[5670]-603

B.E. (E & TC)

EMBEDDED SYSTEMS & RTOS

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

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) Explain the Spiral Model. State its merit and demerits.   **[5]**

b) Discuss the criterion for memory selection in Embedded System design.

[5]

OR

Q2) a) What are the important challenges in design of Embedded System? Discuss.   **[5]**

b) Compare General Purpose Operating System (GPOS) and RTOS with respect to :   **[5]**

i) Time.

ii) Memory management.

Q3) a) Justify the role of the following in scheduling algorithm :   **[5]**

i) Turnaround time.

ii) Wait time.

b) Compare QNX with Nucleus OS.   **[5]**

OR

Q4) a) Discuss the concept of Priority Inversion with example.   **[5]**

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

i) OSSemPend( )

ii) OSQPost ( )

P.T.O.

Q5) a) In what way the corten architecture is suitable in modern embedded System? Justify your answer. **[8]**

b) Draw interfacing diagram of RGB LED with LPC 1768. Write a program or algorithm for the same. **[8]**

OR

Q6) a) Explain the various power saving modes of LPC 1768. **[8]**

b) Justify the necessity of nested vector Interrupt controller in ARM corten? How tail chaining method improves the interrupt response time? **[8]**

Q7) a) Explain the following file system in linux with their advantages. **[9]**
  i)   ext2
  ii) ext3
  iii) ext4
  iv) JFFS2.

b) Explain the device driver with a simple application. **[9]**

OR

Q8) a) Explain the following tool utilities in Embedded linux system. **[9]**
  i)   Busybox
  ii) Redboot
  ii) LIBC.

b) What is Embedded Linux? Explain Embedded Linux development setup. **[9]**

Q9) a) Draw an interfacing diagram to connect 4 LEDs to Arduino board and write a program to blink them alternately. **[8]**

b) Explain different standard libraries in Arduino. **[8]**

OR

Q10) a) Explain the following functions with respect to Arduino programming **[8]**
  i)   Setup( )   ii) digitalRead( )
  iii) loop( )   iv) PinMode( )

b) Compare corten A, R, M series. **[8]**

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