R09

Code No: C4005

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
M.Tech I Semester Examinations March/April-2011
EMBEDDED SYSTEMS DESIGN
(INFORMATION TECHNOLOGY)

Time: 3hours **Max.Marks:60**

Answer any five questions
All questions carry equal marks
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1. (a) Define a processor? What is the need of processor in an embedded system? While selecting a processor for an embedded system what is the factor that has to be considered as an embedded system designer? What type of processors can be selected?
   (b) What is the role of RAM and ROM in an embedded system? [12]

2. (a) Draw the block diagram of 8051 micro controller and explain each block
   (b)Write the format of TCON and TMOD function registers and explain the significance of each bit of a register. [12]

3. (a) What is a timer? How does a counter perform timer functions, prefixed time initiated events generation and time capture functions? Why do you need at least one time in an embedded system?
   (b) What do you mean by the buses for networking of serial devices and parallel devices? [12]

4. (a) Write C program code for a loop for summing ten integers with even indices only. Each integer is 32 bits. Now unroll the loop and write C afresh. Compare the code length in both cases
   (b) What are the advantages of coding and application using assembly language and high level language? [12]

5. (a) Explain the use of various data structures in program element by quoting suitable examples
   (b) What are the criteria by which an appropriate programming language is chosen for embedded software of a given system?
   (c) Why do we use infinite loop in embedded system software? Quote at least one example. [12]

6.(a) Explain the functions/services of the kernel in operating system.
   (b) When is an RTOS necessary and when is it not necessary in the embedded system. [12]

7.(a) What are the advantages of using multiple function calls in cyclic order in the main? Also write the advantages of building ISR queues?
   (b) What are the programming advantages of C++? What are the disadvantages of C++? [12]

8 Write short notes on the following
   a) Testing on host machine b) Laboratory tools (c) Simulators [12]

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