GUJARAT TECHNOLOGICAL UNIVERSITY

B. E. - SEMESTER – IV • EXAMINATION – WINTER 2012

Subjec	ct cod	de: 141101 Date: 28/12/20	Date: 28/12/2012	
•		me: Advance Electronics		
Time: 02.30 pm - 05.00 pm Total Ma			70	
Instru				
2	2. M	tempt any five questions. ake suitable assumptions wherever necessary. gures to the right indicate full marks.		
Q.1	(a)	State the behavior of transistor at high frequencies and explain why we cannot use the h-parameters for the analysis at high frequencies.	07	
	(b)	Explain the classification of amplifiers based on position of operating point(Q – point).	07	
Q.2	(a)	State the advantages, disadvantages and applications of RC coupled amplifiers.	07	
	(b)	Explain the advantages and disadvantages of negative feedback. OR	07	
	(b)	Define the following terms: : (1) Slew rate (2) CMRR (3) PSRR (4)Noise margin (5) fan-in (6) Gain bandwidth product (7)Figure of merit for logic families	07	
Q.3	(a) (b)	Give the complete Classification of Oscillators. Design RC phase shift oscillator for the frequency of 6 kHz. OR	07 07	
Q.3	(a) (b)	State and explain any seven characteristics of an ideal Op-Amp. Draw and explain the block diagram of an Op-Amp.	07 07	
Q.4	(a) (b)	State the advantages and disadvantages of TTL. Draw the symbol and AC equivalent circuit of a Crystal oscillator and explain the principle of operation of Crystal Oscillator. OR	07 07	
Q.4	(a)	Using an OP-AMP, draw the functional diagram of a successive approximation ADC and explain its working.	07	
	(b)	What is Digital to Analog Convertor? Draw and Explain R-2R DAC.	07	
Q.5	(a)	Classify the logic families. Give comparisons with the advantages and disadvantages of each logic families.	07	
	(b)	A quartz crystal has following constants: $L = 0.06$ H, $C1 = 0.01$ pf, $C2 = 12$ pf and $R = 500$ Ω . Calculate the values of series and parallel resonant frequencies. (Here C1 is the capacitor in the equivalent circuit of crystal and C2 is the mounting capacitance.) OR	07	
Q.5	(a) (b)	Explain Dual slope A/D converter. Switched capacitor type DAC.	07 07	
