Register No : _____

THE KAVERY ENGINEERING COLLEGE

(An Autonomous Institution)

B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, APRIL-MAY 2025

Second Semester

Artificial Intelligence and Data Science

BE3251/UBET24202 - Basic Electrical and Electronics Engineering

(Common to Mechanical Engineering, Information Technology, Biomedical Engineering & Computer Science and Engineering)

Regulations – 2021/2024

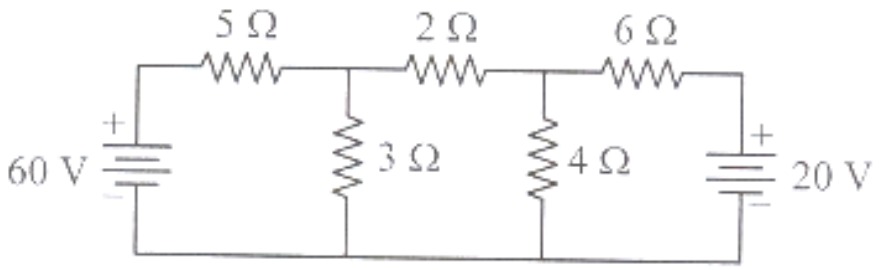
Duration : 3 Hrs ***Maximum: 100 Marks***

PART – A (ANSWER ALL QUESTIONS) (Marks 10*2=20)

Q.No	*Questions*	*BLT*	*CO*	*Marks*
1.	State Ohm's law and its limitations.	L1	1	2
2.	Find the Equivalent resistance of the circuit with three 4Ω resistors, connected in series with parallel combination of two 2Ω resistors.	L2	1	2
3.	Distinguish between DC motor and DC generator.	L2	2	2
4.	Write the E.M.F equation of the transformer.	L1	2	2
5.	Draw the VI characteristics of PN junction diode.	L1	3	2
6.	Differentiate the operation of rectifiers and inverters.	L2	3	2
7.	Convert the Hexadecimal number $(DAB)_{16}$ to $(??)_{10}$ Decimal number.	L3	4	2
8.	State the significance of K Map.	L1	4	2
9.	Mention the functional elements of the instrumentation system.	L1	5	2
10.	Differentiate between C.T and P.T.	L2	5	2

PART – B (ANSWER ALL QUESTIONS) (Marks 5*16 = 80)

Q.No		*Questions*	*BLT*	*CO*	*Marks*
11.	a	Using mesh analysis determine the branch currents also determine the power dissipation in the 4 Ω resistor.	L3	1	16



Or

	b		A series RLC Circuit has R=20Ω, L=100mH and C=50μf and is supplied with 230 V and 50Hz. Find: i. Impedance ii. Current iii. Power iv. Power factor v. Voltage drop across each element	L3	1	16
12.	a		With a neat sketch explain the construction and working of DC generator.	L2	2	16
			Or			
	b	i	Derive the EMF equation of transformer also state the transformation ratio of the transformer.	L2	2	8
		i i	Compare squirrel cage and slip ring induction motor.	L2	2	8
13.	a		Explain the construction, working, V-I characteristics of Zener diode in detail.	L2	3	16
			Or			
	b		Discuss about the constructional details and working of MOSFET.	L2	3	16
14.	a		Illustrate in detail about the different error detection and error correction codes.	L3	4	16
			Or			
	b		Simplify the Boolean expression: f(A,B,C,D)=A'BCD+A'B'CD+ABC'D+ABCD'+A'B'C'D'	L3	4	16
15.	a		Explain the construction and working of PMMC instruments, also derive the torque equation.	L2	5	16
			Or			
	b		Describe the functional components of DSO with a neat block diagram.	L2	5	16