N23272

B.E./B.TECH. DEGREE END SEMESTER EXAMINATIONS – NOV. 2023

First Semester

Computer Science and Engineering

23EE11C – Basic Electrical and Electronics Engineering

Regulations 2023

Time : Three hours **Maximum : 100 marks**

Answer ALL Questions

Part A – (10 x 2 = 20 Marks)

1.	Two resistances of 40Ω and 70Ω are connected in parallel across a 50V battery source feeding a constant current to the load. Compute the total current fed by the battery.	CO1-K2
2.	Draw a sinusoidal waveform and write the expression for rms value and average value.	CO1-K1
3.	State Faraday's laws of electromagnetic induction.	CO2-K1
4.	List the various applications of squirrel cage induction motor.	CO2-K1
5.	Name the various parts of induction type energy meter.	CO3-K1
6.	Distinguish between moving coil and moving iron instruments based on any two salient features.	CO3-K2
7.	Define the term PIV.	CO4-K1

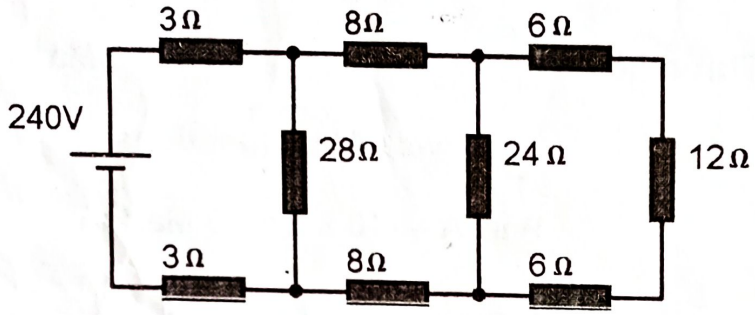
8. Write few applications of transistors. CO4-K2

9. Classify the types of batteries commonly used. CO5-K2

10. Sketch the circuit diagram of ELCB. CO5-K2

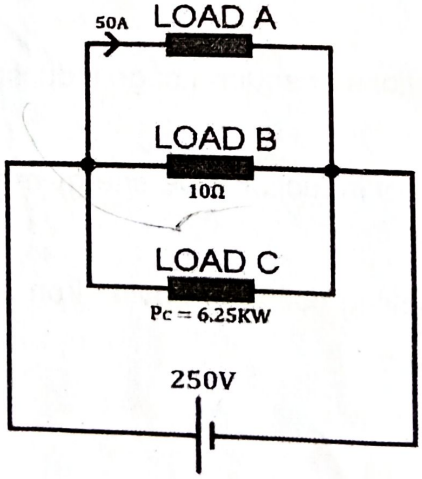
Part B – (5 X 16 = 80 Marks)

11. (a) Determine the current in the 12 ohm resistance in the given circuit using Mesh current method, and also find the power dissipation across each element. CO1-K3 (16)



(Or)

(b) Three loads A, B and C are connected in parallel across a 250 V source, Load A takes 50 A. Load B is a resistor of 10Ω and load C takes 6.25 kw. Calculate (i) load resistance A and B (ii) The currents through load B and C (iii) Power dissipation in loads A and B. CO1-K2 (16)



12.	(a)	(i)	Derive the emf equation of a DC generator.	CO2-K2	(8)
		(ii)	A 4 pole, lap wound dc generator has a useful flux of 0.07 wb per pole. Armature consist of 440 conductors. Calculate the generated emf, when it is rotated at a speed of 900 r.p.m with a wind turbine. Also, calculate the generated emf if lap wound armature is replaced with wave wound armature.	CO2-K3	(8)
			(Or)		
	(b)		Explain the types of single-phase induction motor based on the starting mechanism with neat diagram.	CO2-K2	(16)
13.	(a)		Explain the construction and working principle of a permanent magnet moving coil instrument with a neat diagram.	CO3-K2	(16)
			(Or)		
	(b)	(i)	In detail, explain all the functions performed by multimeter and advantages of using a multimeter rather than analog meters.	CO3-K2	(8)
		(ii)	Explain the types of errors which occur while measuring using a measurement device.	CO3-K1	(8)
14.	(a)		Describe the construction, operation and characteristic behavior of full wave rectifier constructed using p-n junction diode.	CO4-K2	(16)
			(Or)		
	(b)	(i)	With a neat sketch, explain how n-p-n transistor can be used as switch in CE configuration.	CO4-K2	(8)
		(ii)	Summarize the differences between photo diode and LED.	CO4-K2	(8)

15.	(a)	(i)	Explain the necessity of earthing. Also, explain its types.	CO5-K2	(8)
		(ii)	Discuss with the help of basic block diagram of an Inverter used to convert DC to AC and also explain the working of the inverter.	CO5-K2	(8)
			(Or)		
	(b)	(i)	Describe about electrical safety standards used in IT industry.	CO5-K2	(8)
		(ii)	Explain the construction and operation of Ni-Cd battery. Explain its advantages and disadvantages.	CO5-K2	(8)
