

ANURAG Engineering College

(An Autonomous Institution)

III B.Tech I Semester Supplementary Examinations, December-2024

LINEAR AND DIGITAL IC APPLICATIONS

(COMMON TO EEE & ECE)

Time: 3 Hours**Max. Marks: 75****Section – A (Short Answer type questions)****(25 Marks)****Answer All Questions**

	Course Outcome	B.T Level	Marks
1. Draw the equivalent circuit for practical op amp?	CO1	L2	2M
2. Give some limitations of op-amp as a comparator?	CO1	L1	3M
3. Mention any two applications of 555 Timer in Monostable mode?	CO2	L1	2M
4. Draw the circuit diagram of an AM detector using PLL?	CO2	L2	3M
5. Define accuracy and resolution of the DACs?	CO3	L1	2M
6. List out different Analog to digital convertors and justify which A/D convertor is best in terms of speed?	CO3	L2	3M
7. What are the different types of code converters?	CO4	L1	2M
8. Draw and explain 4-bit Johnson counter?	CO4	L2	3M
9. Write a short note on priority encoder?	CO5	L1	2M
10. Define 8x1 Multiplexer with IC.	CO5	L2	3M

Section B (Essay Questions)**Answer all questions, each question carries equal marks.****(5 X 10M = 50M)**

11. A) Derive the output voltage equation for both Inverting and Non-Inverting Op-Amp Circuits?	CO1	L3	10M
OR			
B) With a neat diagram explain about the voltage to current converter in details?	CO1	L3	10M
12. A) A 555 astable multivibrator has $R_A = 2.2K\Omega$, $R_B = 6.8K\Omega$ and $C = 0.01\mu F$. Calculate i) t_{high} ii) t_{low} iii) free running frequency iv) duty cycle and also draw the connection diagram?	CO2	L3	10M
OR			
B) Explain the block diagram of PLL emphasizing the capture range and lock range?	CO2	L2	10M
13. A) Draw the circuit of weighted resistor DAC and derive expression for output-analog voltage?	CO3	L3	10M
OR			
B) With neat sketch explain the operation of Dual slope ADC?	CO3	L3	10M
14. A) Design a divide-by-5 DOWN counter using 74192 IC. Make use of the borrow output. Sketch the output waveforms?	CO4	L3	10M
OR			
B) Write short notes on Master slave JK flip flop?	CO4	L3	10M
15. A) Write short notes on parallel in serial out shift register?	CO5	L3	10M
OR			
B) Design a 16-bit comparator using 74x85 ICs?	CO5	L3	10M

