

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  $R_0, R_1$
- ii) MUL  $R_1, R_2, R_3$
- iii) LDR  $R_2 [R_3]$

**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.  $r_{13}, r_{14}, r_{15}$  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.)

stupidstupid.com