



*R20 Regulation* *Subject code: 3P4DD*  
**TKR COLLEGE OF ENGINEERING AND TECHNOLOGY**  
 (Autonomous, Accredited by NAAC with 'A+' Grade)

**B.Tech IV Semester Supplementary Examinations, July 2024**

**LINEAR IC APPLICATIONS  
(ECE)**

**Maximum Marks: 70**

Date: 25.07.2024 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)		CO	Bloom Tx
1	Draw the pin diagram of IC 741.	1	L1
2	Classify integrated circuits based on level of integration.	1	L2
3	What is anti-logarithmic amplifier?	2	L1
4	List the features of IC 723 voltage regulator.	2	L1
5	What is notch filter?	3	L1
6	What is an oscillator?	3	L1
7	List the applications of monostable multivibrator using IC555.	4	L2
8	Write the applications of PLL.	4	L1
9	Define resolution.	5	L1
10	Write the advantages of R-2R ladder DAC.	5	L1

**Part-B**

Answer All the following questions. (5X10M=50Marks)			
11	Discuss a.c. and d.c. characteristics of op-amp with relevant expressions. (10M)	1	L2
	OR		
12	a) Explain slew rate and derive expression for it. [5M] b) Compare inverting and non-inverting configurations of op-amp. [5M]	1	L3 L3
13	Draw 3 op-amp instrumentation amplifier and derive the expression for its output voltage. [10M]	2	L3
	OR		
14	Explain the operation Schmitt trigger with the help of transfer characteristics. [10M]	2	L2
15	Draw the schematic diagram of Wein bridge oscillator and derive the expression for frequency of oscillations. [10M]	3	L3
	OR		
16	Draw the square wave generator circuit using op-amp and derive the derivation of frequency of oscillations. [10M]	3	L3

17	Draw and Explain the operation of a stable multi vibrator using IC 555 with relevant waveforms. [10M]	4	L3
	OR		
18	Draw the basic block diagram of phase locked loop and explain the importance of each block. [10M]	4	L3
19	Explain the working of R-2R ladder DAC with neat circuit diagram and write its limitations. [10M]	5	L2
	OR		
20	Explain the working of Dual slope ADC with neat circuit diagram and compare its performance with other ADC's. [10M]	5	L3