Regulation R20 *Subject code:3P3DC*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech III Semester Supplementary Examinations, July 2022

ELECTRONIC CIRCUIT ANALYSIS

(ECE)

Maximum Marks: 70 Date:23.07.2022 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)

1 Discuss various possibilities of inter-stage coupling of amplifiers.
2 Draw a small signal low frequency model of a transistor.
3 Draw simplified high frequency model of CE amplifier.
4 Define the terms f_β and f_T
5 Comparison of performance with BJT & JFET Amplifiers.
6 Draw the frequency response of CS amplifier with resistive load.
7 What is the effect of negative feedback on amplifier gain.
8 State the frequency for RC phase shift oscillator.
9 Write the advantages of class B push pull amplifier?
10 Write the classification of tuned amplifier?

Part-B

Answer All the following questions. (10M X 5=50Marks)

11.a Draw the circuit diagram of a common base amplifier along with its equivalent circuit by using approximate analysis .Derive expressions for A_V ,R_I,A_I and R_0. 7
b. What is non-linear distortion? List the causes for this type of distortion in amplifiers. 3

OR

12. Draw the circuit for Cascode Amplifier. Explain its working, obtaining overall values of the circuit in terms of h-parameters. 10

13.a Obtain an expression for CE short circuit current gain. 6
b The CE short circuit current gain of transistor is 25at a frequency of 2MHZ,if f_β=200khz.calculate(i)f_T (ii) h_{fe}(iii) $|A_i|$ at a frequency of 10MHZ. 4

OR

14.a Give the typical values of various Hybrid- π parameters 4
b Derive the expression of gain bandwidth product for current. 6

15.	Explain the Analysis of CG JFET Amplifier	10
	OR	
16.	Draw the circuit diagram of common source amplifier with Diode connected load? Explain its operation.	10
17.a	Discuss quantitatively about the effect of negative feedback on i) Gain ii) Bandwidth iii) Distortion	5
17.b	Give the block diagram of a general feedback amplifier. State the function of each block	5
	OR	
18.a	Derive the expression for the frequency of Hartley oscillators	7
b	A Hartley oscillator is designed with L = 20μH and a variable capacitance. Find the Range of capacitance values if the frequency of oscillation is varied between 950 KHz to 2050 KHz.	3
19	Derive the expressions for maximum. Theoretical efficiency 'for (i) Transformer coupled (ii) Series fed amplifier what are their advantages and disadvantages.	10
	OR	
20	Draw the circuit and explain the working principle of a complementary symmetry push-pull power amplifier and state its disadvantages?	10