



P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belgaum)

Fifth Semester, B.E. - Electronics and Communication Engineering

Semester End Examination; Dec. - 2014

Embedded System Design

Time: 3 hrs

Max. Marks: 100

Note: Answer any FIVE full questions, selecting at least TWO full questions from each part.

PART - A

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| 1. | a. | List the figures of merit for an Embedded system. | 2 |
| | b. | What are the different hardware units and devices used in Embedded system? | 5 |
| | c. | Explain the different ways of developing Embedded software. | 10 |
| | d. | What are the various core components needed to form SOC using VLSI design technology. | 3 |
| 2. | a. | Explain the structural units and their functions in advanced processor architecture. | 10 |
| | b. | With examples, explain the instruction level parallelism implementation in a processor. | 10 |
| 3. | a. | Explain the different methods by which the synchronous signals with the clocking information transmission serially between communication devices. | 10 |
| | b. | Explain RS-232C used in serial communication. | 5 |
| | c. | With example, explain the importance of watch dog timer in an Embedded systems. | 5 |
| 4. | a. | Explain the different interrupt handling mechanisms. | 10 |
| | b. | With example, explain different interrupt sources. | 10 |

PART - B

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| 5. | a. | Explain the different C program elements used in a program for an application. | 10 |
| | b. | With example, explain the use of pointers in C program. | 5 |
| | c. | Explain the different steps to be followed when using a function in the program. | 5 |
| 6. | a. | Explain with an example finite state machine model. | 6 |
| | b. | What is a task? Explain the different task states. | 6 |
| | c. | Define Semaphore. Explain how it is implemented as a resource key and as a mutex. | 8 |
| 7. | a. | Explain the different services provided by RTOs. | 10 |
| | b. | Explain the various design principles using a RTOs to design an embedded system. | 10 |
| 8. | a. | Explain different inter task communication means in μ COS – II. | 10 |
| | b. | Explain the important features of RTOs V _X works. | 10 |