

Total No. of Questions : 10]

SEAT No. :

P1314

[4858] - 1047

[Total No. of Pages : 3

T.E. (E&TC)

EMBEDDED PROCESSORS

(Semester - II) (2012 Pattern) (End Semester)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Attempt Q.1 or Q.2, Q.3 or Q4, Q.5 or Q.6, Q.7 or Q.8, Q.9 or Q.10*
- 2) *Neat diagrams must be drawn wherever necessary.*
- 3) *figures to the right indicate full marks.*
- 4) *Use of logarithmic tables slide rule, Mollier charts, electronic pocket calculator and steam tables is allowed.*
- 5) *Assume Suitable data, if necessary.*

Q1) a) Explain the following instructions with example **[6]**

- i) SWP R₀, R₁
- ii) MUL R₁, R₂, R₃
- iii) LDR R₂ [R₃]

b) Explain with figure structure of CPSR register of LPC2148 **[4]**

OR

Q2) a) Draw and explain block diagram of LPC 2148 **[6]**

b) Describe with figure interfacing diagram of T2C EPROM with LPC2148 **[4]**

Q3) a) List the features of VART0. Compare it with UART1 CPC 2148 **[4]**

b) Write embedded C program for on chip ADC for LPC 2148 **[6]**

OR

Q4) a) Write comparison of ARM7, ARM9, ARM11. **[5]**

b) Write function of barrel shifter in ARM data flow model **[2]**

c) Write significance of special registers. r₁₃, r₁₄, r₁₅ in ARM7 **[3]**

P.T.O.

- Q5)** a) Write comparison of ARM7 with ARM conex. [4]
- b) Describe the need of operating system in embedded system design. Explain desired features of operating system for complex embedded system. [6]
- c) Draw and explain with algorithm interfacing diagram of RGB LED with LPC 1768 [6]

OR

- Q6)** a) Draw and explain CMSIS structure of cortex series. [8]
- b) Draw and explain interfacing diagram of seven segment display with LPC 1768 draw flow chart for the same [8]

- Q7)** a) Explain with neat block diagram LPC 1768 [8]
- b) Draw and explain power control block of LPC 1768. Explain power saving mode. [8]

OR

- Q8)** a) Explain the role of following registers in LPC 1768
- i) Direction register
 - ii) Set register
 - iii) Clear register
 - iv) Mask register [8]
- b) What is PWM? Write C program for PWM to drive DC motor with LPC 1768. [8]

- Q9)** a) Explain the following blocks of LPC 1768 [9]
- i) NVIC (Nested Vector Interrupt Controller)
 - ii) MPV (Memory Protection Unit)
- b) Draw and explain clock control block of LPC 1768. [9]

OR

- Q10)** Write short notes on: [18]
- a) USB - (Feature frame structure, diagram)
 - b) Ethernet - (Feature Block diagram, frame structure etc.)
 - c) CAN Protocol. - (Feature Block diagram etc.)

