PICT, PUNE	P9 1/6 23213
	214455: Programming Skill Development lab
- (1	Name: Swapnil Ajit Chharre Division: SE-10.  Roll no.: 23213  Batch: E-10
	Assignment - 4
110 510	Write a note on Timer 0, 1, 2 and 3
Ans I	Timer O
i	Timer control registers
	TOCON is TimerO control register
_	TOCON is an 8 bit register with following bits:
1	TMROON TO THE TOTAL THE TO
2	TOSBIT
3	TOCS
L	TOSE 2017/001/101/101/101/101/101/101/101/101/
THE RESERVE OF THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS NAME	PSA PSA
	TOPS 2
	TOPSI Prescalar select bits
	TOPSO
	62211 10/11/10
ì	) Timer registers
-	Timer 0 uses a 16 bit register represented by
	TMROH (Timero higher byte) as higher byte
	register and TMROL (Timero lower byte) as lower
	byte register
	110151617



iii) Timer interrupt flag The interrupt flag bit for Timero is TMROIF which is a part of INTCOH (interrupt control) register iv) Delay calculations a) Crystal frequency = x b) Timer frequency = t = X t | t | Prescalar in case prescale OH c) Timer delay period = T = d) count = FFFFH - (TMROH. TMROL) + 1 = C e) Time delay = D = C x T f) Time delay of half cycle = 2 x D 2) Timer 1 i) Timer control registers TICON is Timer 1 control register TICON is an 8 bit register with following bits 211d 199199 181002019 1 1399188 1) RD16 2) MOL used 3) TICKPSI Prescolar select bits 4) TICK PSO 5) TIOSCEH 6) TISYHC FY TMRICS 8) TMRION

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Čií	Timer registers
	Timer 1 uses a 16 bit register which is
	p split into two bytes, referred as TMR1L
	(Timer 1 low byte) and TMRIH (Timer 1 high byte)
_	Timer 1 can be programmed in 16 bit mode
	only
	027703776
iii)	Timer interrupt flag
_	The interrupt Hag bit for Timer 1 is TMR1IF
	Which is a part of R PIR1 register
	MICHAELA
iv)	Delay calculations
a)	crystal frequency = x
	Timer frequency = t = x
	4 27212121 150111/4
041	t/prescavar value, kihen prescale value >1
	Timer period = T = 1
	reggi toway having himsy
d'	count = C = FFFFH - (TMRIH.TMRIL)+1
e)	Time delay = D = TIX C
	Time delay of half cycle = 2 x D.
	poll pollular sometime
110	alle account to het part Igornia all les
	1919 in Hing is willis

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3)	Timer 2
	Timer control register
	T2 COH is Timer2 HAIGHANTER control register
	T2 COH is 8 bit register
	T2 CON contains following 8 bits
i)	Hot used
ii)	TOUTPS3
<u>lii)</u>	TOUT PS 2   POSTSCOILE SEIECT DITS
I liv	TOUT PSI IN
V	TOUTPSOI JIT I I I I I I I I I I I I I I I I I
vi)	TMR20H
vii	T2CKPSI Prescale select bits
vij	T2CKPSO J
	x + = unupm nout(d
	Timer registers
	The 8 bit register of Timer 2 is called TMR 2
-	Timer 2 also has an 8 bit register called
	premior period register (PR2).
-	The value of PR2 can be set to a fixed
	value and Timers then increments till the
	same value in PR2
A.c. 1	
	Timer interrupt flag
_	The interrupt flag bit of Timer 2 is TMR2IF
	which is part of PIR1



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iv)	Delay calculations
a)	Crystal frequency = X
b)	Timer Prequencely = X = E
	4
()	Timer dienouy = * Postscale x Prescale x 1 = T
	period value t
d)	Count = C = TMR2H = PR2
	Time delay = C x T = D
<b>P</b> '	Time delay of half cycle = 2 x D
4	Timer 3 11 P. 11 S AMP AND MAN
i)	Timer control register
	T3CON is timer3 control register
_	T3 COH IS 8 bit register with following bits-
ì	RD16
	73 CCP2
ĬĬ	13 CCP1 1 Clock source for compare/ capture
j	1 T3CKPS1 ] of CCP module
	T3CKPSO J-> Prescale value
	I) TIMISIMIMIC T3SYMC
	TMR3CS
VÌÌ	I) TMR30H
	D'Timer registers
	Timer3 is 16 bit register split as TMR31
	(Timer 3 low byte) and TMR3H (Timer 3 high
	byte)



iii) Timer interrupt flag The interrupt flag bit of Timer 3 is called TMR3 IF which is part of PIR2 register iv) Delay calculations a) crystal frequency = x b) Timer frequency = + = x c) Timer period = 1 x prescale value = d) count = c = FFFFH - (TMR3H.TMR3L)+1 e) Timer delay = CXT = D f) Timer delay for half cycle = 2 x D