

THE KAVERY ENGINEERING COLLEGE*(An Autonomous Institution)***B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, NOV /DEC 2024***Second Semester**Civil Engineering***BE3252 – Basic Electrical, Electronics and Instrumentation Engineering***(Common to Agricultural Engineering & Chemical Engineering)**Regulations – 2021**Duration : 3 Hrs**Maximum : 100 Marks***PART – A (ANSWER ALL QUESTIONS) (Marks 10*2=20)**

<i>Q.No</i>	<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
1.	Two resistances of 4Ω and 6Ω are connected in series across 10V battery. Find the equivalent resistance.	UN	1	2
2.	Point out the three types of power.	AN	1	2
3.	State Faraday's law of electromagnetic induction.	RE	2	2
4.	Identify the safety precautions to be observed during electrical appliances installation.	UN	2	2
5.	Write the EMF equation of a DC generator.	RE	3	2
6.	Indicate the advantages and disadvantages of synchronous motors	UN	3	2
7.	Infer why transistor is called as bipolar device.	UN	4	2
8.	Show the symbol of SCR and IGBT.	AP	4	2
9.	Differentiate between sensors and actuators.	AN	5	2
10.	Define gauge factor of strain gauge.	AN	5	2

PART – B (ANSWER ALL QUESTIONS) (Marks 5*13 = 65)

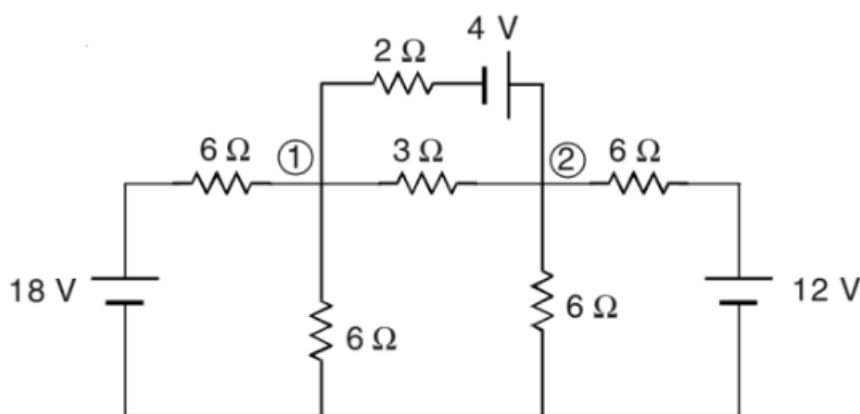
<i>Q.No</i>	<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
11.	a Make use of Resistor, Inductor and Capacitor in a simple electrical circuit and explain with examples.	AP	1	13
	Or			
	b Construct a series RLC circuit consisting of a resistance of 20 Ω, inductance 0.2 H and capacitance 150 μF which is connected across a 230V, 50 Hz source. Determine i) impedance, ii) current, iii) power factor and iv) the frequency of supply to be adjusted to make power factor unity.	AP	1	13
12.	a i Compare electric and magnetic circuit.	UN	2	8
	ii Show a simple wiring layout for domestic house wiring with necessary electrical accessories.	AP	2	5
	Or			
	b i Illustrate the need and functions of pipe earthing with suitable sketch.	UN	2	8
	ii Predict the working of Earth leakage circuit breaker with neat sketch.	AP	2	5
13.	a Summarize the constructional features of DC machines and explain the functions of each part.	AN	3	13

Or

	b	Analyze the working principle of single-phase transformers and also derive its EMF equation.	AN	3	13
14.	a i	Assess the VI characteristics of PN junction diode.	AP	4	7
	ii	Analyze the operation of bipolar junction transistor in common base configuration.	AN	4	6
		Or			
	b i	Demonstrate the working principle of depletion type MOSFET.	AP	4	7
	ii	Examine the operation of half wave rectifier without filter with necessary waveforms.	AN	4	6
15.	a	Interpret the operation of piezoelectric transducer with neat sketch and mention its applications.	UN	5	13
		Or			
	b	Illustrate the working of LVDT under three different cases (i) no displacement (ii) upward displacement and (iii) downward displacement.	UN	5	13

*PART - C (Marks 1*15 = 15)*

Q.No	Questions	BLT	CO	Marks
16.	a Determine the different branch current in the circuit by using nodal analysis method.	EV	1	15



Or

	b	A star connected load consists of $6\ \Omega$ resistance in series with an $8\ \Omega$ inductive reactance in each phase. A supply voltage of 440 V at 50 Hz is applied to the load. Determine the line current, power factor and power consumed by the load.	EV	1	15
--	---	---	----	---	----