R20 Regulation *Subject code:3P3BC*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech III Semester Supplementary Examinations, June 2026

ANALOG ELECTRONICS
(EEE)

Maximum Marks: 70 Date: 16.06.2026 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)		Marks	CO	BTL
1	Define various hybrid parameters.	2M	1	L1
2	What are the types of distortion in amplifiers?	2M	1	L1
3	Distinguish the negative feedback and positive feedback.	2M	2	L1
4	State the Barkhausen criterion for oscillations.	2M	2	L1
5	Classify power amplifiers.	2M	3	L1
6	The thermal resistance of a transistor is 100C/W. It is operated at TA=250C and dissipates 3W of power. Calculate the junction temperature	2M	3	L1
7	List the applications of Clipping circuits.	2M	4	L1
8	Write the condition of RC circuit to work as Integrator.	2M	4	L1
9	Define multi-vibrator.	2M	5	L1
10	List the Transistor Switching Times.	2M	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
11	Write the analysis of a CE amplifier circuit using h parameters. Derive the expressions for A_I, R_I, A_V &R_O.	10M	1	L2
	OR			
12	Describe the effect of coupling and bypass capacitors on low-frequency response of BJT Amplifiers. Derive the corresponding equations.	10M	1	L2
13	Derive the expression for the frequency of Hartley oscillators.	10M	2	L2
	OR			
14	Discuss quantitatively about the effect of negative feedback on i) Gain ii) Bandwidth iii) Distortion	10M	2	L2
15	Derive the equation for efficiency of a class B Push pull amplifier.	10M	3	L2
	OR			
16	Evaluate the expression for maximum conversion efficiency for a simple series fed Class A power amplifier. What are the drawbacks of transformer coupled power amplifiers.	10M	3	L2

17	Derive the expression for rise time of integrating circuit and prove that it is proportional to time constant and inversely proportional to upper 3 dB frequency.	10M	4	L2
	OR			
18	Sketch the response of RC High pass circuit for pulse input and derive the expression for tilt.	10M	4	L2
19	With a neat sketch, explain the operation of a bistable multivibrator.	10M	5	L2
	OR			
20	Draw and explain the circuit of mono stable multi vibrator with necessary wave forms and also derive the expression of pulse width.	10M	5	L2