sustainability:** Understand the impact of professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO8	**Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO9	**Individual and Team Work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO10	**Communication:** Communicate effectively in complex engineering activities with the engineering community and with 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.
PO11	**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 multidisciplinary environments.
PO12	**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.

Year: II
Semester: I

6. **Name of the Faculty: Dr. Rituparna Mitra** **Course Code: EEE42101**
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C: 3

2. The expected outcomes of the Specific Program are: (up to 3)

PSO1	Engage in analysis and design of various power system components and their applications in the field of Electrical Engineering.
PSO2	Apply the domain knowledge of Electrical Engineering to solve problems for development of society, and/ or pursue higher education and research.
PSO3	Engage in lifelong learning and adapt to changing professional and societal needs.

3. **The expected outcomes of the Course are: (minimum 4 and maximum 6)**

CO1	Apply different network theorems to solve complex electrical circuits.
CO2	Calculate the quality factor and Understand the importance of coefficient of coupling in magnetic circuits.
CO3	Explain the transient and steady state response of networks using Laplace Transforms.
CO4	State the real-life application of two port networks.

4. Co-Relationship Matrix
Indicate the relationships by 1- Slight (Low) 2- Moderate (Medium) 3-Substantial (High)

Program Outcomes / Course Outcomes	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12	PSO 1	PSO 2	PSO 3
CO1	3	-	-	-	-	-	-	-	-	-	2	-	-	-	-
CO2	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
CO3	2	2	-	3	-	-	-	-	-	-	-	-	-	-	-
CO4	2	-	-	-	2	-	-	-	-	-	-	-	-	-	-
Average	2	3	-	3	2	-	-	-	-	-	2	-	-	-	-

Year: II
Semester: I

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8. **Program** : **B.Tech, EE** — **T: 0**
9. **Target** : **60 %** — **P: 0**
C: 3

5. **Course Outcomes Assessment Plan (COA):**

Course Outcomes	Internal Assessment* (30 Marks)		Mid Term Exam (20 Marks)	End Term Exam (50 Marks)	Total (100 Marks)
	Before Mid Term	After Mid Term			
CO1	6	NA	7	12	25
CO2	8	NA	7	12	27
CO3	NA	8	6	13	27
CO4	NA	8	NA	13	23
Total	14	16	20	50	100

* Internal Assessment – Tools Used: Tutorial, Assignment, Seminar, Class Test etc.

Year: II
Semester: I

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8. **Program : B.Tech, EE** — **T: 0**
9. **Target : 60 %** — **P: 0**
C: 3

OVERVIEW OF COURSE PLAN OF COURSE COVERAGE

Course Activities:

S. No.	Description	Planned			Actual			Remarks
		From	To	No. of Session	From	TO	No. of Session	
1.	*NETWORK THEOREMS IN A.C. CIRCUITS*	01/09/2021	28/09/2021	12				
2.	*RESONANCE AND COUPLED CIRCUIT*	29/09/2021	03/11/2021	12				
3.	*TRANSIENT ANALYSIS*	08/11/2021	30/11/2021	10				
4.	*LAPLACE TRANSFORM ANALYSIS OF CIRCUITS*	01/12/2021	17/01/2022	14				
5.	*TWO PORT NETWORKS ANALYSIS*	18/01/2022	23/02/2022	12				

Total No. of Instructional periods available for the course: 60 Sessions

Signature of HOD/Dean — **Signature of Faculty**

Date: — **Date:**

Year: II
Semester: I

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7. **Course : Electric Circuits** **L: 3**
8. **Program : B.Tech, EE** **T: 0**
9. **Target : 60 %** **P: 0**
C: 3

SESSION PLAN
UNIT-I

Session Plan				Actual Delivery			
Lect.	Date	Topics to be Covered	CO Mapped	Lect.	Date	Topics Covered	CO Achieved
1	01/09/2021	Introduction to Circuit Theory	CO1				
2	06/09/2021	Circuit Elements	CO1				
3	07/09/2021	KCL	CO1				
4	08/09/2021	KVL	CO1				
5	13/09/2021	Mesh analysis	CO1				
6	14/09/2021	nodal analysis	CO1				
7	25/09/2021	Thevenin's theorem	CO1				
8	20/09/2021	Norton's theorem	CO1				
9	21/09/2021	Superposition theorem	CO1				
10	22/09/2021	Maximum Power Transfer Theorem	CO1				

Year: II
Semester: I

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9. **Target : 60 %** **P: 0**
C: 3

11	27/09/2021	Millman's Theorem	CO1				
12	28/09/2021	Reciprocity Theorem	CO1				

Remarks:

Signature of Faculty

Date:

Year: II
Semester: I

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8. **Program : B.Tech, EE** — **T: 0**
9. **Target : 60 %** — **P: 0**
C: 3

SESSION PLAN
UNIT-II

Session Plan				Actual Delivery			
Lect.	Date	Topics to be Covered	CO Mapped	Lect.	Date	Topics Covered	CO Achieved
13	29/09/2021	Series and parallel resonance - I	CO2				
14	04/10/2021	Series and parallel resonance - II	CO2				
15	05/10/2021	Frequency Response	CO2				
16	06/10/2021	Quality Factor	CO2				
17	18/10/2021	Bandwidth	CO2				
18	20/10/2021	Magnetic Circuits	CO2				
19	25/10/2021	Self And Mutual Inductance	CO2				
20	26/10/2021	Coefficient Of Coupling	CO2				
21	27/10/2021	Tuned Circuits - I	CO2				
22	01/11/2021	Tuned Circuits - II	CO2				

Year: II
Semester: I

6. **Name of the Faculty: Dr. Rituparna Mitra** **Course Code: EEE42101**
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8. **Program : B.Tech, EE** **T: 0**
9. **Target : 60 %** **P: 0**
C: 3

23	02/11/2021	Single Tuned Circuits - I	CO2				
24	03/11/2021	Single Tuned Circuits - II	CO2				

Remarks:

Signature of Faculty

Date:

Year: II
Semester: I

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7. **Course : Electric Circuits** — **L: 3**
8. **Program : B.Tech, EE** — **T: 0**
9. **Target : 60 %** — **P: 0**
C: 3

SESSION PLAN
UNIT-III

Session Plan				Actual Delivery			
Lect.	Date	Topics to be Covered	CO Mapped	Lect.	Date	Topics Covered	CO Achieved
25	08/11/2021	Review of ordinary linear non homogeneous first order differential equations with constant coefficients	CO3				
26	09/11/2021	Review of ordinary linear non homogeneous second order differential equations with constant coefficients	CO3				
27	10/11/2021	Transient Analysis Of Dc Circuits (With R-L) By Classical Method For Unit Step Input	CO3				
28	15/11/2021	Transient Analysis Of Dc Circuits (With R-C) By Classical Method For Unit Step Input	CO3				

Year: II
Semester: I

6. **Name of the Faculty: Dr. Rituparna Mitra** **Course Code: EEE42101**
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8. **Program : B.Tech, EE** **T: 0**
9. **Target : 60 %** **P: 0**
C: 3

29	16/11/2021	Transient Analysis Of Dc Circuits (With R-L-C) By Classical Method For Unit Step Input	CO3				
30	17/11/2021	Transient Behaviour Of Circuit Under Switching Actions - I	CO3				
31	22/11/2021	Transient Behaviour Of Circuit Under Switching Actions - II	CO3				
32	23/11/2021	Transient Behaviour Of Circuit Under Switching Actions - III	CO3				
33	24/11/2021	Evaluation Of Initial Conditions - I	CO3				
34	30/11/2021	Evaluation Of Initial Conditions - II	CO3				

Remarks:

Signature of Faculty

Date:

Year: II
Semester: I

6. **Name of the Faculty: Dr. Rituparna Mitra** — **Course Code: EEE42101**
7. **Course : Electric Circuits** — **L: 3**
8. **Program : B.Tech, EE** — **T: 0**
9. **Target : 60 %** — **P: 0**
C: 3

SESSION PLAN
UNIT-IV

Session Plan				Actual Delivery			
Lect.	Date	Topics to be Covered	CO Mapped	Lect.	Date	Topics Covered	CO Achieved
35	01/12/2021	Laplace transformation - I	CO4				
36	06/12/2021	Laplace transformation - II	CO4				
37	07/12/2021	Laplace transformation - III	CO4				
38	08/12/2021	LT of impulse, step, ramp, sinusoidal signals and shifted functions - I	CO4				
39	13/12/2021	LT of impulse, step, ramp, sinusoidal signals and shifted functions - II	CO4				
40	14/12/2021	LT of impulse, step, ramp, sinusoidal signals and shifted functions - III	CO4				
41	15/12/2021	Waveform Synthesis – I	CO4				

Year: II
Semester: I

6. **Name of the Faculty: Dr. Rituparna Mitra** **Course Code: EEE42101**
7. **Course : Electric Circuits** **L: 3**
8. **Program : B.Tech, EE** **T: 0**
9. **Target : 60 %** **P: 0**
C: 3

42	20/12/2021	Waveform Synthesis –II	CO4				
43	21/12/2021	Initial And Final Value Theorems	CO4				
44	22/12/2021	Application Of LT In Network Analysis And Obtaining Time Domain Solution For R-L, R-C And R-L-C Networks With Ac And Dc Excitations – I	CO4				
45	03/01/2022	Application Of LT In Network Analysis And Obtaining Time Domain Solution For R-L, R-C And R-L-C Networks With Ac And Dc Excitations – II	CO4				
46	04/01/2022	Application Of LT In Network Analysis And Obtaining Time Domain Solution For R-L, R-C And R-L-C Networks With Ac And Dc Excitations –III	CO4				
47	05/01/2022	Application Of LT In Network Analysis And Obtaining Time Domain Solution For R-L, R-C And R-L-C Networks With Ac And Dc Excitations –IV	CO4				

Year: II

Semester: I

6. **Name of the Faculty: Dr. Rituparna Mitra** **Course Code: EEE42101**
7. **Course : Electric Circuits** **L: 3**
8. **Program : B.Tech, EE** **T: 0**
9. **Target : 60 %** **P: 0**

C: 3

48	17/01/2022	Application Of LT In Network Analysis And Obtaining Time Domain Solution For R-L, R-C And R-L-C Networks With Ac And Dc Excitations - V	CO4				

Remarks:

Signature of Faculty

Date:

Year: II
Semester: I

6. **Name of the Faculty: Dr. Rituparna Mitra** — **Course Code: EEE42101**
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8. **Program : B.Tech, EE** — **T: 0**
9. **Target : 60 %** — **P: 0**
C: 3

SESSION PLAN
UNIT-V

Session Plan				Actual Delivery			
Lect.	Date	Topics to be Covered	CO Mapped	Lect.	Date	Topics Covered	CO Achieved
49	18/01/2022	Open Circuit Impedance Parameter	CO1				
50	19/01/2022	Short Circuit Admittance Parameter	CO2				
51	24/01/2022	Transmission Parameters	CO1				
52	25/01/2022	Hybrid Parameters	CO3				
53	31/01/2022	Parameter Relationship – I	CO4				
54	01/02/2022	Parameter Relationship – II	CO1				
55	02/02/2022	Driving Point Impedance And Admittance –I	CO2				
56	07/02/2022	Driving Point Impedance And Admittance – II	CO1				
57	08/02/2022	Solution Of Problems – I	CO3				

Year: II
Semester: I

6. **Name of the Faculty: Dr. Rituparna Mitra** **Course Code: EEE42101**
7. **Course : Electric Circuits** **L: 3**
8. **Program : B.Tech, EE** **T: 0**
9. **Target : 60 %** **P: 0**
C: 3

58	09/02/2022	Solution Of Problems – II	CO4				
59	14/02/2022	Solution Of Problems – III	CO1				
60	15/02/2022	Solution Of Problems - IV	CO3				

Remarks:

Signature of Faculty

Date:

Year: II
Semester: I

6. Name of the Faculty: Dr. Rituparna Mitra — Course Code: EEE42101
7. Course : Electric Circuits — L: 3
8. Program : B.Tech, EE — T: 0
9. Target : 60 % — P: 0
C: 3

PERIODIC MONITORING

Actual date of completion and remarks, if any

Components		From	To	From	To
Duration (Mention from and to Dates)		01.09.2021	05.01.2022	17.01.2022	23.02.2022
Percentage of Syllabus covered		78 %		22 %	
Lectures	Planned	1	47	48	60
	Taken				
Tutorials	Planned	NA			
	Taken				
Test/Quizzes/ Mid Semester/ End Semester	Planned	28.11.2021	28.11.2021	22.02.2022	22.02.2022
	Taken				
	CO's Addressed	CO1, CO2	CO1, CO2	CO2, CO3, CO4	CO2, CO3, CO4
	CO's Achieved				
Assignments	Planned	2	2	2	2
	Taken				
	CO's Addressed	CO1, CO2	CO1, CO2	CO3, CO4	CO3, CO4
	CO's Achieved				
Signature of Faculty					
Head of the Department					
OBE Coordinator					

Signature of HOD/ Dean

Date

Signature of Faculty

Date

Year: II
Semester: I

6. Name of the Faculty: Dr. Rituparna Mitra — Course Code: EEE42101
7. Course : Electric Circuits — L: 3
8. Program : B.Tech, EE — T: 0
9. Target : 60 % — P: 0
C: 3

PERIODIC MONITORING

Attainment of the Course (Learning) Outcomes:

Components	Attainment level	Action Plan	Remarks
Assignment	CO1:	Submission Target 26.09.2021	
	CO2:	Submission Target 27.10.2021	
	CO3:	Submission Target 21.12.2021	
	CO4:	Submission Target 25.02.2022	
Quiz/Test etc.	CO1:	Will conduct on 23.10.2021	
	CO2:		
	CO3:	Will conduct on 03.02.2022	
	CO4:		
Mid Semester	CO1:	Scheduled on 10.01.2022	
	CO2:		
	CO3:	--	
	CO4:	--	
End Semester	CO1:	Scheduled on 07.03.2022	
	CO2:		
	CO3:		
	CO4:		
Any Other	CO1:	NA	
	CO2:		
	CO3:		
	CO4:		

Signature of HOD/ Dean — Signature of Faculty

Date — Date

Year: II
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Previous Year Question Papers – Set 1

ADAMAS UNIVERSITY PURSUE EXCELLENCE	**ADAMAS UNIVERSITY** **END-SEMESTER EXAMINATION : JANUARY 2021** (Academic Session: 2020 – 21)		
Name of the Program:	B.Tech	**Semester:**	III
Paper Title :	Electric Circuits	**Paper Code:**	EEE42101
Maximum Marks :	40	**Time duration:**	3 Hrs
Total No of questions:	8	**Total No of Pages:**	3
(Any other information for the student may be mentioned here)			

Answer all the Groups

Group A

Answer all the questions of the following $5\times1 = 5$

1. **a)** Explain independent and dependent sources with examples.

b) Two voltmeters A and B having resistance of 5.2 kΩ and 15 kΩ respectively are connected in series across 240V supply. What are the reading in each voltmeter?

c) Find the energy stored in an inductor of value 5 mH, if the current in it varies from 1A to 5A in 10 sec.

d) What is Q factor? Find value of Q factor for an inductor.

e) What is coefficient coupling?

Year: II
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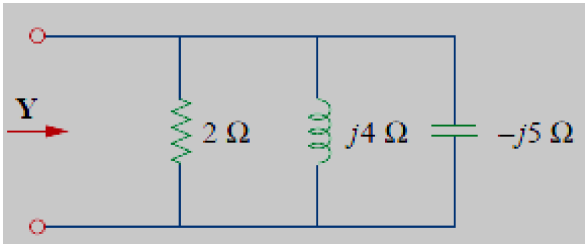
8. **Program** : **B.Tech, EE** — **T: 0**
9. **Target** : **60 %** — **P: 0**, **C: 3**

GROUP –B

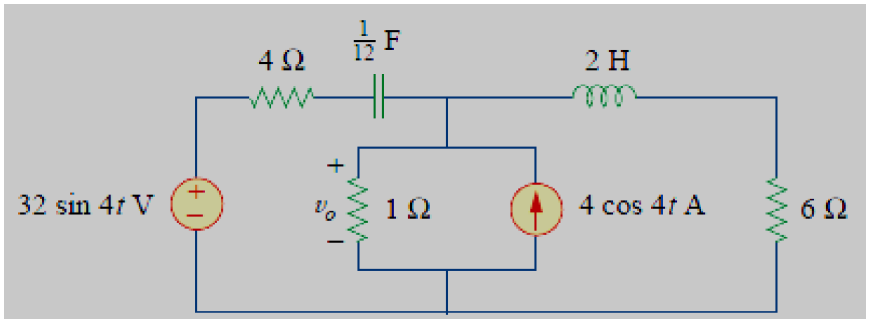
Answer *any three* of the following $3\times5 = 15$

2. A current source in a linear circuit has $i_z = 8\cos cos\left(500\pi t - 25^o\right)$ A. (a) What is the amplitude of the current? (b) What is the angular frequency? (c) Find the frequency of the current. (d) Calculate i_z at t=2ms.

3. Determine the admittance Y for the circuit in Figure.



4. Determine Vo in the circuit by nodal analysis.



5. Using mesh analysis, obtain I_0 in the circuit shown in Fig.

Year: II
Semester: I

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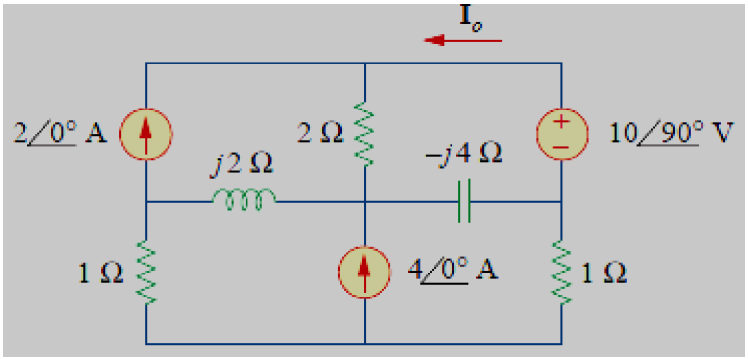
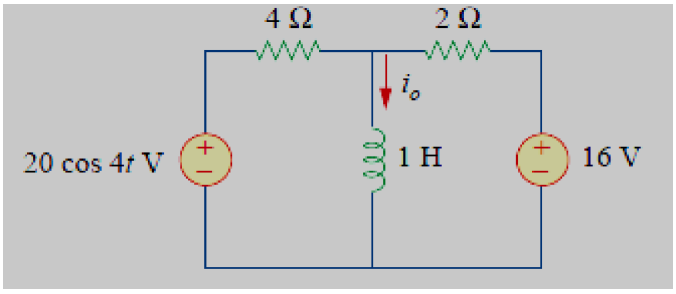


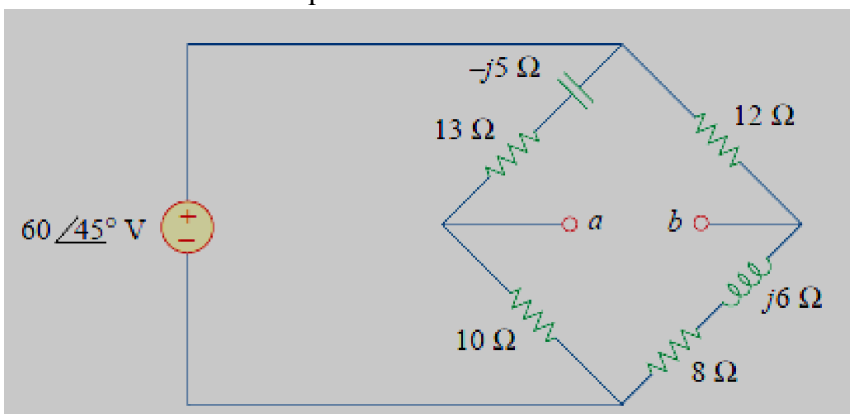
GROUP –C

Answer *any two* of the following $2\times10 = 20$

6. (a) Find i_0 in the circuit shown in Fig. using superposition.



(b) Find the Thevenin and Norton equivalent circuits at terminals a-b in the circuit.



7. (a) Two coils connected in series-aiding fashion have a total inductance of 250 mH. When connected in a series-opposing configuration, the coils have a total inductance of 150 mH. If the inductance of one coil (L_1) is three times the other, find L_1, L_2 and M. What is the coupling coefficient?

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Semester: I

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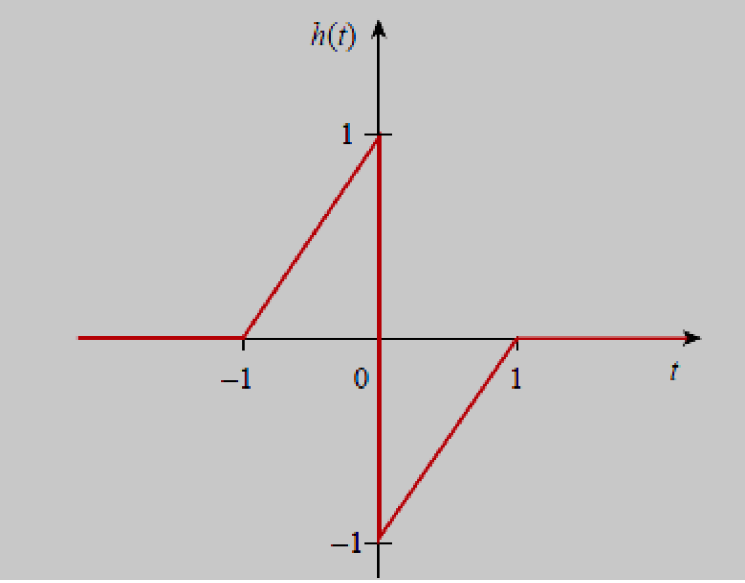
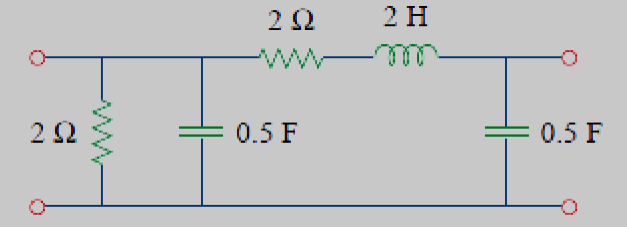
9. Target	**: 60 %**	**P: 0**
		C: 3

(b) Obtain the Fourier transform of the signal shown in Fig.



8. (a) Obtain the z parameters for the network in Fig. as functions of s.



(b) For a two-port, let A=4, B=30Ω, C=0.1 S and D=1.5. Calculate the input impedance $Z_{in} = \frac{V_1}{I_1}$, when: (i) the output terminals are short-circuited, (ii) the output port is open-circuited, (iii) the output port is terminated by a 10-Ω load.

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Semester: I

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9. Target : 60 % — P: 0
C: 3

Previous Year Question Papers – Set 2

	ADAMAS UNIVERSITY **END-SEMESTER EXAMINATION : JANUARY 2021** (Academic Session: 2020 – 21)		
Name of the Program:	B.Tech	**Semester:**	III
Paper Title :	Electric Circuits	**Paper Code:**	EEE42101
Maximum Marks :	40	**Time duration:**	3 Hrs
Total No of questions:	8	**Total No of Pages:**	3
(Any other information for the student may be mentioned here)			

Answer all the Groups

Group A

Answer all the questions of the following $5\times1 = 5$

1. **a)** Define Independent source.

b) Explain the significance of Average value.

c) What are the properties of planner network?

d) State reciprocity theorem.

e) Explain the duality existence between Thevenin's and Norton's equivalent circuit.

GROUP –B

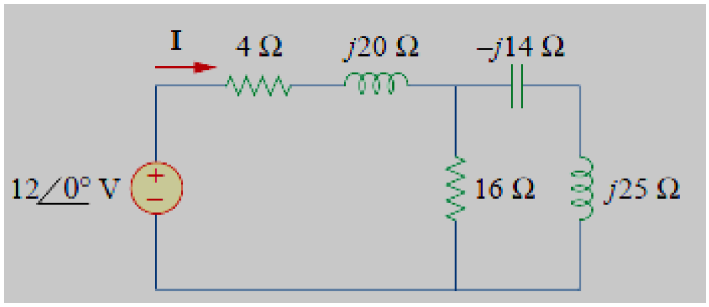
Answer *any three* of the following $3\times5 = 15$

Year: II
Semester: I

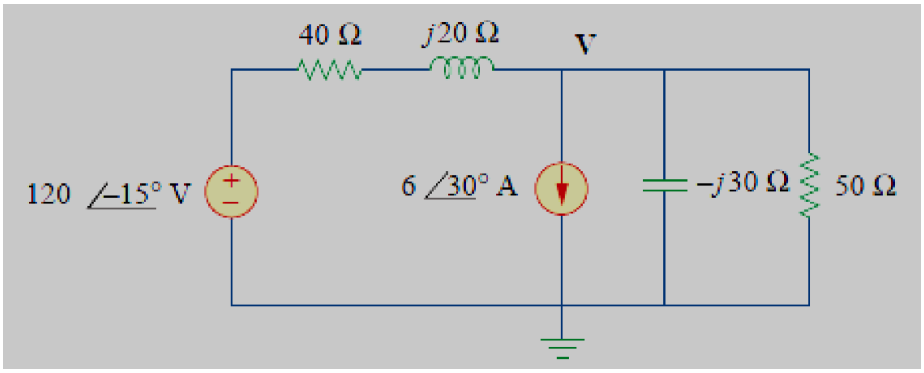
6. **Name of the Faculty: Dr. Rituparna Mitra** — **Course Code: EEE42101**
7. **Course** : **Electric Circuits** — **L: 3**
8. **Program** : **B.Tech, EE** — **T: 0**
9. **Target** : **60 %** — **P: 0**, **C: 3**

2. For the following pairs of sinusoids, determine which one leads and by how much. (a) $v(t) = 10\cos cos\left(4t - 60^o\right)$ and $i(t) = 4\cos cos\left(4t + 60^o\right)$ (b) $v_1(t) = 4\cos cos\left(377t + 10^o\right)$ and $v_2(t) = -20\cos cos\,(377t)$ (c) $x(t) = 13\cos cos\,(2t) + 5\sin sin\,2t$ and $y(t) = 15\cos cos\left(2t - 11.8^o\right)$.

3. For the circuit shown in Fig, find Z_{eq} and use that to find current I. Let ω= 10 rad/s.



4. Use nodal analysis to find V in the following circuit.



5. Compute V_0 in the circuit of Fig. using mesh analysis.

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Semester: I

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9. **Target : 60 %** **P: 0**
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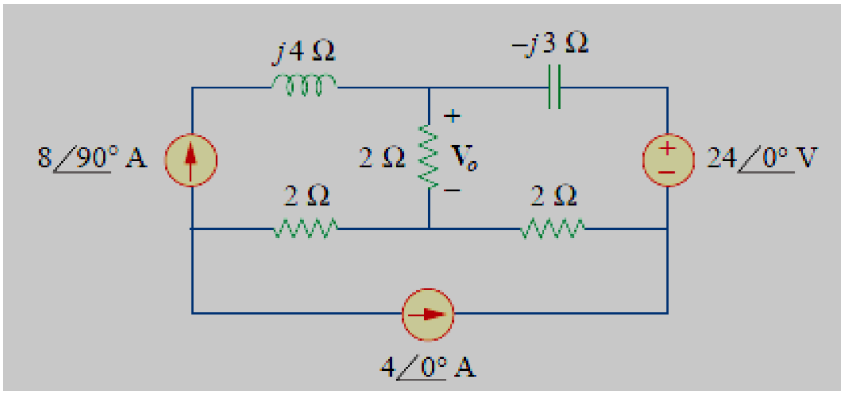
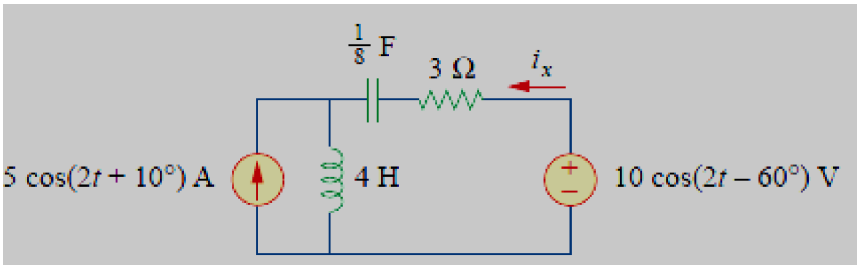


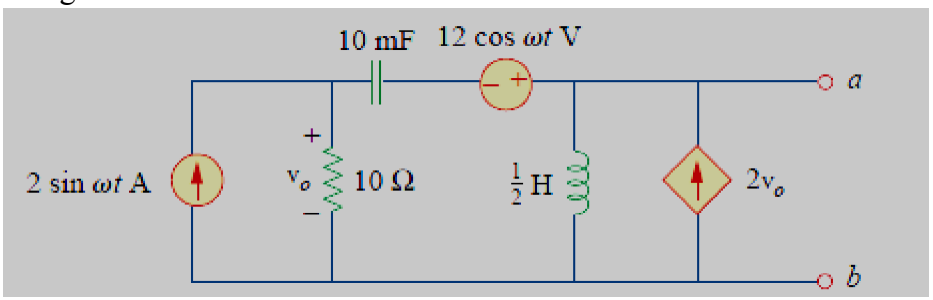
GROUP –C

Answer *any two* of the following $2\times10 = 20$

6. (a) Using the superposition principle, find i_x in the circuit.



(b) At terminals a-b, obtain Thevenin and Norton equivalent circuits for the network depicted in Fig. Take ω=10 rad/s.



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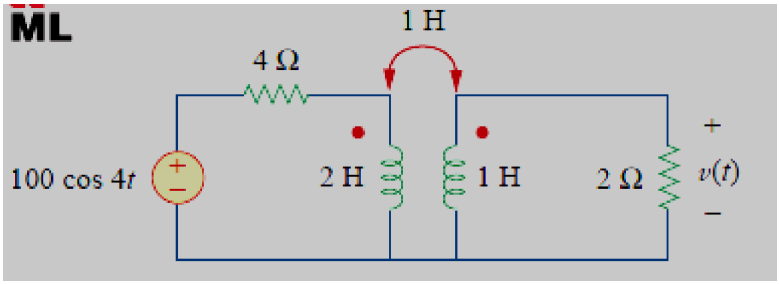
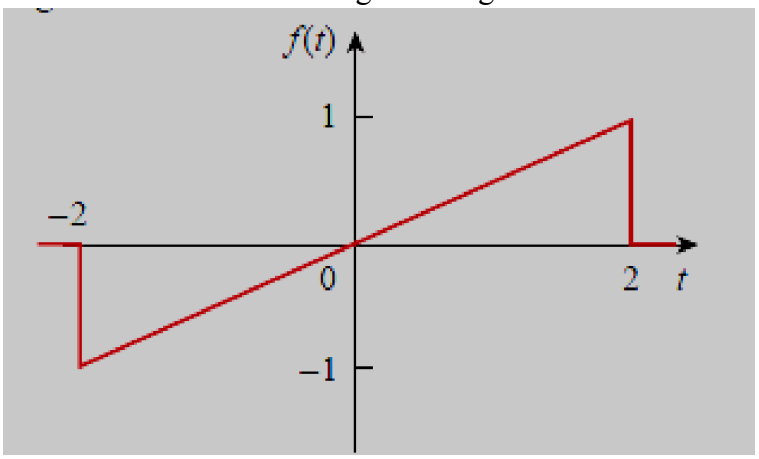
		C: 3

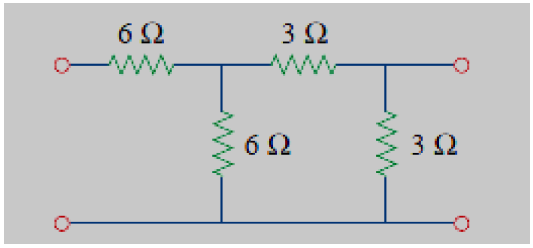
7. (a) Find v(t) for the circuit.



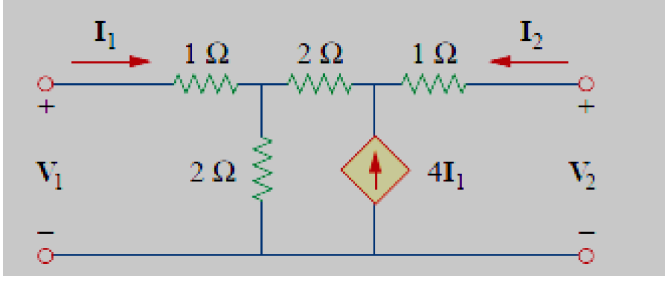
(b) Calculate the Fourier transform of the signal in Fig.



8. (a) Calculate the y parameters for the two-port in Fig.



(b) Determine the hybrid parameters for the network in Fig.



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C: 3

Lecture Notes – Sample

https://g21.tcsion.com/LX/home/home_page?c_id=design-thinking-i-2020-sem-3-2019-group-1-441-2783