R20 Regulation *Subject code:3P3BC*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech III Semester Regular/Supplementary Examinations, March/April 2023

ANALOG ELECTRONICS

(EEE)

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.
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 are the types of distortion in amplifiers?
2 What are the advantages of h-parameter model in transistors?
3 Compare the negative feedback and positive feedback
4 State Barkhausen criterion for oscillation
5 What is thermal runaway?
6 Mention the advantages of push pull power amplifiers.
7 Distinguish between shunt clippers and series clippers.
8 Define Linear Waveshaping.
9 How transistor can be used as a switch.
10 Compare astable and bistable multivibrators.

Part-B

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

11 Draw the h-parameter equivalent circuit for typical common emitter amplifier and derive expression for Ai, Av, Ri and Ro. 10M

OR

12 (a)Define and explain the parameters transconductance Gm, drain resistance Rd and amplification factor of JFET. 5M
(b) Compare CE,CE and CC configurations in property wise. 5M

13 (a)What are the advantages and disadvantages of negative feedback in Amplifiers. Explain. 5M
(b)Draw the block diagram of voltage series feedback amplifier and derive the expression for Input and output resistance from .it. 5M

OR

14 Draw the circuit diagram and explain working of Hartley oscillator and derive the oscillating frequency. 10M

15 (a) Explain the transformer coupled amplifier with neat diagrams. 5M
(b) Compare Push Pull Class -B and Complimentary symmetry class -B power amplifiers. 5M

OR

16 (a)Show that the Transformer coupled Class -A Amplifier maximum efficiency is 50%. 5M

(b)Briefly explain about Thermal Runaway and heat sinks 5M

17 Draw the Low pass RC circuit and explain its output response for pulse and ramp inputs. 10M

OR

18 (a) How to clip the input signal above the reference level by using Shunt diode clipper. 5M

(b) State and prove Clamping circuit theorem 5M

19 Draw and explain the working principle of Astable multivibrator with suitable derivations. 10M

OR

20 (a)Write short notes on switching times of Transistor. 5M

(b)What is the use of Schmitt trigger ? Explain its operation. 5M