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Seventh Semester B.E. Degree Examination, Aug./Sept.2020

Embedded Computing Systems

Max. Marks:100

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

PART - A

- Briefly describe the importance of requirement in embedded computing system design. 1
 - Show how a set speed command flows through the refined class structure move from a change on the front panel to the required changes air the train.
 - (i) Show it in the form of a collobration diagram for major subsystems of the train controller system.
 - (ii) Show it in the form of a sequence diagram for transmitting a control I/P. (12 Marks)
- Explain the major data instructions in ARM. (10 Marks)
 - Define interrupt. Explain interrupts in ARM7 and steps involved when responding to an (10 Marks) interrupt ARM 99B.
- Describe basic building block of BUS Protocols in the four cycle hand shake. (08 Marks)
 - Draw a state diagram for update time and explain. (08 Marks)
 - Explain component design and testing. (04 Marks)
- For the following Arithmetic Expression a*b+5*(C-D), draw the graph, data flow graph and generate ARM code for the same. (10 Marks)
 - Define FSK and FSK detection scheme with diagram. (05 Marks)
 - (05 Marks) Explain class diagram for the modern.

PART - B Explain with a neat diagram basic components of an O.S. and their interfaces.

- (10 Marks) 5 (05 Marks) Explain the difference between GPOS and RTOS.

 - (05 Marks) c. Explain the basic functions of real time Kernel.
- What is process in the O.S. context and explain the structure of a process. (10 Marks)
 - Write a multithread application to print "Hello I am in main thread" from the main thread and "Hello I am in new thread" five times each using Pthread Create() and Pthread Join() (10 Marks) PoSix primitives.
- Explain the concept of memory mapping objects for IPC and message passing techniques for 7 (10 Marks)
 - (10 Marks) Explain with diagram the concept of mailbox based indirect messaging for IPC.
- Define IDE. With a neat diagram, explain the embedded system development environment. (08 Marks)
 - Explain the various details stored in an Object file, Map file, List file and Hex file generated during the process of cross compiling in embedded 'C' file. (12 Marks)

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