

Department of Computer Science & Engineering
School of Engineering Sciences & technology
Jamia Hamdard
Odd Semester

Supplementary Examination: 2023

Time: 3 Hrs

Subject Name: Basic Electrical Engineering

Marks: 75

**Subject Code: BTCSE 103 /
 BTCSE AI 103 /
 BTECE 103**

Note: Please do proper numbering of Attempted Question.

Section A

Note: All the Questions are Compulsory. Each question carry equal marks

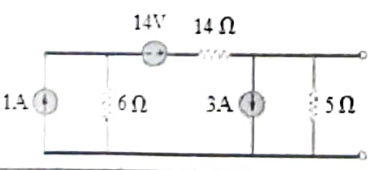
[7 x 5 marks = 35 marks]

Q. No	Question	CO	BL
Q1.	Assume a standard sinusoidal voltage and current equation and derive the equation of instantaneous power and average power	CO2	L3
Q2.	Consider any example of your choice and explain the concept of KCL & KVL with mathematical expressions.	CO1	L2
Q3.	With help of suitable mathematical derivations, prove the following statement: "under steady state condition, capacitor acts as open circuit"	CO1	L2
Q4.	With the help of suitable circuit diagram explain the difference between ideal and practical voltage and current sources	CO2	L3
Q5.	Differentiate between different types of magnetic materials in detail	CO3	L1
Q6.	Derive equation for resonating frequency for a series and parallel RLC circuit?	CO2	L3
Q7.	Write a short note on any two of the following a. DC-DC buck and boost converter b. types of Cables and Wires c. Power factor	CO5	L2

Section B

Note: Attempt any four questions. Each question carry equal marks

[4 x 10 marks = 40 marks]

Q. No	Question	CO	BL
Q1.	For the given circuit diagram, find the thevenin's and Norton's equivalent circuit across terminal 'a-b' 	CO1	L5
Q2.	Explain with the help of a suitable circuit diagram the relationship between Delta-Wye transformations of a source?	CO3	L4
Q3.	With the help of suitable diagram and waveform explain the construction and working of a three phase generator?	CO4	L1
Q4.	What are the different types of Losses in a transformers? Explain in detail. Derive the expression to	CO3	L6

	prove the copper saving while using Auto-Transformer		
Q5.	For the given voltage and current values, find the instantaneous and average power $v(t) = 80 \cos(486t + 45^\circ)V$ $i(t) = 165 \cos(486t - 40^\circ)V$	CO2	L3
Q6.	For a practical transformers, discuss different types of losses? Also explain the hysteresis curve for a magnetic material with the help of a BH curve	CO3	L2

BL – Bloom's Taxonomy Levels

(1- Remembering, 2- Understanding, 3- Applying, 4- Analyzing, 5- Evaluating, 6- Creating)

CO-Course Outcomes