

M.Tech. Electronics & Communication Engineering (CBCS Pattern) Semester-II
PECS21 - Embedded System

P. Pages : 1

Time : Three Hours



GUG/S/25/11030

Max. Marks : 70

- Notes :
1. Attempt **five** questions.
 2. All questions carry equal marks.
 3. Due credit will be given to neatness and adequate dimensions.
 4. Assume suitable data wherever necessary.
 5. Illustrate your answers wherever necessary with the help of neat sketches.

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| 1. | a) | What is an embedded system? Provide examples. | 7 |
| | b) | Describe the role of an operating system in embedded systems. | 7 |
| 2. | a) | Discuss the different types of memories used in embedded systems. | 8 |
| | b) | Explain in detail the architecture of Embedded RISC processor. | 6 |
| 3. | a) | Explain the need of a watchdog timer and reset after the watched time. | 7 |
| | b) | Explain the memory organization of AVR architecture. | 7 |
| 4. | a) | Explain the difference between ARM instruction set, Thumb instruction set in detail. | 7 |
| | b) | Explain briefly the data processing instructions for ARM processor. | 7 |
| 5. | a) | Write ALP program for ARM7 demonstrating the data transfer. | 7 |
| | b) | Describe the operating modes of ARM processor. | 7 |
| 6. | a) | List and explain the Thumb register instructions. | 7 |
| | b) | What are the software instructions set in ARM? Explain in detail. | 7 |
| 7. | a) | Summarize the ARM-Thumb Register using and explain how we can access its registers in thumb state. | 8 |
| | b) | Tabulate the ARM-Thumb Move, Shift, and Comparison and multiply instructions with syntax. | 6 |
| 8. | a) | Explain memory management in RTOS environment. | 7 |
| | b) | Write in short notes on: | 7 |
| | i) | Traditional performance measures RTOS. | |
| | ii) | Estimating program run times. | |
