

Reg.No.:



VIVEKANANDHA COLLEGE OF ENGINEERING FOR WOMEN  
[AUTONOMOUS INSTITUTION AFFILIATED TO ANNA UNIVERSITY, CHENNAI]  
Elayampalayam – 637 205, Tiruchengode, Namakkal Dt., Tamil Nadu.

**Question Paper Code: 80014**

B.E. / B.Tech. DEGREE END-SEMESTER EXAMINATIONS – NOV. / DEC. 2024

Third Semester

Electrical and Electronics Engineering

U23EE304 – ELECTRONIC DEVICES AND CIRCUITS

(Regulation 2023)

Time: Three Hours

Maximum: 100 Marks

Answer ALL the questions

Knowledge Levels	K1 – Remembering	K3 – Applying	K5 - Evaluating
(KL)	K2 – Understanding	K4 – Analyzing	K6 - Creating

PART – A

(10 x 2 = 20 Marks)

Q.No.	Questions	Marks	KL	CO
1.	List the applications of LED.	2	K1	CO1
2.	How does a zener diode maintain constant output voltage?	2	K2	CO1
3.	Sketch the two transistor model diagram of SCR.	2	K1	CO2
4.	Compare BJT and MOSFET.	2	K2	CO2
5.	What is an Emitter follower?	2	K2	CO3
6.	Mention the characteristics of hybrid parameter model.	2	K1	CO3
7.	Define CMRR.	2	K2	CO4
8.	Classify Power amplifiers.	2	K1	CO4
9.	State the Barkhausen criterion for an oscillator.	2	K1	CO5
10.	Mention the gain equations of positive and negative feedback amplifiers.	2	K2	CO5

PART – B

(5 x 13 = 65 Marks)

Q.No.	Questions	Marks	KL	CO
11. a)	Describe the operation of full wave bridge rectifier with neat diagram and appropriate waveforms.	13	K2	CO1
	(OR)			
b)	Illustrate the characteristics of Zener diode and explain the operation of Zener diode voltage regulator circuit.	13	K2	CO1
12. a)	Analyze the input and output characteristics of BJT with neat circuit diagram and waveforms.	13	K4	CO2
	(OR)			
b)	Analyze the VI characteristics of UJT with its construction and principle of operation.	13	K4	CO2
13. a)	Explain the small signal model of a common Emitter BJT amplifier and derive its h-parameters.	13	K2	CO3
	(OR)			
b)	Explain the frequency response characteristics of a common source MOSFET amplifier.	13	K2	CO3
14. a)	Discuss about the frequency response characteristics of single tuned amplifier.	13	K2	CO4
	(OR)			
b)	Write Short notes on the following.			
	(i) Cascade Amplifier	7	K2	CO4
	(ii) Neutralization methods	6	K2	CO4
15. a)	Construct and explain the circuit of Voltage series feedback amplifier with neat diagrams.	13	K3	CO5
	(OR)			
b)	Construct and explain the operation of RC phase shift oscillator with neat diagrams.	13	K3	CO5

PART – C

(1 x 15 = 15 Marks)

Q.No.	Questions	Marks	KL	CO
16. a)	Construct the Voltage divider bias circuit of a BJT amplifier and explain its operating point characteristics.	15	K3	CO2
	(OR)			
b)	Construct and explain the operation of Wein-bridge oscillator circuit. Also derive its frequency of oscillation and application.	15	K3	CO5