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CU 5092 Real Time Embedded Systems

Important 13 Marks Questions

Unit I

1. Define the architectural inheritance of ARM processor and explain.
2. Examine the implementation of branch, call and return instructions in ARM instruction set.
3. Write a program to find the product of two numbers.
4. (i) Discuss about the CPU performance.
   (ii) Discuss in detail about Coprocessors.
5. Describe the performance of embedded computing systems.

Unit II

1. Explain the need for ICE, JTAG for embedded system development with examples.
2. With an example explain how Logic analyser, in circuit Emulator and Co simulator are used as debugging tools.
3. Describe about Memory devices with suitable examples.
4. With a suitable example, explain how debugging is carried out using debuggers & compilers.
5. What do you mean by memory system interface with CPU? Explain with examples.

Unit III

1. How to use SWP instruction to implement atomic test and set in ARM. Explain.
2. Interpret and Analyze the scheduling process by applying Rate Monotonic Algorithm for the given set of process.

Process	Execution	Time Period
P1	1	4
P2	2	6
P3	3	12

3. Demonstrate in detail about power optimization strategies for CPU operation.
4. Describe in detail about the inter process communication mechanism
   (i) Shared Memory communication
   (ii) Message passing
   (iii) Signals
   (iv) Mailboxes
5. Demonstrate in detail about power optimization strategies for CPU operation.

Unit IV

1. Discuss in detail about the distributed embedded architecture with suitable example.
2. Describe the network abstractions with the help of OSI model layers.
3. Describe the different arbitration schemes with diagrams.
4. Observe in detail about Quality Assurance Process using the following
   (i) Quality Assurance Techniques

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(ii) Verifying the specifications.

5. Demonstrate the operation of Ethernet enabled system. With a suitable example.

Unit V

1. Demonstrate the role of a Set Top Box along with its hardware and software design.
2. Design a video accelerator as an example of accelerated embedded system.
3. Evaluate in detail the principle operation of software modem.
4. Explain the FOSS tools for embedded system development.
5. Discuss about the design of Data compressor and system on silicon.
   (i) Theory of operations and requirements.
   (ii) Specification
   (iii) System Architecture
   (iv) Component designing and testing
   (v) System integration and testing

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