_2018 / 19_ Semester _2_ Mid Semester Test

Module Name: _MAPP/EDBPII_ **Module Code: _ET1010/ET1216_**
Course: _DASE/DESM/DCPE/DEEE/DMRO/DEB_
Year: _2FT_

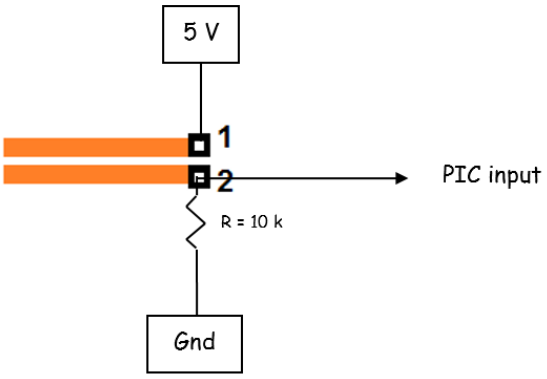
Set by: _Chong S. P._

No.	SOLUTION
	Section A
A1	c
A2	b
A3	a
A4	c
A5	d
A6	c
A7	b
A8	b
A9	a
A10	d

No.	SOLUTION
	Section B
B1	(a) TRISAbits.TRISA0 = 1; or TRISA = 0b 0000 0001; // last bit must be 1
	(b) TRISCbits.TRISC1 = 0; or TRISC = 0b 0000 0000; // 2nd last bit must be 0
	(c) if (PORTAbits.RA0 == 1) // … do something
	(d) PORTCbits.RC1 = 1; delay_ms(20); // 20ms delay PORTCbits.RC1 = 0;

	(e) // configure the pins
	TRISAbits.TRISA0 = 1;
	TRISCbits.TRISC1 = 0;
	
	while (1) {
	if (**PORTAbits.RA0 == 1**) { // if 20 cent coin is inserted
	PORTCbits.RC1 = 1; // turn on the motor
	delay_ms(20); // delay for 20 ms
	PORTCbits.RC1 = 0; // turn off the motor
	
	} // if
	} // while

B2	(a) PORTD = 0b01001111;
	(b) To limit the current flowing through the diodes
	(c) (i) Count = 0 (ii) Box detected? (iii) Count = 5? (iv) Beep Buzzer
	(d) 2

No.	SOLUTION
B3	**(a)** 

	(b) TRISA = 0b00011000; // other bits: don't cares
	TRISD = 0b00000000; // other bits: don't cares

	(c) while (1) { // loop forever
	if (PORTAbits.RA3 == 1) // if water level too high
	PORTD = 0b00000101; // on Pump2, off Pump1, on Buzzer
	else if (PORTAbits.RA4 == 0) // else if water level too low
	PORTD = 0b00000011; // off Pump2, on Pump1, on Buzzer
	else // else
	PORTD = 0b00000000; // off all
	}

B4	**(a) To repeat execution over and over again.**
	(b) Lines 5 to 7.
	(c) To wait for human to leave
	(d) // assume k has been declared e.g. unsigned char **for (k=0; k<20; k++)** **delay_ms(100);**
	(e) Remove lines 5-7 i.e. pre-flush & **Reduce the post-flush from 5 seconds to a shorter duration e.g. 3 seconds.**

No.	SOLUTION
B5	
	(a) AN0
	(b) 0V (Vss), 5V (VDD)
	(c) Right-justified
	(d) Wait for A to D conversion to finish.
	(e) $1 / 5 \times 1023 = 205 = 0000\ 0000\ 1100\ 1101_2$ **ADRESH = 00000000_2**
	(f) None (all lights off)