

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)**

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