BTS(C) 065(A)

B.Tech Degree III SemesterExamination November 2002

IT 304 ELECTRONIC CIRCUITS AND LOGIC DESIGN

(1999 Admissions onwards)

Time: 3 Hours Max. Marks: 100

I.	(a)	Draw a typical circuit of R.C. Coupled Amplifier with negative feed back.	(4)
	(b)	Design the circuit for voltage gain of 5.	(8)
	(c)	Explain the conditions for sustained oscillations. How is it achieved in R.C. phase shift oscillators ?	(5)
	(d)	Define Class A, Class B and Class C operations.	(3)
		OR	
II.	(a)	Draw a typical R.C. coupled amplifier and obtain expression for current gain at low, and medium frequencies.	(8)
	(b)	Explain with necessary diagram a pushpull amplifier.	(6)
	(c)	Compare with necessary circuit diagrams the working of R.C. phase shift and Wein bridge oscillators.	(6)
III.	(a)	Explain with necessary diagrams and expressions working of SCR.	(8)
	(b)	Give its applications.	(2)
	(c)	Define CMRR. Draw the block schematic of an operational amplifier and explain.	(6)
	(d)	Draw a circuit to obtain sharp pulses from the given sinusoidal signal at 100 H_Z.	(4)
		OR	
IV.	(a)	Explain what is meant by "drift" and "offset" in connection with operational amplifiers.	(4)
	(b)	Explain the working of UJT. How it can be used in oscillators.	(8)
	(c)	Derive expressions for good differentiation and integration using R and C.	(8)
V.	(a)	Realise using NAND gates $f(ABCD) = \sum_m [0,1,2,4,8,10,11]$ don't cares = [3,6,13]	(8)
	(b)	Realise in POS form $f(ABCD) = \prod_M [1,4,5,7,12,14,15]$ don't cares = [3,6]	(8)
	(c)	What is meant by Max terms? Give examples.	(4)
		OR	
VI.	(a)	Simplify using K-map and realise using minimum number of NAND gates. $f(ABCD) = \bar{A}\bar{B}\bar{C}D + \bar{B}CD + \bar{A}\bar{B} + A\bar{B} + AC$	(8)
	(b)	Explain with examples binary division process.	(8)
	(c)	What is parity checking ?	(4)
VII.	(a)	Draw a typical TTL circuit and explain its working.	(9)
	(b)	What are the problems faced in interfacing TTL to CMOS ?	(9)
	(c)	Define noise margin in TTL.	(2)
		OR	
VIII.	(a)	Draw the circuit of a typical up/down synchronous counter and give its truth table and waveforms with explanations.	(10)
	(b)	Differentiate between combinational and sequential circuits.	(6)
	(c)	Draw a typical D Flip flop and explain its salient features.	(4)
IX.	(a)	Differentiate between PLA and PAL .	(12)
	(b)	Draw a typical BJTRAM cell and explain.	(8)
		OR	
X.	(a)	Explain with examples typical Decoder, Demultiplexer and Multiplexer.	(14)
	(b)	Draw a typical EPROM cell and explain its working.	(6)

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