

Course No: EQUP3324
Course Title: Microcontrollers and
Microprocessors
Date: 14/03/2017
No. of Questions: (3)
Time: 1 hours
Using Calculator (No)

University of Palestine



First Midterm Exam
2018-2017
Total Grade:30

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

Question One:

(9 Marks)

1. What is the embedded system? And What are the main characteristics of the embedded system?

2. Defined the followings:

a) System Reliability:

b) Co-design:

c) Mid-range PIC Family:

d) Time-to-market:

e) PIC Programmers:

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Question Two:

(9 Marks)

1. PIC controllers are classified by Microchip into three major groups (PIC Architecture).
 - a- What are these three major groups in PIC families?
 - b- List at least **three (3)** specifications for each group in PIC families?

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2. List **Five (5)** of constraints of embedded applications?

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Question Three:

(12 Marks)

1. Design the circuit using **PIC 16F84A** to control **Two LEDs** (LED1, LED2) and **Switch**. The LEDs are connected to the microcontroller in **PORTB, Pin 4 and 5** respectively and the switch is connected to the **PORTA, Pin 2**. When the Switch is open the LED2 turn OFF and the LED1 turn ON but when the Switch is close the LED2 turn ON and the LED1 turn OFF.
2. Write the code to program the PIC 16F84A using the Micro C Software for the previous circuit design?

End of Questions
Good Luck