Reg. No.										

MANIPAL UNIVERSITY

FOURTH SEMESTER MSc. TECH EMBEDDED SYSTEMS/FIRST SEMESTER ME EMBEDDED SYSTEMS & INSTRUMENTATION AND AUTOMOTIVE EMBEDDED SYSTEMS, ESIGELEC, FRANCE DEGREE EXAMINATION – NOVEMBER 2015

SUBJECT: ESD 608/ESI 605/AES 607 – EMBEDDED SYSTEMS DESIGN (2015 SCHEME)

Thursday, November 26, 2015

Time: 10:00 – 13:00 Hrs. Max. Marks: 100

1. With suitable example and graphs explain how the NRE cost and unit cost effect the per product cost.

(10 marks)

2. With suitable diagram briefly explain Memory map of ARM Cortex m3 processor.

(10 marks)

3. Briefly explain Program status register of ARM Cortex m3 processor and also mention about instructions to access PSR.

(5+5 = 10 marks)

4. Briefly mention about Interrupts and Exceptions of ARM Cortex m3 processor and also mention about Vector table.

(10 marks)

5. Briefly explain LDR and STR instructions and also mention about pre indexing and post indexing addressing mode with suitable examples.

(5+5 = 10 marks)

6. Briefly explain about IF-THEN decision making structure with suitable examples.

(10 marks)

7A. Given an analog input signal whose voltage ranges from 0 to 5V, and an 8 bit digital encoding, calculate the correct encoding for 1.2V, and then trace the successive approximation method (i.e. list all the guessed encodings in the correct order) to find the correct encoding.

7B. Write the block diagram of a typical data acquisition systems and bring out various stage design considerations.

(4+6 = 10 marks)

8. List and explain about Registers required to configure and program UART peripheral of LPC 1769 Microcontroller.

(10 marks)

9. Assume that Push button is interfaced to P0.8 and LED anode leg is connected to P1.22 of LPC 1769 Microcontroller. Write a C program using CMSIS Library to turn LED on when Push button is pressed or else Turn LED OFF.

(10 marks)

10. Write short note on Implementing Semaphore using FREERTOS using suitable examples.

(10 marks)