



Regulation R18

Subject code: 2P3BC

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY
(Autonomous, Accredited by NAAC with 'A' Grade)

B.Tech III Semester Supplementary Examinations, July 2022

ELECTRONIC CIRCUITS
(Electrical and Electronics Engineering)

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 10 marks. Answer all questions in Part A.
 3. Part B consists of 10 questions. Answer any 5 questions which carries 12M.
 4. Each question carries 12 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks

(10x2M=20 Marks)

- 1 Draw a small signal low frequency model of a transistor.
- 2 List out the various possibilities of inter-stage coupling of amplifiers.
- 3 Draw high frequency model of CE amplifier.
- 4 List the three basic JFET circuit configurations.
- 5 What is the effect of negative feedback on amplifier gain?
- 6 State the frequency for RC phase shift oscillator.
- 7 Classify different types of heat sinks.
- 8 What is the function of a comparator circuit?
- 9 Define rise time of a transistor.
- 10 List the applications of Astable multivibrator.

Part-B

Answer all the questions

(10MX 5=50Marks)

- 11 Write the analysis of a CC amplifier circuit using h parameters. Derive the expressions for A_i , R_i , A_v & R_o . (10M)

OR

- 12 Discuss the effect of coupling and bypass capacitors on the frequency response of the CE amplifier. (10M)
- 13 What is non-linear distortion? List the causes for this type of distortion in amplifiers. (10M)

OR

- 14 a) Differentiate between RC and LC type oscillators. (5M)
b) What are the different mixing techniques used in any feedback system? Explain. (5M)
- 15 a) Derive the expression for the frequency of Hartley oscillators. (5M)
b) A Hartley oscillator is designed with $L = 20\mu\text{H}$ and a variable capacitance. Find the Range of capacitance values if the frequency of oscillation is varied between 950 KHz to 2050 KHz. (5M).

OR

- 16 Derive the expression for the input resistance with feedback R_{if} and output resistance with feedback R_{of} in the case of Current shunt feedback amplifier. (10M)

17 What are the advantages and disadvantages of push pull power amplifier. Prove class B has maximum conversion efficiency of 78.5%. (10M)

OR

18 What is cross over distortion? how to eliminate it?

19 Sketch & describe the working of clipping circuits.

a) series diode positive clipper circuit b) series diode negative clipper circuit

OR

20 Explain the transistor switching times.