P3311

[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 μCOS 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]**

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