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

ANNA UNIVERSITY (UNIVERSITY DEPARTMENTS)

B.E. /B.Tech / B. Arch (Full Time) - END SEMESTER EXAMINATIONS, NOV / DEC 2024

NAME OF THE BRANCH

Semester

EE5201 - Basics of Electrical and Measurement Engineering

(Regulation 2019)

Time:3hrs Max.Marks: 100

CO1	To understand the basic concepts of electric circuits.
CO2	To understand the operation of AC and DC machines.
CO3	To understand the operation and applications of special electrical components.
CO4	To understand the working principle of electrical measurements.
CO5	To understand the working principle of mechanical measurements.

BL – Bloom's Taxonomy Levels

(L1-Remembering, L2-Understanding, L3-Applying, L4-Analysing, L5-Evaluating, L6-Creating)

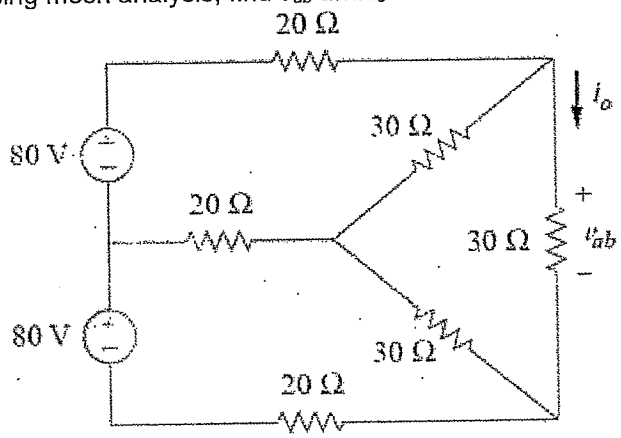
PART- A(10x2=20Marks)

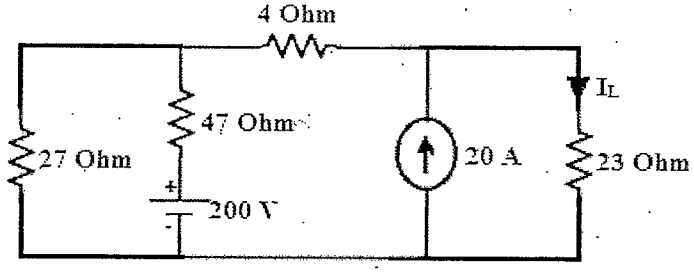
(Answer all Questions)

Q.No.	Questions	Marks	CO	BL
1	State kirchoffs current law and voltage law.	2	1	L1
2	Define average value.	2	1	L1
3	Is single phase induction motor is self-starting? Why?	2	2	L2
4	What is the principle involved in single phase transformer?	2	2	L1
5	Define stepper motor.	2	3	L1
6	Give the applications for electromechanical relay.	2	3	L2
7	Compare DC and AC bridge circuit.	2	4	L2
8	Define instrumentation amplifier.	2	4	L1
9	State the principle of fiber optic transducer.	2	5	L1
10	Define elastic sensor.	2	5	L1

PART- B(5x 13=65Marks)

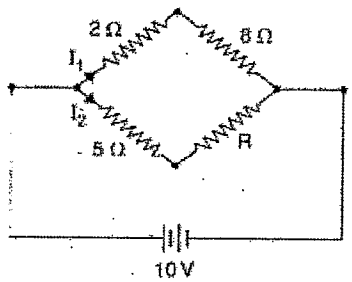
(Restrict to a maximum of 2 subdivisions)

Q.No.	Questions	Marks	CO	BL
11 (a)	Using mesh analysis, find v_{ab} and i_o. 	13	1	L5
	OR			

11 (b)	Using Superposition theorem, find the current I_L and the power consumed by 23 Ω resistor for the circuit shown in figure.  	13	1	L5
12 (a)	With the neat sketch, explain the construction and working of DC generator.	13	2	L4
	OR			
12 (b)	With the neat diagram, explain the construction and working principle of three phase induction motor.	13	2	L4
13 (a)	With the neat diagram, explain the construction and working principle of synchronous motor?	13	3	L4
	OR			
13 (b)	With the neat diagram, explain the construction and working of switched reluctance motor?	13	3	L4
14 (a)	With the neat sketch, explain the construction and working of current and potential transformer.	13	4	L4
	OR			
14 (b)	Explain the working of moving coil and moving iron meters with neat diagram.	13	4	L4
15 (a)	Explain the construction and working principle of linear variable differential transducer with neat diagram.	13	5	L2
	OR			
15 (b) (i)	Explain the construction and working principle of piezo-electric transducer with neat diagram.	8	5	L2
(ii)	Explain the operation of digital transducer in detail.	5	5	L2

PART- C(1x 15=15Marks)

(Q.No.16 is compulsory)

Q.No.	Questions	Marks	CO	BL
16. (i)	Determine the current in each branch of the given network, if the total current is 2.25 A. Also determine the value of R.  	8	1	L5
(ii)	Explain the working principle of DC motor with neat diagram	7	2	L4