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

(An Autonomous Institution affiliated to VTU, Belgaum)

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

Semester End Examination; Dec - 2016/Jan - 2017

Embedded and Real Time System

Time: 3 hrs

Max. Marks: 100

Note: Answer FIVE full questions, selecting ONE full question from each unit.

UNIT - I

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|------|---|----|
| 1 a. | Explain the different types of memory and compare them. | 6 |
| b. | Discuss the process of generating executable image for embedded software. | 6 |
| c. | Summarize the special requirements of an embedded system. | 8 |
| 2 a. | Write a C program to calculate the CRC using CRC-CCITT algorithm. | 10 |
| b. | Explain the different GNU development tools. | 10 |

UNIT - II

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|------|---|----|
| 3 a. | Explain with block diagram, the configuration management process. | 10 |
| b. | Summarize the managing embedded system development projects. | 10 |
| 4 a. | Discuss the need for communication process. | 6 |
| b. | Explain the importance of USB and Infrared interface. | 10 |
| c. | Write a note on RS422 and RS485. | 4 |

UNIT - III

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|------|---|----|
| 5 a. | Discuss with suitable diagrams the following : | 10 |
| | i) Mail boxes ii) Message queues iii) Pipes. | |
| b. | Write short notes on different scheduling algorithms. | 10 |
| 6 a. | Explain how a semaphore can be used for inter-task synchronization? | 10 |
| b. | Differentiate between real-time operating system and handled operating systems. | 10 |

UNIT - IV

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|------|---|----|
| 7 a. | Explain the features of UNIX-LINUX embedded operating system. | 10 |
| b. | Write a program to demonstrate multi threading. | 10 |
| 8 a. | Explain briefly the overview of RT Linux. | 10 |
| b. | Write a program to display a message periodically on an LCD module. | 10 |

UNIT - V

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|-------|--|----|
| 9 a. | Discuss the areas of applications of RFID system with block diagram of RFID system functional details. | 10 |
| b. | Design an RFID system for Library automation, if each book is attached with an RFID tag. | 10 |
| 10 a. | Discuss the overview of digital signal processing and its applications. | 10 |
| b. | Explain a DSP algorithm implementation using MATLAB. | 10 |

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