Q. Code:266184

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

B.E. / B.TECH. DEGREE EXAMINATIONS, MAY 2024

Fourth Semester

EE18404 – ANALOG ELECTRONICS

(Electrical and Electronics Engineering)

(Regulation 2018 / 2018A)

TIME:3 HOURS **MAX. MARKS: 100**

COURSE OUTCOMES	STATEMENT	RBT LEVEL
CO 1	Comprehend IC fabrication techniques of electron devices	**4**
CO 2	Understand the basic concept of operational amplifier and its basic applications.	**3**
CO 3	Analyze the use of Op Amp in various analog circuit applications.	**4**
CO 4	Comprehend operation and applications of 555 timer and 565 PLL IC's.	**4**
CO 5	Analyze the operation of IC based regulators and instrumentation amplifier	**4**

PART- A(10x2=20Marks)

(Answer all Questions)

		CO	RBT LEVEL
1.	List the advantages of integrated circuit over discrete component circuit.	**1**	**2**
2.	The p-n junction isolation technique is not used in fabrication of military grade ICs. Justify the reason.	**1**	**2**
3.	The two input bias currents of an operational amplifier are 22μA and 27μA. Find the value of input offset current.	**2**	**3**
4.	Identify the Op-amp based circuit which provides the gain of 1 and justify.	**2**	**4**
5.	Draw the circuit diagram of zero crossing detector with input and output waveforms.	**3**	**2**
6.	Why integrating type ADC's are preferably used for DC and slow varying signals?	**3**	**2**
7.	What is the function of reset pin 4 in 555 timer?	**4**	**2**
8.	Define capture and lock in range.	**4**	**1**
9.	Draw the high voltage regulator circuit using 723.	**5**	**2**
10.	List the applications of instrumentation amplifier.	**5**	**2**

PART- B (5x 14=70Marks)

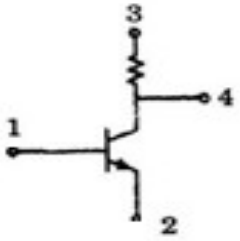
		Marks	CO	RBT LEVEL
11. (a)	With suitable example, Illustrate the optical pattern transfer on a substrate.	**(14)**	**1**	**3**
	(OR)			
(b)	Describe the steps involved in the fabrication of monolithic diodes.	**(14)**	**1**	**3**

12. (a)		Discuss the frequency response characteristics and compensation of operational amplifier.	**(14)**	**2**	**3**
		(OR)			
(b)		Depict the importance of each block in the internal structure of an Op –amp.	**(14)**	**2**	**3**
13. (a)	**(i)**	Design a circuit of clipper that will clip the input signal above the reference value.	**(7)**	**3**	**3**
	(ii)	Design a monostable multivibrator with trigger pulse shaping which will drive a LED on for 0.8 second each time it is pulsed.	**(7)**	**3**	**3**
		(OR)			
(b)	**(i)**	Design a first order high pass filter for a low cut-off frequency of 1 KHz and pass band gain of 2.	**(7)**	**3**	**3**
	(ii)	Discuss the operation of dual slope analog to digital converter.	**(7)**	**3**	**3**
14. (a)		Design an astable multivibrator for an output frequency of 1KHz with variable duty cycle of 40% to 70%.Assume V_{CC}=12V.	**(14)**	**4**	**4**
		(OR)			
(b)		Explain the working of Phase Locked Loops using appropriate block diagram and analyze how it can be used as frequency translator.	**(14)**	**4**	**4**
15. (a)	**(i)**	Discuss the operation of a high voltage regulator using 723 IC.	**(7)**	**5**	**3**
	(ii)	Explain how current boosting is done in a 723 IC regulator.	**(7)**	**5**	**3**
		(OR)			
(b)		With the neat sketch, explain the application of AD623 instrumentation amplifier for load cell weight measurement.	**(14)**	**5**	**3**

PART- C (1x 10=10Marks)

(Q.No.16 is compulsory)

			Marks	CO	RBT LEVEL
16.		Develop a monolithic circuit for the figure given below and elaborate the steps involved in its fabrication.	**(10)**	**1**	**4**



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