

EMBEDDED SYSTEM-MIT-13

Theory Paper - 100 Marks

Sessional - 50 Marks

Unit1:-

Hardware fundamentals:-Gates, timing diagram, memory, microprocessor, buses, DMA.

Interrupts:-

Microprocessor architecture, interrupts basics, Interrupt latency, shared data problem. System partitioning, building the architectural model, Input and output processing,Hardware and software portioning, timing requirement.

Unit 2:-

Microprocessor selection, Microprocessor versus micro-control analysis CISC versus RISC study of major embedded Microprocessor architecture memory system design . system optimization architecture for embedded software:- round robin, found robin with interrupts. Function-queuescheduling and real time operating system.

Unit 3:-

Real time operating system:- tasks and task states. Task and data. Semaphores and shared data operating system service:- inter task communication . timer service. Memeory management . events and interaction between interrupt routines and real time operating system . software selection issues. Selection an RTOS. RTOS performance metrice . RTOS scalability and tool support compiler selection

Unit 4:-

Embedded system design using real time operating system : encapsulating semaphores and queues.hard real time scheduling consideration saving memory space.

Unit 5:-

Development tools and debugging :-hosh and target machines. Linker/location. Target system tasting. Instruction set. Asset macro. Establishing a software development environment C runtime environment embedded debuggers Cross- development methods embedded file formats . readers creating object files- the build process loading software on to remote targets.

1. an embedded software primer by david E.simon ISBN
2. embedded system design by Arnold S.berger