Reg. No.									

MANIPAL UNIVERSITY
SCHOOL OF INFORMATION SCIENCES

SECOND SEMESTER MASTER OF ENGINEERING - **ME** (EMBEDDED SYSTEMS)
DEGREE EXAMINATION – APRIL / MAY 2016

SUBJECT: ESD 608 - EMBEDDED SYSTEMS DESIGN

Friday, April 29, 2016

Time: 10.00 – 13.00 Hrs. Max. Marks: 100

1) A. Explain three main characteristics of embedded systems that distinguish such systems from other computing systems with suitable example.
(6 marks)

B. What do you mean by Design Technology? Explain with suitable figures and examples
(4 marks)

2) Write short note on features of NVIC of ARM Cortex m3 processor?
(10 marks)

3) Write short note on following registers with suitable examples
a) R14 Link register (3 marks)
b) R15 Program counter (2 marks)
c) R13 Stack pointer (3 marks)
d) R0 –R7 General Purpose registers (2 marks)

4) Briefly explain about combined compare and branch instructions with suitable examples
(10 marks)

5) Explain following instructions
a) BFC R0,#4,#8 b)BFI R1,R0,#8,#16 c)SBFX R1,R0,#8,#4
d) REVSH R2 e)SXTB R1 (2 x 5 =10 marks)

6) Briefly mention about two stack model of ARM Cortex m3 processor and list advantage of two stack model? (7+3 = 10 marks)

7) With reference to ADC, bring out the significance of (a) Resolution (b) Sampling frequency (c) output type (d) input type (e) Clock frequency with suitable examples.

(2 x 5 = 10 marks)

8) List and explain about Registers required to configure and program ADC peripheral of LPC 1769 Microcontroller?

(10 marks)

9) List and explain about Registers required to configure and program TIMER peripheral of LPC 1769 Microcontroller?

(10 marks)

10) Briefly Explain Need of Real time kernel FREERTOS for embedded applications and also mention some important features of FREERTOS?

(4+6= 10 marks)

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