



R20 Regulation **Subject code: 3P3DC**
TKR COLLEGE OF ENGINEERING AND TECHNOLOGY
 (Autonomous, Accredited by NAAC with 'A+' Grade)

B.Tech III Semester Supplementary Examinations, February 2024

ELECTRONIC CIRCUIT ANALYSIS
(ECE)

Maximum Marks: 70

Date: 19.02.2024 Duration: 3 hours

- Note:**
1. This question paper contains two parts A and B.
 2. Part A is compulsory which carries 20 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 (10X2M=20 Marks)		CO	Bloom Tx
1	State Millers theorem.	CO1	L1
2	What is the need for cascading?	CO1	L1
3	Draw the small signal high frequency CE model of a transistor and list its elements?	CO2	L1
4	What do you mean by Gain band width product?	CO2	L1
5	Draw the circuit diagram of CS amplifier.	CO3	L2
6	Define r_d and g_m ?	CO3	L1
7	Describe the advantages and disadvantages of negative feedback.	CO4	L1
8	Illustrate all the types of feedback oscillators	CO4	L2
9	Define the terms collector dissipation and conversion efficiency of class A power amplifier	CO5	L1
10	List out the applications of tuned amplifier.	CO5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)

11	Explain about different types of distortions that occur in amplifier circuits.	10M	CO1	L2
OR				
12	Compare the different types of coupling methods used in multistage amplifiers.	10M	CO1	L2
13	Analyze the expression for CE Current gain with RL and explain the variation of frequency response with RL using hybrid- π model.	10M	CO2	L4
OR				
14	The input power to a device is 10,000W at a voltage of 1000V. The output power is 500W and the output impedance is 20 Ω . Find the (a) Voltage gain in decibels (b) Power gain in decibels.	10M	CO2	L1

15	Common Source FET amplifier circuit has the following circuit parameters: $R_D = 5K\Omega$, $R_G = 10M\Omega$, $r_d = 35K\Omega$, $\mu=50$. Determine A_V, R_i & R_O ?	10M	CO3	L3
	OR			
16	Draw the small-signal model of common source FET amplifier. Derive expressions for voltage gain and output resistance?	10M	CO3	L3
17	Derive the expression for the input resistance with feedback R_{if} and output resistance with feedback R_{of} in the case of (a) Voltage series feedback amplifier. (b) Current shunt feedback amplifier	10M	CO4	L3
	OR			
18	Draw the circuit and explain the principle of operation of RC phase-shift oscillator circuit.	10M	CO4	L3
19	Derive the expression for maximum theoretical efficiency in the case of class B push pull amplifier. Illustrate its advantages and disadvantages?	10M	CO5	L3
	OR			
20	Draw the circuit diagram of a tuned primary amplifier. Derive expression for its voltage gain at resonance and bandwidth.	10M	CO5	L3