R22 Regulation *Subject code: 4E3BC*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A+' Grade)

B.Tech III Semester Regular/Supplementary Examinations, December 2024

ANALOG ELECTRONICS

(EEE)

Maximum Marks: 60 Date: 06.12.2024 Duration: 3 hours

Note: **1.This question paper contains two parts A and B.**
2. Part A is compulsory which carries 10 marks. Answer all questions in Part A.
3. Part B consists of 5 Units. Answer any one full question from each unit.
4. Each question carries 10 marks and may have a, b, c, d as sub questions.

	Part-A	CO	Bloom Tx
All the following questions carry equal marks	(10X1M=10 Marks)		
1.a)	What is a PN junction diode?	1	L2
b)	What is ripple factor?	1	L2
c)	Define pinch off voltage.	2	L1
d)	List the any two applications of MOSFET	2	L1
e)	Define cascade amplifier.	3	L1
f)	What are types of power amplifiers?	3	L2
g)	What is the advantage of feedback amplifier?	4	L2
h)	What is the condition for oscillation?	4	L2
i)	Write down the expression for gain-bandwidth product.	5	L2
j)	What is virtual ground?	5	L2
	Part-B		
Answer All the following questions.	(5X10M=50Marks)	CO	Bloom Tx
2	Derive the expression for Ripple factor, efficiency, PIV of Half wave Rectifier with neat circuit diagram and explain its operation. [10M]	1	L3
	OR		
3	With neat sketch explain the Input& output characteristics of a transistor in CE configuration and explain about amplification factor [10M]	1	L3
4	Illustrate the construction and principle of operation of JFET with necessary diagrams. [10M]	2	L3
	OR		
5	Explain the drain and transfer characteristics of Enhancement type MOSFET. [10M]	2	L3
6	With a neat diagram, explain the principle of operation of class A Transformer coupled amplifier and find its efficiency [10M]	3	L3
	OR		
7	With a neat diagram, explain the principle of operation of class B push-pull amplifier and find its efficiency. [10M]	3	L3

8	What is the effect of a voltage series negative feedback amplifier in the following performance measures of a BJT amplifier a) input resistance b) output resistance c) Bandwidth d) Distortion and noise. [10M]	4	L3
	OR		
9	Draw the circuit diagram and explain the operation of Hartley oscillator and Derive the expression for oscillation [10M]	4	L3
10	Draw the differentiator circuit of Op amp and explain its operation. [10M]	5	L3
	OR		
11	Explain the operation of inverting and non-inverting amplifiers using op-amp. Derive the expression for Gain [10M]	5	L3