Enrollment No: _	Exam Seat No:	
	C.U.SHAH UNIVERSITY	
	Summer Examination-2016	

Subject Name: Integrated Circuits & Applications

Subject Code: 4TE04ICA1 Branch: B.Tech (EEE,EE,IC)

Semester: 4 Date: 10/05/2016 Time: 02:30 To5:30 Marks: 70

Instructions:

- (1) Use of Programmable calculator & any other electronic instrument is prohibited.
- (2) Instructions written on main answer book are strictly to be obeyed.
- (3) Draw neat diagrams and figures (if necessary) at right places.
- (4) Assume suitable data if needed.

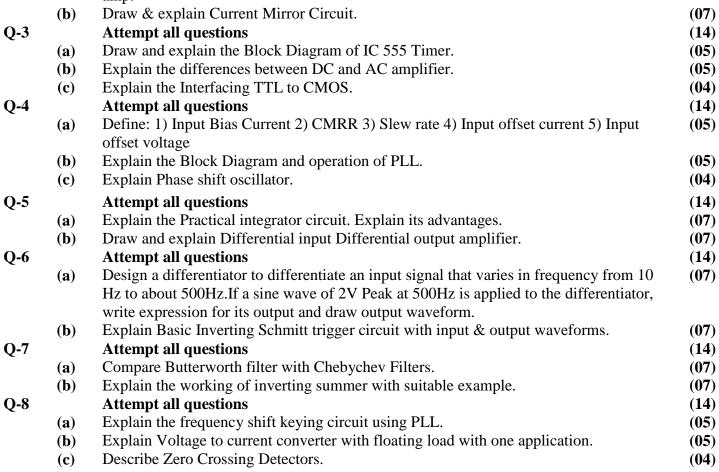
Q-1 Attempt the following questions:

(14)

- a) If ground is applied to the (+) terminal of an inverting op-amp, the (—) terminal will (a)Not need an input resistor (b)Be virtual ground (c)Have high reverse current (d)Not invert the signal
- **b)** When a step-input is given to an op-amp integrator, the output will be (a) a ramp. (b) a sinusoidal wave. (c) a rectangular wave. (d) a triangular wave with do bias.
- c) The two input terminals of an op-amp are labeled as
 (a)High and low (b)Positive and negative (c)Inverting and non inverting (d) Differential
 and non differential
- **d**) For an op-amp having differential gain Av and common-mode gain Ac the CMRR is given by
 - (a)Av + Ac (b)Av/Ac (c)1 + (Av/Ac) (d)Ac/Av
- e) What is the voltage gain of the unity follower?
 - (a) 0 (b) 1 (c) -1 (d) infinity
- **f**) For what kind of input signal, the frequency divider can be avoided frequency multiplier?
 - (a)Triangular waveform (b) Square waveform (c) Saw tooth waveform (d) Sine waveform
- g) In VCO IC 565, the value of charging & discharging is dependent on the voltage applied at _____.
 - (a) Triangular wave output (b) Square wave output (c)Modulating input (d) All of the above
- h) Specified value of CMRR for 741 op-amp is _____.
 - (a) 30 dB (b) 40 dB (c) 90 dB (d) 0dB
- i) How many op-amps are required to implement this equation Vo = V1
 - (a)3 (b)2 (c)1 (d)4



	j)	The closed-loop voltage gain of an inverting amplifier is equal to	
	3 /	(a) The ratio of the input resistance to feedback resistance (b) The open-loop voltage gain	
		(c) The feedback resistance divided by the input resistance (d) The input resistance	
	k)	Hysteresis is desirable in Schmitt-trigger, because	
	K)	(a) Energy is to be stored/discharged in parasitic capacitances. (b) Effects of	
		temperature would be compensated. (c) Devices in the circuit should be allowed time	
		for saturation and desaturation. (d)it would prevent noise from causing false triggering	
	1)	An ideal OP-AMP is an ideal	
	ŕ	(a)Current controlled Current source (b)Current controlled voltage source (c)Voltage	
		controlled voltage source (d)voltage controlled current source	
	m)	Differential amplifiers are used in	
	111)	(a)instrumentation amplifiers (b)voltage followers (c)voltage regulators (d)buffers	
)	Define: PSRR	
Attom	n) ont onv	four questions from Q-2 to Q-8	
Q-2	ipt any	Attempt all questions	(14)
Q- <u>2</u>	(a)	What is op-amp? Draw and explain the block diagram representation of a typical Op-	(07)
	(u)	amp.	(01)
	(b)	Draw & explain Current Mirror Circuit.	(07)
Q-3	(,-)	Attempt all questions	(14)
	(a)	Draw and explain the Block Diagram of IC 555 Timer.	(05)
	(b)	Explain the differences between DC and AC amplifier.	(05)
	(c)	Explain the Interfacing TTL to CMOS.	(04)
Q-4		Attempt all questions	(14)
	(a)	Define: 1) Input Bias Current 2) CMRR 3) Slew rate 4) Input offset current 5) Input	(05)
		offset voltage	





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