

Course No: EQUP3324
Course Title: Microcontrollers and Microprocessors
Date: 29/05/2018
No. of Questions: (5)
Time: 2 hours
Using Calculator (No)

University of Palestine



Final Exam
2018-2017
Total Grade: 60

Instructor Name: Dr. Alaa AbuZaiter
Student No.: _____
Student Name: _____
College Name: Engineering
Dep. / Specialist: Biomedical Eng.
Using Dictionary (No)

Question One: (11 Marks)

A) Choose the correct answer: (7 Marks)

1. The PIC microcontroller in the Baseline group have program words.			
a) 10-bit.	b) 6-bit.	c) 12-bit	d) 14-bit
2. is convert the electrical command to a physical stimulus.			
a) Actuators	b) Sensors	c) Transducer	d) none of all
3. allows computers to input information for processing and then out the result.			
a) Memory	b) I/O Devices	c) CPU	d) ALU
4. is used to identify the memory location or the I/O device to be communicated with CPU.			
a) Data Bus	b) Address bus	c) Control Bus	d) none of all
5. The microprocessor 8088 has data bus.			
a) 16-bit	b) 20-bit	c) 8-bit	d) 18-bit
6. The PIC 16F84A has I/O pins with individual direction control			
a) 16 Pins	b) 20 Pins	c) 15 Pins	d) 13 Pins
7. have few number of very fast executing instructions			
e) CISC	f) RISC	g) HISC	h) CCIS

B) Defined the followings: (4 Marks)

a) Pipelined CPU:

b) Bus Interface Unit (BIU):

c) Cash Memory:

d) Supercomputers:

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Question Two: (10 Marks)

1. Compare between the microprocessor **Intel 8068** and microprocessor **Intel 80268** in term of data bus and address bus and other specifications? (5 Marks)

Intel 8068	Intel 80268

2. List tools and components that are required to **Program a PIC microcontroller**? (5 Marks)

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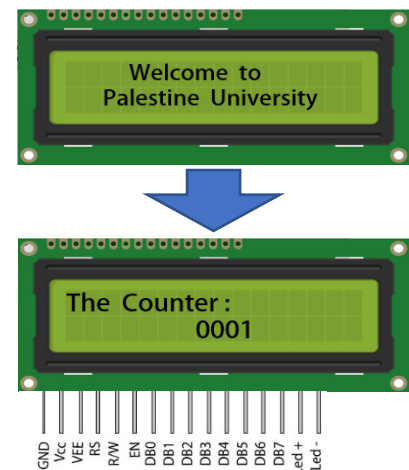
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Question Four:

(16 Marks)

1. Draw the block diagram for the circuit using **Arduino Uno** and **LCD (16 x 2 characters)** to display the message **“Welcome to Palestine University”** for **5 seconds** then start the counter to count from 1 to 9999 (one number each second) as shown on the LCD screen in the Figure? You are free to choose the pin to connect the LCD with Arduino Uno and the LCD pins description shown in the figure. (8 Marks)
2. Write the software code to program the Arduino Uno as explained? (8 Marks)



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Question Five: (9 Marks)

1. What is the function of the following sentence in programming language: (4 Marks)

In Micro C language		
Code		Function
1.	TRISA=%000000110	
2.	Symbol LED = PORTB	
3.	PORTA = 25 DIG 0	
4.	Pause 1000	
Arduino language		
Code		Function
5.	analogRead(A2);	
6.	digitalWrite(5, HIGH);	
7.	#include <LiquidCrystal.h>	
8.	lcd.begin(16, 2);	

2. **The PIC 16F84A controls Two LEDs (LED1, LED2).** The LEDs are connected to the microcontroller in **PORTB, Pin 3 and 5** respectively. The LEDs turn on alternatively (this means the LED1 turn ON and the LED2 turn OFF for one second then the LED1 turn OFF and the LED2 turn ON for another second). Using **Micro C Software**, Write the code to program the PIC 16F84A? (5 Marks)

End of Questions
Good Luck