R20 Regulation *Subject code: 3P4DD*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech IV Semester Supplementary Examinations, June 2026

LINEAR IC APPLICATIONS

(ECE)

Maximum Marks: 70 Date: 15.06.2026 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	Draw the pin diagram of IC 741.	2M	1	L1
2	Classify integrated circuits based on level of integration.	2M	1	L1
3	List the disadvantages of comparator.	2M	2	L1
4	What is multivibrator?	2M	2	L1
5	Why active filters are preferred over passive filters?	2M	3	L1
6	What is band reject filter?	2M	3	L1
7	List the features of IC 555.	2M	4	L1
8	Write the relation between lock range and capture range.	2M	4	L1
9	Define resolution.	2M	5	L1
10	List different types of ADC's.	2M	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
11	Discuss AC and DC characteristics of Op-amp with relevant expressions.	10M	1	L2
	OR			
12	Draw the block diagram of Op-amp and explain its individual blocks.	10M	1	L2
13	Explain the operation of Op-amp as practical differentiator and draw output waveforms for step, square and sinewave inputs.	10M	2	L2
	OR			
14	Explain how an op-amp can be used as integrator? Also derive expression for the output of a practical integrator circuit.	10M	2	L2
15	Draw the schematic diagram of Wein bridge oscillator and derive the expression for frequency of oscillations.	10M	3	L2
	OR			
16	Draw the circuit diagram of first order high pass filter and its frequency response.	10M	3	L2

17	Explain the working of monostable multivibrator using IC 555.Derive the expression of time delay of a monostable multivibrator using 555 timer.	10M	4	L2
	OR			
18	Explain how PLL works as FM demodulator and Frequency synthesizer.	10M	4	L2
19	Explain the working of Inverted R-2R ladder DAC with neat circuit diagram & write its advantages.	10M	5	L2
	OR			
20	Explain the working of parallel comparator type ADC with neat circuit diagram and compare its performance with other ADC's.	10M	5	L2