

Exam.Code:0929

Sub. Code: 6596

2074

B.E. (Electronics and Communication Engineering)

Fifth Semester

EC-506: Advanced Microcontrollers and Applications

Time allowed: 3 Hours

Max. Marks: 50

*NOTE: Attempt five questions in all, including Question No. 1 which is compulsory and selecting two questions from each Section.*

x-x-x

Q1. Explain the followings

2\*5=10

1. Explain reactive environment and time constraints in microcontroller
2. Sources of interrupt
3. Sampling of edge triggering and level triggering
4. Bootloader and JTAG
5. Multi stage pipelining execution

Section A

Q2. In AVR instructions are 16- or 32-bits wide, the Flash is organized as 4K x 16 bits. For software security, how the Flash Program memory space is divided, detail the Boot Program section and Application Program section? (10)

Q3. Assuming that XTAL = 10 MHz and we are generating the square wave at PB4, find the highest square wave frequency that we can generate using timer 0 in normal mode. Also write a code for event counter using timer 0. (10)

Q4. How 1 MIPS per MHz is achieved in AVR for corresponding unique results, functions per cost, functions per clocks, and functions per power-unit? (10)

Section B

Q5. In order to enhance the compatibility of Arduino Uno various shields are attached. You are required to design home automation system using a shield that can control appliances at far end (within a locality). (10)

Q6. Interface 8x2 LCD with Arduino Uno board and a buzzer and using the timer write a programme to make buzzer ON for 10 second and off for 5 second. When the buzzer is ON display HELLO word on LCD and GOOD Bye when buzzer is off. (10)

Q7. Explain the functional blocks of line follower robot using Arduino board. (10)

x-x-x