Register Number									

B.E/B.Tech (Full Time) DEGREE END SEMESTER EXAMINATIONS, NOV / DEC 2013

ELECTRONICS AND COMMUNICATION ENGINEERING

SIXTH SEMESTER (REGULATION 2008)

EC 9078 - EMBEDDED AND REAL TIME SYSTEMS

Time : 3 Hrs Max. Mark :100

Answer ALL Questions

PART-A (10 x 2 = 20 Marks)

1. List down the family of ARM processors.
2. What is the role of barrel shifter available in ARM processor?
3. Give the different types of MUL instruction available for ARM processor.
4. Define linking.
5. What is power optimization.
6. Define "Context switching"?
7. what is a hardware accelerator.
8. Draw the IP service stack.
9. Give the features of software modem.
10. What is a data compressor.

PART-B (5 x 16 = 80 Marks)

11.(i). With a neat block diagram explain the working of personnel digital assistants. (8)

(ii). Briefly explain the hardware architecture of set top box. (8)

P.T.O

12.a)(i). Explain both hardware and software for interfacing a matrix key board with seven segment display using a microcontroller. (8)

(ii). For the given block below write it in single -assignment form, and then draw the data flow graph. (8)

```
x = a + b;
y = c + d;
z = x + e;
```

(OR)

12.b)(i) With a neat sketch explain the two stage address translation of memory management unit. (8)

(ii) Briefly explain the analysis and optimization of execution time, power, energy of ARM based computing plat form. (8)

13.a) With a neat diagram, explain the architecture and the associated registers of ARM processor. (16)

(OR)

13.b). With a neat diagram explain the working of model train controller, give the frame format and UML collaboration diagram for major subsystems of the train controller system. (16)

14.a)(i) Discuss in detail the power optimization strategies for processes. (8)

(ii) Briefly explain about cooperative multitasking. (8)

(OR)

14.b)(i).Explain the different communication mechanisms among the processes in an operating system(8)

(ii).Briefly explain about preemptive multitasking. (8)

15.a)(i). With relevant illustrations explain distributed embedded architecture. (8)

(ii). Briefly explain the different networks available for embedded systems. (8)

(OR)

15.b)(i) Write short notes on internet enabled systems. (8)

(ii) Briefly explain the role of hardware accelerators in embedded system design. (8)
