

B. Tech. Sem -VI (E & TC Engg.) (2014 COURSE) (CBCS) :

WINTER - 2018

SUBJECT: EMBEDDED SYSTEMS

Date: Wednesday
Day: 14/11/2018

W-2018-2513

Time: 10.00 AM TO 01.00 PM
Max. Marks: 60

N.B.:

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Assume suitable data if necessary.

Q.1 What is an embedded system? List the application areas of embedded systems with examples. (10)

OR

Q.1 a) What are the hardware components of an embedded system? (05)
b) What are the design metrics used in embedded system design? (05)

Q.2 a) What is priority inversion problem and dead lock situation? How they can be eliminated? Explain with example. (06)
b) Write a note on mailboxes and pipes. (04)

OR

Q.2 What are the different task scheduling models in RTOS? Explain with examples. (10)

Q.3 a) Draw and explain dataflow model of ARM processor. (05)
b) What are the different operating modes of ARM processor? (05)

OR

Q.3 a) Compare features of ARM 7, ARM 9 and ARM 11 (06)
b) Explain the contents of program status register of ARM 7. (04)

Q.4 a) Draw and explain the interfacing of LPC2148 with SD card using SPI. (05)
b) Write a program for LPC2148 to glow alternate LEDs connected at P1.0 to P1.7. (05)

OR

Q.4 Write a program to interface LPC2148 with LCD and display following string on LCD. (10)

"EMBEDDED SYSTEM"

Q.5 a) Compare features of different Cortex series processors. (05)
b) Explain power saving modes of LPC1768. (05)

OR

Q.5 Draw and explain the block diagram of LPC1768. (10)

Q.6 Draw and explain interfacing of seven segment display with LPC1768. Write an algorithm for the same. (10)

OR

Q.6 Draw and explain the interfacing of 4X4 keyboard with LPC1768. Explain the algorithm for key scanning. (10)