

Total No. of Questions : 10]

SEAT No. :

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[5461]-566

B.E. (E&TC)

EMBEDDED SYSTEM & RTOS

(2015 Course) (Semester - I) (End Sem.) (Elective - I) (404184C)

Time : 2½ 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) *Assume suitable data, if necessary.*

Q1) a) What are the challenges in design of embedded system. **[5]**

b) Explain the spiral model. State its merits and demerits. **[5]**

OR

Q2) a) What is shared data problem? Explain any two methods to avoid it. **[5]**

b) How embedded C programming is different than ANSI C programming. **[5]**

Q3) a) Explain the architecture of μ COS II kernel. **[5]**

b) Explain the following functions : **[5]**

i) OSQPost()

ii) OSSemAccept()

OR

Q4) a) Explain the foreground/background system. **[5]**

b) Explain a suitable scheduling algorithm used in RTOS. **[5]**

Q5) a) Compare ARM7 with ARM CORTEX(M3). **[8]**

b) With the help of features, justify the use of CORTEX architecture in modern embedded system. **[8]**

OR

P.T.O.

- Q6)** a) Explain NVIC interrupt structure in cortex architecture. How tail chaining method improves the interrupt response time. [8]
- b) Draw and explain interfacing of RGB LED with LPC1768. Write a program for the same. [8]

- Q7)** a) What is embedded Linux? Explain various components of embedded Linux. [9]
- b) Explain typical set up for embedded Linux application development. [9]

OR

- Q8)** a) What are boot loader challenges in embedded Linux. [9]
- b) Explain concept of device driver. What are module utilities? Explain any two module utilities. [9]

- Q9)** a) What are the features of ATmega328P based Arduino Uno board? [8]
- b) Explain Linux kernel architecture with a diagram. [8]

OR

- Q10)** a) Explain structure of Arduino program? Write a program to blink a LED connected to any port of Arduino board. [8]
- b) Why Linux is preferred choice for development of embedded system applications. [8]

