R22 Regulation *Subject code: 4E3BC*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech III Semester Supplementary Examinations, July 2024

ANALOG ELECTRONICS

(EEE)

Maximum Marks: 60 Date:23.07.2024 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

All the following questions carry equal marks (10X1M=10 Marks)		CO	Bloom Tx
1.a)	What is the difference between Clipping and Clamping	1	1
b)	How BJT act as switch	1	1
c)	Draw the structure of p-channel JFET?	2	2
d)	Define pinch off voltage?	2	1
e)	What is the use of the heat sink in power amplifiers	3	1
f)	Define Q factor.	3	1
g)	What are the conditions for oscillation?	4	1
h)	Classify the various negative feedback amplifiers	4	2
i)	Draw the pin diagram of μA741.	5	2
j)	Define slew Rate	5	1

Part-B

Answer All the following questions. (5X10M=50Marks)			Bloom Tx level
2	A. Explain in detail about the junction diode switching times. [5]	1	2
	B. With neat sketch explain the working and construction of NPN transistor. [5]	1	2
	OR		
3	A. For any transistor amplifier, Prove that Ri = (hi/1-hrAv). [5]	1	1
	B. With a neat sketch, explain the working of negative clamper. [5]	1	1
4	Explain the analysis of CS FET amplifier. [10]	2	2
	OR		
5	A. Compare the performance of BJT and FET amplifiers. [5]	2	3
	B. Discuss the analysis of CD JFET amplifier. [5]	2	2
6	Draw the class-A transformer coupled power amplifier and explain its operation and derive the equation for its efficiency and explain its working. [10]	3	4
	OR		

7	A. Design a class B power amplifiers to deliver 25w to a load resistor RL=8ohms, using transformer coupling. Vm=Vcc=25V. Assume necessary data. [5]	3	3
	B. Derive the equation for efficiency class B push pull power amplifier. [5]	3	4
8	A. Show that the bandwidth increases in negative feedback amplifiers. [5]	4	3
	B. Discuss about Frequency and amplitude stability of oscillators. [5]	4	2
	OR		
9	A. Derive the expression for frequency of oscillation of Hartley oscillator. [5]	4	1
	B. Derive the expression for input and output resistance of voltage series feedback amplifier with a neat diagram. [5]	4	1
10	A. Explain the operation of a practical integrator with suitable mathematical expressions. [5]	5	2
	B. Write a technical note on frequency response characteristics of Differential amplifier. State the importance of frequency compensation. [5]	5	1
	OR		
11	Explain various DC and AC characteristics of an op.amp. [10]	5	2