SNIST Sreenidhi Institute of Science and Technology
(An Autonomous Institution)

Regulations: A17

Code No: 6CC09   **Date: 14-Aug-2023 (FN)**

B.Tech II-Year I- Semester External Examination, Aug - 2023 (Supplementary)
ELEMENTS OF ELECTRONICS ENGINEERING (CSE, IT and BT)

Time: 3 Hours   **Max.Marks:75**

> **Note:** a) *No additional answer sheets will be provided.*
> b) *All sub-parts of a question must be answered at one place only, otherwise it will not be valued.*
> c) *Missing data can be assumed suitably.*

Bloom's Cognitive Levels of Learning (BCLL)

Remember	L1	Apply	L3	Evaluate	L5
Understand	L2	Analyze	L4	Create	L6

Part - A   Max.Marks:25
ANSWER ALL QUESTIONS

		BCLL	CO(s)	Marks
1	Derive DC voltage for half wave rectifier.	L4	CO1	[2M]
2	What is the need for biasing a transistor?	L2	CO2	[2M]
3	Define holding current for SCR.	L1	CO3	[2M]
4	Define "bel" and "decibel"?	L1	CO4	[2M]
5	Write the principle in boost type voltage regulator.	L1	CO5	[2M]
6	State the important features of IC 723.	L1	CO6	[3M]
7	Define diffusion current.	L1	CO1	[3M]
8	Why a Field Effect Transistor is called so?	L2	CO4	[3M]
9	What is the use of capacitive coupling.	L2	CO5	[3M]
10	What are the limitations of three terminal regulators?	L2	CO2	[3M]

Part – B   Max.Marks:50
ANSWER ANY FIVE QUESTIONS. EACH QUESTION CARRIES 10 MARKS.

			BCLL	CO(s)	Marks
11.	a)	Derive ripple factor and efficiency for Full Wave Rectifier.	L4	CO1	[5M]
	b)	Write about Breakdown mechanisms in Zener diode.	L1	CO1	[5M]
12.	a)	Explain the input and output characteristics of Common Emitter configuration with necessary diagram.	L2	CO2	[5M]
	b)	For a fixed bias configuration given the V_{cc}= 12V, V_c=6V, β = 80 ,I_b = 40µA. Determine I_c, R_c, R_B, and V_{ce} using.	L5	CO2	[5M]
13.	a)	Explain the V-I characteristics of Silicon Controlled Rectifier.	L2	CO3	[5M]
	b)	Draw and explain about the Transfer characteristics of n-channel JFET.	L3	CO3	[5M]
14.	a)	Explain with circuit diagram a negative feedback amplifier and obtain expression for its closed loop gain.	L2	CO4	[5M]
	b)	Draw and explain the single stage CE amplifier.	L3	CO4	[5M]
15.	a)	Draw and explain about RC phase shift oscillator.	L3	CO5	[5M]
	b)	Draw and explain about the Colpitts oscillator.	L3	CO5	[5M]

16. a) Analyze the block diagram of UPS and discuss its operation. L4 CO6 [5M]
    b) Design the circuit for voltage doubler. L6 CO6 [5M]

17. a) Define PIV for full-wave rectifier. L1 CO1 [4M]
    b) Explain Current equation for CE transistor configuration. L2 CO2 [3M]
    c) Define transconductance and amplification factor for JFET. L1 CO3 [3M]

18. a) Explain the frequency response of single stage BJT amplifier. L2 CO4 [4M]
    b) Determine: L5 CO5 [3M]
       i) The frequency of a Colpitt's Oscillator if C_1=0.16µF, and L=15mH and
       ii) If the frequency of oscillation is 10kHz, calculate the value of C_2.
    c) What is the difference between LMPS and SMPS. L2 CO6 [3M]

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