Total No. of Questions : 10] [Total No. of Printed ages : 3

Roll No. .....

CS/EI/IT–8302

B. E. (Eighth Semester) EXAMINATION, June, 2009

(Common for CS, EI & IT Engg.)

EMBEDDED SYSTEM

(Elective – III)

Time : Three Hours

Maximum Marks : 100

Minimum Pass Marks : 35

Note : Attempt *five* questions from the choices given.

1. (a) Define Interrupt Latency. Describe different cases that arises Interrupt Latency. 15

   (b) What are the advantages of DMA based data transfer over the interrupt driven data transfer ? 5

Or

2. (a) Define the problem of sharing data by multiple tasks and routines. 4

   (b) What are the solutions for solving shared data problem ? 8

   (c) Draw and explain ROM, SRAM and DRAM memory cells. 8

3. (a) What are the various addressing modes in PIC microcontrollers ? Explain with the aid of relevant diagrams. 6

P. T. O.

(b) Describe briefly PIC 16 CXX microcontroller CPU registers. 14

Or

4. (a) Differentiate between the microcontrollers with Harward architecture and with Von-Newmann's architecture. 5

(b) Write any *five* instructions with examples of their use, syntax and description of the microcontroller from PIC 16CXX family. 10

(c) Write the data format for the text transmitted by the UART (Universal Asynchronous Receiver and Transmitter). 5

5. (a) Explain RS-232C communication protocol for the serial communication. 6

(b) Draw and explain block diagram of Motorola 68HC11 architecture. 8

(c) Explain all the addressing modes that are supported on the Motorola 68HC11 architecture. 6

Or

5. (a) Explain Registers of Motorola 68HC11 microcontroller. 5

(b) What is the utility of CCR (Conditional Code Register) on Motorola 68HC11 Microcontroller ? 5

(c) What is RTI (Real Time Interruppt) function in Motorola 68HC11 Microcontroller ? 5

(d) Explain the interrupt routines and interrupt vectors for Motorola 68HC11 microcontroller. 5

6. (a) Explain the process of converting a C program into the file for ROM image. 5

(b) Explain the functions of an editor, interpreter, compiler, assembler, cross-assembler and locator for an embedded system design. 6

(c) Give explanations on the Java program elements "Class" and "Inheritance", along with examples of their use. 6

(d) What are the disadvantages of embedded programming in C++? 3

Or

8. (a) What should be the features of an IDE (Integrated Development Environment) for an embedded software development process ? 6

(b) What are the advantages and disadvantage of using JAVA for embedded programming ? 6

(c) What is a target system ? How does the target system differ from the final embedded system ? What do you mean by application software for a target system ? 4

(d) Explain the use of the following hardware tools : 4
Target Emulators and ICE (In Circuit Emulators).

9. (a) Explain basic design principles whil designing an embedded system using an RTOS (Real Time Operating System). 15

(b) What are the operating system functions at an RTOS Kernel ? 5

Or

10. (a) Describe the different systems of interrupt routines in RTOS environment and handling in interrupt source calls. 15

(b) List the advantages and disadvantages of fixed and dynamic block allocations by the operating system. 5