

1010**Code : 9EC-62**Register
Number

E	C	0	9	0	2	6
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VI Semester Diploma Examination, Nov./Dec., 2012

ELECTRONICS & COMMUNICATION ENGINEERING BOARD
ARM CONTROLLER**Time : 3 Hours]****[Max. Marks : 100****Notes :** (1) Section – I is *compulsory*.(2) Answer any *two* full questions from the remaining *three* Sections – II, III and IV.**SECTION – I**

1. (a) Fill in the blanks :

5 × 1 = 5

- (i) The number of bits in Current Program Status Register (CPSR) is _____.
- (ii) MAC stands for _____.
- (iii) The directive used to equate a symbol to a numeric constant is _____.
- (iv) The number of external interrupt pins in LPC 2148 CPU is _____.
- (v) The number of UARTS in the LPC 2148 is _____.

(b) List the special features of Arm processor design.

5**SECTION – II**

2. (a) With a neat block diagram, explain data flow model of ARM core.

7

(b) Explain the bits of CPSR.

8

3. (a) Explain the following instructions :

5 × 2

- (i) SUB r0, r1, r2
- (ii) ADD r0, r1, r1 LSL # 1
- (iii) AND R0, R1, R2
- (iv) SBC R0, R1, R2
- (v) BIC R0, R1, R2

(b) Write a note on pseudo instructions.

5

4. (a) Write a note on AMBA Bus.

5

(b) Explain Banked Registers with a neat diagram.

10**[Turn over**

SECTION – III

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| 5. | (a) | Explain the Thumb Register usage. | 5 |
| | (b) | Explain the rules for using Assembly Language. | 5 |
| | (c) | Write a note on Inline Assembler in 'C'. | 5 |
| 6. | (a) | Explain ARM APCS. | 5 |
| | (b) | What is Exception Handling ? Explain ARM Processor Exception and Modes along with a block diagram. | 10 |
| 7. | (a) | Write the salient features of LPC 2148 CPU. | 7 |
| | (b) | Mention the features of ON CHIP program memory. | 4 |
| | (c) | List the functional features of DAC. | 4 |

SECTION – IV

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|-----|-----|---|---|
| 8. | (a) | Explain the operation of PLL in LPC 2148. | 7 |
| | (b) | Write a note on PWM. | 5 |
| | (c) | Explain RTC briefly. | 3 |
| 9. | (a) | Mention the applications of GPIO. | 5 |
| | (b) | Explain the operation of ADC. | 6 |
| | (c) | Describe the registers of Timer. | 4 |
| 10. | (a) | What is Serial Peripheral Interface (SPI) ? | 3 |
| | (b) | List the five different registers of SPI. | 5 |
| | (c) | Write the block diagram of SPI solution. | 4 |
| | (d) | List the different PLL Registers. | 3 |

0544**Code : 9EC-62**Register
Number

119	E	C	0	9	0	57
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VI Semester Diploma Examination, May 2012**E & C BOARD****ARM CONTROLLERS****Time : 3 Hours]****[Max. Marks : 100****Instructions :** (1) Section – I is compulsory.(2) Answer any **two** full questions from each of the remaining sections.**SECTION – I**

1. (a) Fill in the blanks : 5
- (i) The embedded device is controlled by _____ processor.
- (ii) LDR stands for _____.
- (iii) LPC 2148 contains _____ UARTS.
- (iv) The instruction _____ moves the complimented value of the content register.
- (v) The pin control module contains _____ registers.
- (b) Write a note on SSP. 5

SECTION – II

2. (a) With necessary diagram explain the structure of ARM-based embedded device. 10
- (b) List of the applications of ARM processor. 5
3. (a) Explain register file of ARM processor with a neat sketch. 5
- (b) With suitable example describe B, BL, BX and BLX instructions. 10
4. (a) Explain stack operations using STM and LDM instruction. 5
- (b) Explain SWAP and SWI instruction. 5
- (c) With suitable example describe AND, EOR instructions. 5

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SECTION – III

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|----|-----|---|----|
| 5. | (a) | Mention the differences between ARM and THUMB states. | 5 |
| | (b) | Describe the concept of ARM – THUMB interworking. | 5 |
| | (c) | Narrate exceptions and modes of ARM processor. | 5 |
| 6. | (a) | Explain interrupt and interrupt latency. | 9 |
| | (b) | Define the followings :
Supervisor mode stack
IRQ mode stack
User mode stack | 6 |
| 7. | (a) | List any five features of LPC 2148. | 5 |
| | (b) | List the features of DAC and SSP. | 10 |

SECTION – IV

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|-----|-----|---|----|
| 8. | (a) | Describe pin and register description of GPIO. | 10 |
| | (b) | Narrate the procedure for determining PLL settings. | 5 |
| 9. | (a) | Explain pin description of SPI. | 5 |
| | (b) | Explain interrupt register and timer control register of timer. | 5 |
| | (c) | Describe RTC interrupts. | 5 |
| 10. | (a) | Explain operation ADC. | 5 |
| | (b) | Describe pin description of DAC. | 5 |
| | (c) | Write a short note on PWM. | 5 |
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