Sub. Code 241AB	Hall Ticket Number										VR24

VIGNAN'S INSTITUTE OF MANAGEMENT AND TECHNOLOGY FOR WOMEN

(An Autonomous Institution)

I-B.Tech.–I-Semester Regular Examinations, February-2025

BASIC ELECTRICAL ENGINEERING

(Common to CSE (DS and IT)

Time: 3 Hours **Max. Marks: 60**

(Answer All Questions)

Note: Question paper consists of Part-A & Part-B.

- **Part-A** for 10M, ii) **Part-B** for 50marks
- **Part A** is compulsory, consists of 10 sub questions from all units carrying equal marks.
- **Part-B** consists of **10 questions** (numbered from 2 to 11) carrying **10marks** each. From each unit there are 2 questions and the students should answer one of them. Hence the student should answer **5 questions** from **Part-B**.

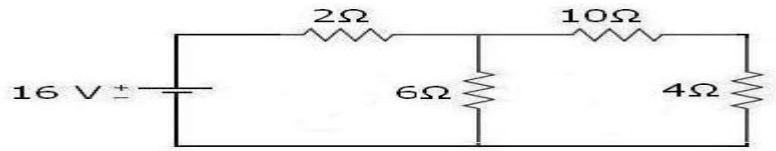
PART-A **(10Marks)**

1	a.	State KCL	1M
1	b.	Write the time constant of RL and RC circuits	1M
1	c.	Define form factor	1M
1	d.	The apparent power in RC circuit is 150VA and active power is 100W calculate power factor	1M
1	e.	Define autotransformer	1M
1	f.	Define efficiency of transformer	1M
1	g.	Define a generator	1M
1	h.	Write the formula for synchronous speed w.r.to frequency and number of ploes	1M
1	i.	Write the full forms of MCB, ELCB	1M
1	j.	What is the need of earthing	1M

PART-B **(50Marks)**

2	a	Obtain an expression for transient current flowing through R-L series circuit excited by D.C source at t= 0+.	**5M**
2	b	State and explain superposition theorem	**5M**

OR

3		Find the current in 4Ω resistor using thevenin's theorem 	**10 M**
4	a	Define cycle, amplitude, RMS value ,average value	**5M**
4	b	A series circuit consisting of a 10 Ω resistor and 10 mH inductance is driven by a 50Hz ac voltage source of maximum value 100V find the equivalent impedance and current flowing in the circuit	**5M**

OR

5		Obtain an expression for active, reactive and complex power in a single-phase series RLC circuit excited by sinusoidal voltage and also	**10M**

draw the power triangle for RLC circuit

6	a	Derive the EMF equation of transformer.	**5M**
6	b	Compare the autotransformer and transformer and list the advantage of autotransformer over two winding transformer	**5M**
		OR	
7		Explain the construction and working principle of a transformer	**10M**
8	a	Explain the construction and working of a DC generator	**5M**
8	b	A 6 pole 50 HZ supply of induction motor has a full load speed of 970 rpm find the full load slip and rotor frequency	**5M**
		OR	
9		Explain the construction details of synchronous generator	**10M**
10	a	What are batteries? How are they classified	**5M**
10	b	Calculate the total energy consumed per day (in terms of units) using following loads: i) 6 number of 50W bulbs operated 6 hours per day ii) 736W motor operating 1 hour per day iii)1000W heater operated 1 hour per day	**5M**
		OR	
11		Explain in detail the types of wires and cables?	**10M**

*****VMTW*****