Total No. of Questions : 10]

SEAT No. :

P2401

[Total No. of Pages :3

[4758] - 562
T.E. (Electronics)
EMBEDDED PROCESSORS
(2012 Course) (End-Sem.) (Semester - II) (304211)

Time : 3 Hours] *[Max. Marks : 70*

Instructions to the candidates:

1) ***Neat diagrams must be drawn wherever necessary.***
2) ***Figures to the right indicate full marks.***
3) ***Use of logarithmic tables, slide rule, Mollier charts, electronic pocket calculator and steam tables is allowed.***
4) ***Assume suitable data, if necessary.***

Q1) a) Describe complete memory map of LPC 2148. **[4]**

b) Explain the PINSEL registers. **[4]**

i) PINSEL0

ii) PINSEL 1

iii) PINSEL 2

iv) IODIR

c) Explain the following instruction (Any two). **[2]**

i) MUL R_3, R_2, R_1

ii) LDR R_0, [R_1]

iii) SWPB R_2, R_1, [R_4]

OR

Q2) a) Describe CPSR and SPSR of ARM 7. **[4]**

b) Draw interfacing diagram of temperature sensor (LM 35: 10mV/°C) and also write a program to display temperature on LCD. **[6]**

P.T.O.

Q3) a) Draw and explain interfacing of I2C EEPROM with LPC 2148. Write a embedded 'C' program for the same. **[6]**

b) Explain UART block in LPC 2148. **[4]**

OR

Q4) a) Write a embedded 'C' program for generation of square wave using on chip DAC of LPC 2148. **[6]**

b) Explain different operating modes in ARM 7. **[4]**

Q5) a) Compare cortex A, cortex R and cortex M processors. What are the improvement of ARM cortex M_3 over ARM 7. **[8]**

b) Explain CMSIS standard with structure in detail. **[6]**

c) Explain thread and handler with the help of state diagram. **[2]**

OR

Q6) a) Explain features of embedded operating system and explain need for developing complex application. **[8]**

b) Draw and explain block diagram of ARM cortex M_3. **[8]**

Q7) a) Draw interfacing diagram of RGB LED with LPC 1768 also write embedded 'C' program to generate different colours. **[6]**

b) Explain features of NVIC in LPC 1768. **[4]**

c) Describe system control block of LPC 1768. **[6]**

OR

Q8) a) Interface 7 segment display with LPC 1768 and also write embedded 'C' program to display 0 to 9. **[10]**

b) What are the different clock sources available with LPC 1768. **[6]**

Q9) Write a short note on following block in LPC 1768. (Any three). **[18]**

a) Ethernet

b) SDCARD

c) USB

d) CAN

OR

Q10)a) Write application of CAN, Ethernet, USB with real world example. **[4]**

b) Draw and explain interfacing diagram of DC motor using PWM of LPC 1768 also write embedded 'C' program for the same. **[8]**

c) Draw and explain interfacing of TFT with LPC 1768. **[6]**

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