Course Code: **23ES11T03**

MALINENI LAKSHMAIAH WOMEN'S ENGINEERING COLLEGE

(AUTONOMOUS)

I-B.Tech I-Semester Regular Examinations (MR23), February - 2024

Basic Electrical & Electronics Engineering

(Common to ECE, CSE (DS), AI&DS, CSE (AI&ML))

Time: 3 hours Max. Marks: 70

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1. Question Paper consist of two parts viz., Part -A & Part -B with equal weightage of 35 marks each.
2. Answer all 5 Questions in Section A of each Part. Each question carries 1 Mark.
3. Answer one question from Section B of each part. Each question carries 10 Marks.

PART–A

SECTION-A (1 X 5M = 5M)

		Marks	CO	BL
1.a)	State ohm's law and mention the limitations of it.	(1M)	CO1	L2
b)	State super position theorem.	(1M)	CO3	L2
c)	List the materials used for (a) yoke (b) brush	(1M)	CO2	L2
d)	State the Fleming's right hand rule.	(1M)	CO3	L2
e)	List out the applications of solar energy.	(1M)	CO2	L2

SECTION-B (3 X 10M = 30M)

2a.	A sine wave has a peak value of 12V. Determine the following values.	(5M)	CO1	L2
b.	i) Average Value ii) R.M.S. Value iii) Peak Factor iv) Form factor. State and Derive an expression for voltage division rule.	(5M)	CO1	L2
	(OR)			
3a.	Define the following: i) KCL ii) KVL iii) Practical voltage source iv) Ideal current source	(5M)	CO1	L2
b.	what is the behaviour of Through Pure Inductor only.	(5M)	CO1	L2
4a.	Describe the working of DC motor.	(5M)	CO2	L2
b.	Explain the construction and working principle of wheat stone bridge.	(5M)	CO2	L3
	(OR)			
5a.	Explain the working Principle of a single-phase transformer with a neat sketch.	(5M)	CO2	L2
b.	Explain the construction of Permanent Magnet Moving Coil.	(5M)	CO2	L3
6a.	Compression between Conventional and Non-Conventional Energy Resources.	(5M)	CO3	L3
b.	Calculate the electricity bill amount for a month of 31 days, if the following devices are used as specified: a) 3 bulbs of 30 watts for 5 hours b) 4 tube lights of 60 watts for 8 hours c) 1 fridge of 300 watts for 24 hours d) 1 motor of 1.5HP for 2hours Given the rate of electricity is 5 Rs. per unit and having a fixed	(5M)	CO3	L2

	charge of 55 Rs and tax of 5% on consumed power.			
	(OR)			
7a.	Give a brief description on wind Power plants.	(5M)	CO3	L2
b.	Write a short on Safety Precautions to avoid electric shock.	(5M)	CO3	L2

PART–B

SECTION-A (1 X 5M = 5M)

		Marks	CO	BL
8. a)	What is meant by Bipolar Junction Transistor? Draw the symbols for NPN and PNP Transistor?	(1M)	CO4	L1
b)	Derive the relation between alpha and beta?	(1M)	CO4	L1
c)	What is meant by Rectifier, Filter and Regulator?	(1M)	CO5	L1
d)	What are the different types of filters used in electronic circuits?	(1M)	CO5	L2
e)	Mention and draw the truth tables for AND,OR and NOT Gates?	(1M)	CO6	L1

SECTION-B (3 X 10M = 30M)

9a.	What is meant by P-N Junction diode? Explain P-N Junction diode in Forward and Reverse Bias and also explain V-I Characteristics?	(5M)	CO4	L2
b.	What is meant by Zener diode? Explain V-I Characteristics and two mechanisms?	(5M)	CO4	L1
	(OR)			
10 a	Explain Common Emitter(CE) Configuration in detail with its Input and Output Characteristics with circuit diagram?	(5M)	CO4	L2
b.	Explain Elementary Treatment of Small Signal CE Amplifier with circuit diagram?	(5M)	CO4	L2

11a.	What is meant by LMPS? Explain in detail about LMPS with a neat block diagram?	(5M)	CO5	L4
b.	Explain in detail about Half Wave Rectifier with Necessary derivations?	(5M)	CO5	L2
	(OR)			
12a.	Explain in detail about Full Wave Bridge Rectifier with Necessary derivations?	(5M)	CO5	L2
b.	With a neat block diagram explain Public Address System in detail?	(5M)	CO5	L2

13a.	Explain in detail different codes produced in Digital Electronics?	(5M)	CO6	L2
b.	Explain in detail about Combinational circuits with Half and Full Adder? also explain sequential circuits in detail?	(5M)	CO6	L2
	(OR)			
14a.	What is meant by Flip-flop? explain different types of Flip-flops	(5M)	C06	L2
b.	used in Digital Electronics? What is meant by Registers? Explain different types of Registers used in detail in Digital Electronics?	(5M)	C06	L2

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