R18 Regulation *Subject code:* 2P3BC

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

B.Tech III SemesterRegular/Supplementary Examinations, February 2021

ELECTRONIC CIRCUITS
(Electrical and Electronics Engineering)

Maximum Marks: 70 Date: 22.02.2021 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 which carries 10M.**
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 Define amplifier? List the types of amplifiers?
2 What is Miller effect?
3 Classify negative feedback amplifiers.
4 Write the conditions for Oscillations and its sustenance.
5 Mention the achievable Maximum efficiency of Class –A amplifiers.
6 Discuss the importance of heat sinks.
7 What is high pass circuit?
8 Distinguish between comparators and clipping circuits.
9 Explain how does diode acts as a switch?
10 List the applications of Schmitt trigger?

Part-B

Answer All the following questions. **(10MX 5=50Marks)**

11 A. Draw the CC amplifier and derive the expression for A_I, R_I, A_V, Y_O. (5M)
B. A CE amplifier is drawn by a voltage source of internal resistance RS = 800 ohms and load impedance is a resistance RL = 1000 ohms. The h-parameters are hie=1.0K ohms, hre = 2×10^{-4} ,hfe = 50 and hoe = 25 μ A/V. compute A_I, R_I, A_V and Ro using exact analysis.(5M)

OR

12 A. Mention the significance of Gain Bandwidth product of amplifiers.(5M)
B. Draw and explain the effect of coupling and bypass capacitors on low-frequency response of CE Amplifier. (5M)

13 Determine the effect of negative feedback on the input and output impedances of a Voltage-Series feedback amplifier. Show the circuit schematic diagram. (10M)

OR

14 Discuss the operation of Wein-Bridge oscillator with necessary diagrams.(10M)

15 A. Discuss the operation of Transformer coupled Class- A amplifiers with diagram. (5M)
B. What are the draw backs of transformer coupled power amplifier.(5M)

16 A. Write the differences between Class A and Class B power amplifiers.(5M)

OR

B. Discuss the concept of Thermal Runway. (5M)

17 A. With help of a neat circuit diagram and waveforms explain the working of a negative clamping circuit.(5M)

B. Explain about the Clamping circuit theorem.(5M)

OR

18 A. Obtain the response of Low-pass RC circuit for square-input with different time-constants.(5M)

B. Write about the Transfer characteristics of Positive clippers with and without biasing. (5M)

19 A. Draw the circuit of Bi-stable Multivibrator and explain its operation.(5M)

B. Discuss in detail about breakdown voltages of a transistor.(5M)

OR

20 Write short notes on:

a) Mono-stable Multivibrators.(5M)

b) Switching characteristics of transistors. (5M)