R18 Regulation *Subject code: 2P3BC*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech III Semester Supplementary Examinations, March 2023

ELECTRONIC CIRCUITS

(ELECTRICAL AND ELECTRONICS ENGINEERING)

Maximum Marks: 70 Date:01.04.2023 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 What is emitter follower?
2 Mention the applications of FET.
3 Write advantages of negative feedback in Amplifier?
4 Why LC oscillators are not used at low frequency?
5 Mention the advantages of push pull class B power Amplifier over class B Amplifier.
6 Define the terms Collector Dissipation and conversion efficiency of class A power Amplifier
7 What is Positive Peak Clamper?
8 Describe the function of the Clamper circuit
9 Draw the Bistable Multivibrator Circuit along with Commutating Capacitors.
10 Explain how Astable Multivibrator acts as a voltage to frequency converter

Part-B

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

11 Write the differences between CB, CE, and CC Amplifier Configurations 10M

OR

12 A. Explain the FET Common Drain Amplifier. 5M
B. Compare FET and BJT. 5M

13 Draw the basic four Feedback Topologies. Derive the expression for transfer gain of an Amplifier with Feedback. 10M

OR

14 Explain the operation of RC phase Shift Oscillator using FET and derive the expression for output frequency. 10M

15 Derive the expression for maximum theoretical efficiency in the case of class B push pull Amplifier. What are its advantages and disadvantages? 10M

OR

16 A. Differentiate between push-pull and complementary symmetry configuration of a Class-B Power Amplifier. 5M
B. For a Class B Amplifier driven from a 24V Power Supply and driving a 8 ohms load, compute i) Input d.c Power, ii) output Power, iii) conversion efficiency if the peak to peak output voltage across the load resistance is 22 Volts maximum. 5M

17 A 10Hz symmetrical square wave whose peak-to-peak amplitude is 3V is applied to a high-pass RC circuit whose lower 3 dB frequency is 5 Hz. Calculate the peak-to-peak output voltage under steady state conditions. 10M

OR

18 With the help of neat diagrams explain the operation of a two level diode clipper. 10M

19 Explain the operation of an Astable Multivibrator using relevant diagrams and waveforms. 10M

OR

20 Explain and derive the expression for pulse width of a Monostable Multivibrator. 10M