Q.P. Code: 18EC0407 **R18**

Reg. No: | | | | | | | | | | |

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech II Year II Semester Regular Examinations October-2020

ANALOG CIRCUITS

(Electronics & Communication Engineering)

Time: 3 hours Max. Marks: 60

PART-A

(Answer all the Questions **5 x 2 = 10** Marks)

1	**a**	What is the need of Darlington pair circuit?	**2M**
	b	What will happen to the oscillation if the magnitude of the loop gain is greater than unity?	**2M**
	c	Compare class A and class B amplifier.	**2M**
	d	Define common mode rejection ratio.	**2M**
	e	List the specifications of D/A and A/D converters.	**2M**

UNIT-I

2	**a**	Draw the appropriate hybrid model for CE amplifier. Obtain expression for current gain.	**5M**
	b	Define f_B and f_T and show that $f_T \approx h_{fe} f_B$.	**5M**
		OR	
3	**a**	Describe the different methods used for coupling of multistage amplifiers	**5M**
	b	What is the effect of cascading on Bandwidth? Explain	**5M**

U NIT-II

4	**a**	An amplifier has a midband gain of 125 and a bandwidth of 250KHz. If 4% negative feedback is introduced, find the new bandwidth and gain..	**5M**
	b	Draw the circuit diagram of a wein bridge oscillator and explain its operation.	**5M**
		OR	
5	**a**	Explain the characteristics of negative feedback amplifiers	**5M**
	b	Draw and explain the operation of Colpitt's oscillator.	**5M**

UNIT-III

6	**a**	Explain the operation of Class-A series fed power amplifier and derive the expression of output power P_0 .	**6M**
	b	Discuss the Stability considerations of tuned amplifiers.	**4M**
		OR	
7	**a**	Write short note on Crossover Distortion	**4M**
	b	Draw the circuit of double tuned transformer coupled amplifier and explain its operation.	**6M**

UNIT-IV

8	**a**	Design a 3 input amplifier using op-amp with minimum number of resistors such that the output voltage will be $V_0 = 3V_1 - 2V_2 + V_3$ where V_1, V_2, V_3 are three input voltages.	**6M**
	b	Explain the operation of Schmitt Trigger circuit with neat schematic.	**4M**
		OR	
9	**a**	Explain the inverting mode of operation of op-amp and derive the expression for input resistance R_{if} and output resistance R_{of}.	**6M**
	b	Design a practical differentiator circuit using op-amp.	**4M**

UNIT-V

10	**a**	Design a HPF at a cut – off frequency of 1 kHz and a pass band gain of 2.	**5M**
	b	Discuss the operation of Inverted R – 2R DAC with neat diagram	**5M**
		OR	
11	**a**	Design a wide band reject filter having f_h = 400 Hz and f_l = 2 kHz having pass band gain as 2.	**5M**
	b	Explain the operation of 4 – bit successive approximation ADC with an example	**5M**

END