Regulation R18 *Subject code: 2P4DD*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech IV Semester Supplementary Examinations, July 2022

LINEAR & DIGITAL IC APPLICATIONS

(Electronics and Communication Engineering)

Maximum Marks: 70 Date:28.07.2022 **Duration: 3 Hours**

Part-A

All the following questions carry equal marks (10x2M=20 Marks)

1 Define unity gain bandwidth of an op-amp.
2 What is slew rate?
3 Define VCO.
4 List the applications of 565 PLL.
5 What do you mean by quantization error in an ADC?
6 List the broad classification of ADCs.
7 What is a mean by a combinational circuit?
8 Define Propagation delay.
9 List the basic types of shift registers interns of data movement.
10 Define Dynamic RAM.

Part-B

Answer all the question. (10MX 5=50Marks)

11 Explain AC & DC characteristics of an operational amplifier. 10M

OR

12 a) Design a differentiator circuit that will differentiate input signal with fmax = 100Hz. 5M
b) What is a comparator? Discuss the Non inverting comparator and obtain output waveforms for various inputs. 5M

13 Draw the circuit diagram of RC phase shift oscillator and derive the expression for its frequency of oscillations.10M

OR

14 Draw the block diagram of an Astable multivibrator using 555timer and derive an expression for its frequency of oscillations. 10M

15 Give the schematic circuit of integrating type A/D converter and explain the operation of this system and derive expression for output voltage Vo. 10M

OR

16 a) Draw the circuit diagram of R-2R ladder DAC and explain its operation. 5M
b) Write the disadvantages of R-2R Ladder DAC. 5M

17 a) Explain the operation of 74LS148 encoder. 5M
b) Realize the following expression using 74X151 IC F(Y) = AB+BC+AC. 5M

OR

18 Sketch and explain the operation of CMOS transmission gate. 10M

19 a) Discuss how PROM, EPROM and EEPROM technologies differ. 5M
b) Compare PROM, PLA and PAL. 5M

OR

20 Explain the functional behavior of Static RAM cell? Show the internal structure of 8×4 static RAM. 10M