Question Paper

Exam Date & Time: 20-Apr-2018 (10:00 AM - 01:00 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

SCHOOL OF INFORMATION SCIENCES (SOIS)
SECOND SEMESTER Master of Engineering - ME (EMBEDDED SYSTEMS)
DEGREE EXAMINATION - APRIL 2018
Friday, 20 April 2018
Time : 10:00 am to 1:00 pm
Embedded Systems [ESD 612]

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

Answer all the questions.

1) Briefly mention how cortex m3 processor addresses demand for high performance processor. (10)

2) Write a short note on Thumb 2 technology and its advantages? (7 + 3 MARKS) (10)

3) Briefly mention about operating modes and privilege levels of ARM Cortex m3 processor? (5+5 MARKS) (10)

4) Briefly explain about features of NVIC and also comment on vector table mechanism of cortex m3 (6+ 4 MARKS) (10)

5) Write short note on following registers of ARM Cortex m3 processor? (10)
   a. PSR
   b. CONTROL
   c. Interrupt Mask Registers (4 +3 + 3 MARKS)

6) List and explain Data transfer instructions supported by ARM Cortex m3 processor? (10)

7) Briefly explain USB Data frames and also comment on indvisual packets and fields associated with each packet (6 + 4 MARKS) (10)

8) Briefly mention steps to be followed to configure GPIO pins of LPC 1769 Microcontroller with suitable example? (10)

9) (10)

Assume that Analog sensor is interfaced to ADC channel 0 of LPC 1769 Microcontroller .Write C program using CMSIS Library read analog value and convert to digital value using ADC and transfer result serially using on chip UART at 9600 baud rate .

10) Write short note on Queue Management using FREERTOS using suitable examples? (10)

-----End-----