

Total No. of Questions : 8]

SEAT No. :

P778

[5870] - 1087

[Total No. of Pages : 2

T.E. (Electronics Engineering)
EMBEDDED PROCESSORS AND APPLICATIONS
(2019 Pattern) (Semester - II) (304213)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8.
- 2) Figures to the right side indicate full marks.
- 3) Assume suitable data, if necessary.

- Q1)** a) Interface LED's to P1.24 to P1.31 port pins of LPC2148. Write an embedded C program to blink LED's. [6]
- b) For configuring the PLL0 system design for FOSC = 10MHz and requires CCLK=60MHz, find value of M (PLL Multiplier value) and P (PLL Divider value). [6]
- c) State the features of LPC2148 Microcontroller. Explain the function of IOSET, IOCLR and IODIR registers of LPC2148. [8]

OR

- Q2)** a) Draw block diagram of timer of LPC2148. Explain functions of Timer Counter Register and Timer Control Register. [6]
- b) Explain steps in PLL programming of LPC 2148. Explain with neat diagram the relation between CCLK and PCLK with the help of VPB/APB divider. [6]
- c) Interface LCD to LPC2148 and write an Embedded C program to display string "WELCOME" along with flowchart and algorithm. [8]
- Q3)** a) List the features of UART0 of LPC2148. Draw and explain architecture of UART0 of LPC2148. [8]
- b) List the features of on chip ADC of LPC2148. Write an Embedded C program for temperature monitoring using on chip ADC including interfacing diagram. [8]

OR

P.T.O.

Q4) a) Draw and explain interfacing of 12C EEPROM with LPC2148. Write an algorithm and draw flowchart for reading and writing data from EEPROM. [8]

b) List features DAC of LPC2148. Write an Embedded C program for generation of triangular waveform using on chip DAC of LPC2148 with its flowchart and interfacing diagram. [8]

Q5) a) List the features of CORTEX M3 Processor. Draw the block diagram of CORTEX M3 Processor and explain functions of each block. [8]

b) Explain the advantages of ARM Cortex M-3 for embedded application. Compare ARM7 with CORTEX M series. [8]

OR

Q6) a) State the features of Cortex A, Cortex R, Cortex M series processors. Compare ARM Cortex A, Cortex R, Cortex M Series processors. [8]

b) Explain need of operating system in developing complex applications in embedded system What are the desired functions of operating system for embedded system? [8]

Q7) a) Define Embedded System. Explain the characteristics of Embedded System. [6]

b) Draw and explain the block diagram of Embedded system with IoT. [6]

c) Explain case study of Smart Home Automation using IoT with detailed diagram. [6]

OR

Q8) a) Define Internet of Things. What is importance and benefits of Internet of Things. [6]

b) Explain case study of Smart Parking system using IoT with detailed diagram. [6]

c) Define Sensors and Actuators with suitable examples. Compare Sensors and Actuators. [6]

