

Question Paper

Exam Date & Time: 08-Jan-2018 (10:00 AM - 01:00 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

SCHOOL OF INFORMATION SCIENCES

FIRST SEMESTER MASTER OF ENGINEERING - ME (Automotive Embedded Systems)

DEGREE EXAMINATION (MAKE - UP) - JANUARY 2018

DATE : MONDAY, JANUARY 08, 2018

TIME : 10:00AM - 1:00PM

Microcontrollers and its Applications [AES 615.5]

Marks: 100

Duration: 180 mins.

Answer all the questions.

- 1) Briefly explain overview of 8051 with suitable diagram. (5)
 - A)
 - B) Write a short note on on-chip oscillator. (5)
- 2) Briefly explain about addressing modes supported by 8051 instruction set with relevant examples. (10)
- 3) Briefly explain about Register organization model of 8051 with suitable diagram. (10)
- 4) Explain the flag bits of following register (10)
 - A. SCON
 - B. IE
 - C. TCON

(4+3+3)
- 5) Write an ASM/C program to do the following task simultaneously. Generate square wave of 10kHz on P1.5. Assume XTAL=11.0592 MHz. Read data from P0 and transfer it serially at 9600 baudrate. Read data serially and store it in internal RAM location starting from 40h. Also monitor EXO and if activated turn off P2 pins introduce delay and turn it on. (10)
- 6) Explain the following Instructions of ARM 7 with relevant example? (10)

- A. LDMIA R7!, {R0-R2}
- B. MLAL R0,R1,R2,R3
- C. SWI
- D. BL label

7) Briefly explain data path organization of ARM7 with suitable block diagram and also comment on processor modes. (10)

(7+3)

8) List and explain about Registers required to configure and program on chip UART of LPC 2148 Microcontroller? (10)

9) Write C program using LPC 2148 TIMER to toggle match output pin 0 for every 10ms? (10)

10) List and explain about Registers required to configure and program SPI peripheral of LPC 2148 Microcontroller? (10)

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