B.Tech. – VIEP – ELECTRONICS AND COMMUNICATION ENGINEERING (BTECVI)

Term-End Examination

00257　　　　June, 2014

BIEL-024 : EMBEDDED SYSTEM DESIGN

Time : 3 hours　　　　　　　　　*Maximum Marks : 70*

Note : Questions No. 1 is **compulsory** and attempt any **four** from the rest. All questions carry equal marks. Use of scientific calculator is permitted.

1.　(a)　How many t-states and machine cycle for the following ?

　　　　4600 LXI H 2500

　(b)　Write the ADC in ascending order according to accuracy and speed.

　　　FLASH ADC, Counter, Succesive Approximation, Dual Slope.

　(c)　What is the resolution of 8-bit A to D converter whose input voltage is –10 to + 10 volts ?

　(d)　How much time is required for executing the following ?

　　　MVI B, 0A H

　　　MVI C, 05 H

　　　LOOP DCR C

　　　JNZ LOOP

(e) Differentiate between Microprocessor and Microcontroller.

(f) What is Bluetooth ?

(g) . What is the conversion rate of 8-bit dual slope ADC whose clock frequency is 1 MHz ? *7×2=14*

2. (a) What is embedded system ? Explain with suitable example. How is embedded system designed ?

(b) Discuss the design cycle in the development phase for an embedded system.

(c) What are the software tools used for development of an ES ? *5+5+4*

3. (a) What is RTOS ? Draw and explain the basic architecture of RTOS using suitable diagram.

(b) How are events and memory management done using RTOS ?

(c) How are interrupt routines handled in an RTOS environment ? *5+5+4*

4. (a) Draw the basic architecture of 8051 microcontroller and explain its functionalities.

(b) Explain the instruction set of 8051 Microcontroller. *7+7*

5. (a) Differentiate between ADC and DAC. Explain with suitable diagrams.

(b) Explain how a stepper motor is interfaced to an 8051 microcontroller, with a suitable block diagram. *7+7*

6. (a) With suitable example explain the following terms :

Assembler, Compiler, Cross-Compiler and Integrated Development Environment (IDE).

(b) Draw the basic architecture of AVR 8515 Microcontroller and explain the important functionalities.

(c) What is the difference between LED and LCD ? Explain with suitable example. *5+5+4*

7. (a) What is JTAG ? Explain.

(b) What is the procedure of testability in boundary scan architecture ?

(c) Write a short note on Ethernet. *5+5+4*