Question Paper

MANIPAL ACADEMY OF HIGHER EDUCATION

Manipal School of Information Sciences (MSIS), Manipal
First Semester Master of Engineering - ME (Embedded Systems) Degree Examination - January 2023

Microcontrollers and its Applications [ESD 5103]

Marks: 100   **Duration: 180 mins.**

Friday, Januarry 6, 2023

Answer all the questions.

1) With a neat diagram, explain on the different modes of operation in ARM7TDMI (10) CO1-TL0-2.1 L2 (10)

2) With a neat diagram, explain GPIO registers with its registers for ARM microcontroller. (10) CO1-TL0-3.1 L2 (10)

3) With a neat diagram, explain on the LED and interfacing with ARM Microcontroller. (10) CO2-TL0-3.2 L2 (10)

4) With a neat diagram, explain on the stepper motor and interfacing with ARM Microcontroller. (10) CO2-TL0-3.2 L2 (10)

5) With a neat circuit diagram, assume an LED is interfaced with Port no 0 and pin number 5. Using timer module, turn on and turn off the led for 50 milliseconds. (10) CO2-TL0-3.2 L2 (10)

6) With a neat diagram, write a code to check whether a received string is a palindrome or not. Write appropriate comments. (10) CO1-TL0-4.2 L4 (10)

7) With a neat timing diagram, explain the function of CPOL and CPHA signals in SPI peripherals. (10) CO3-TL0-5.1 L2 (10)

8) Explain on how arbitration in I2C is handled with a neat diagram and explanation. (10) CO3-TL0-5.1 L2 (10)

9) With a neat diagram, explain the toolchain involved in development of ARM code. (10) CO1-TL0-1.1 L2 (10)

10) With a neat code explain to create a) Sawtooth wave b) square wave c) Triangular wave using the DAC in ARM microcontroller. (10) CO3-TL0-5.1 L2 (10)

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