



Virtual University

About Us

CS501
Solved Final Term Paper 1

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Year
2017

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

In the Name of Allāh, the Most Gracious, the Most Merciful

Paper Pattern

MCQS 40 each 1 mark
Short 4 each 2 marks
Short 4 each 3 marks
long 4 each 5 marks

Question No : 1 of 52

Marks: 1 (Budgeted Time 1 Min)

What does the instruction "ldr R3, 58" of SRC do?

Answer (Please select your correct option)

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☐ it will load the register R3 with the contents of the memory location M [PC+58]

correct

☐ It will load the register R3 with the relative address itself (PC+58).

☐ It will store the register R3 contents to the memory location M [PC+58]

☐ No operation

Made by: Waqar Siddhu

Question No : 2 of 52

Marks: 1 (Budgeted Time 1 Min)

What functionality is performed by the instruction "lar R3, 36" of SRC?

Answer (Please select your correct option)

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☐ it will load the register R3 with the contents of the memory location M [PC+36]

☐ It will load the register R3 with the relative address itself (PC+36).

correct

☐ It will store the register R3 contents to the memory location M [PC+36]

☐ No operation

Made by: Waqar Siddhu

Question No : 3 of 52

Marks: 1 (Budgeted Time 1 Min)

What is the instruction length of the SRC processor?

Answer (Please select your correct option)

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☐ 8 bits

☐ 16 bits

☒ 32 bits

correct

☐ 64 bits

Made by: Waqar Siddhu

Question No : 4 of 52

Marks: 1 (Budgeted Time 1 Min)

What does the word 'D' in the 'D-flip-Flop' stands for?

Answer (Please select your correct option)

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☒ Data

correct

☐ Digital

☐ Dynamic

☐ Double

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Question No : 5 of 52

Marks: 1 (Budgeted Time 1 Min)

Almost every commercial computer has its own particular ----- language

Answer (Please select your correct option)

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☒ assembly language

correct

☐ English language

☐ Higher level language

☐ 3GL

Made by: Waqar Siddhu

Question No : 6 of 52

Marks: 1 (Budgeted Time 1 Min)

Which field of the machine language instruction is the "**type of operation**" that is to be performed?

Answer (Please select your correct option)

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☐ Op-code (or the operation code)

correct

☐ CPU registers

☐ Memory cells

☐ I/O locations

Made by: Waqar Siddhu

Question No : 7 of 52

Marks: 1 (Budgeted Time 1 Min)

_____ is/are defined as the time required processing a single instruction.

Answer (Please select your correct option)

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☐ Latency and Throughput

☐ Latency

correct

☐ Throughput

☐ Hazards

Made by: Waqar Siddhu

Question No : 8 of 52

Marks: 1 (Budgeted Time 1 Min)

In pipelining ----- is increased by overlapping the instruction execution

Answer (Please select your correct option)

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☐ Latency

☐ Throughput

correct

☐ Execution time

☐ Clock speed

Made by: Waqar Siddhu

Question No : 9 of 52

Marks: 1 (Budgeted Time 1 Min)

Which of the following register(s) takes input from the ALU as the address of the memory location to be accessed and transfers the memory contents on that location onto the memory sub-system?

Answer (Please select your correct option)

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- ☐ Instruction Register
- ☐ Memory address register
- ☐ Memory Buffer Register
- ☐ Registers A and C

correct

Made by: Waqar Siddhu

Question No : 10 of 52

Marks: 1 (Budgeted Time 1 Min)

In which one of the following addressing modes, data is the part of the instruction itself, and so there is no need of address calculation?

Answer (Please select your correct option)

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- ☐ Direct Addressing Mode
- ☐ Immediate addressing mode
- ☐ Indirect Addressing Mode
- ☐ Register (Direct) Addressing Mode

correct

Made by: Waqar Siddhu

Question No : 11 of 52

Marks: 1 (Budgeted Time 1 Min)

Which one of the following type of error occurs when a 0 is received instead of a stop bit (which is always a 1)?

Answer (Please select your correct option)

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- ☐ Framing error
- ☐ Parity error
- ☐ Over-run error
- ☐ Under-run error

correct

Made by: Waqar Siddhu

Question No : 12 of 52

Marks: 1 (Budgeted Time 1 Min)

_____ is a technique in which some of the CPU's address lines forming an input to the address decoder are ignored.

Answer (Please select your correct option)

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☐ Partial decoding

correct

☐ Full encoding

☐ Partial multiplexing

☐ Half encoding

Made by: Waqar Siddhu

Question No : 13 of 52

Marks: 1 (Budgeted Time 1 Min)

Consider Falcon A, with 16 address lines, the total address space is _____ Kbytes.

Answer (Please select your correct option)

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☐ 2^{16}

correct

☐ 2^{10}

☐ 2^6

☐ 2^8

Made by: Waqar Siddhu

Question No : 14 of 52

Marks: 1 (Budgeted Time 1 Min)

CPU can exchange data with a peripheral device using _____ technique.

Answer (Please select your correct option)

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☐ Memory Contention

☐ Direct Memory Access

correct

☐ Pre-fetching

☐ Pipelining

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Question No : 15 of 52

Marks: 1 (Budgeted Time 1 Min)

Which one of the following is NOT a technique used when the CPU wants to exchange data with peripheral device?

Answer (Please select your correct option)

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- ☐ Direct Memory Access
- ☐ Interrupt driven I/O
- ☐ Programmed I/O
- ☐ Virtual Memory

correct

Made by: Waqar Siddhu

Question No : 16 of 52

Marks: 1 (Budgeted Time 1 Min)

Which one is the last instruction of the ISR that is to be executed when the ISR terminates?

Answer (Please select your correct option)

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- ☐ IRET
- ☐ IRQ
- ☐ INT
- ☐ NMI

correct

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Question No : 17 of 52

Marks: 1 (Budgeted Time 1 Min)

----- is the time needed by the CPU to recognize (not service) an interrupt request.

Answer (Please select your correct option)

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- ☐ Interrupt Latency
- ☐ Response Deadline
- ☐ Timer delay
- ☐ Throughput

correct

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Question No : 18 of 52

Marks: 1 (Budgeted Time 1 Min)

In Multiple Interrupt Lines approach, a number of interrupt lines are provided between the _____ modules.

Answer (Please select your correct option)

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☐ External and Internal

☐ CPU and I/O

correct

☐ CPU and Memory

☐ Memory and I/O

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Question No : 19 of 52

Marks: 1 (Budgeted Time 1 Min)

In FALCON-A assembler and simulator (FALSIM), variables are defined by using the _____ directive.

Answer (Please select your correct option)

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☐ .bin

☐ .equ

correct

☐ .ret

☐ .end

Made by: Waqar Siddhu

Question No : 20 of 52

Marks: 1 (Budgeted Time 1 Min)

In Direct memory access (DMA), a _____ is needed to control the total activity and to synchronize the transfer of data.

Answer (Please select your correct option)

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☐ DMA memory unit

☐ DMA controller

correct

☐ Control software

☐ Programmed I/O

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Question No : 21 of 52

Marks: 1 (Budgeted Time 1 Min)

_____ allows a peripheral device to read from and/or write to memory without intervention by the CPU.

Answer (Please select your correct option)

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- ☐ Programmed I/O
- ☐ Interrupt driven I/O
- ☒ Direct memory access
- ☐ Polling

correct

Made by: Waqar Siddhu

Question No : 22 of 52

Marks: 1 (Budgeted Time 1 Min)

A component connected to the system bus and having control of it during a particular bus cycle is called _____.

Answer (Please select your correct option)

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- ☐ Address decoder
- ☐ BIOS
- ☒ Master component
- ☐ Slave component

correct

Made by: Waqar Siddhu

Question No : 23 of 52

Marks: 1 (Budgeted Time 1 Min)

A Hard Disk sector has the _____ parts.

Answer (Please select your correct option)

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- ☐ Header only
- ☐ Data section and a trailer
- ☐ Data section only
- ☒ Header, data section and a trailer

correct

Made by: Waqar Siddhu

Question No : 24 of 52

Marks: 1 (Budgeted Time 1 Min)

CRC has _____ overhead as compared to Hamming code.

Answer (Please select your correct option)

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☐ Equal

☐ Greater

☒ Lesser

correct

☐ Absolutely no

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Question No : 25 of 52

Marks: 1 (Budgeted Time 1 Min)

_____ are computed by the ALU and stored in processor status register.

Answer (Please select your correct option)

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☒ Condition Codes

correct

☐ Control Signals

☐ Flip Flops

☐ Multiplexers

Made by: Waqar Siddhu

Question No : 26 of 52

Marks: 1 (Budgeted Time 1 Min)

_____ occurs when the exponent is too large and can not be represented in the exponent field.

Answer (Please select your correct option)

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☐ Underflow

☒ Overflow

correct

☐ Rounding Off

☐ Normalization

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Question No : 27 of 52

Marks: 1 (Budgeted Time 1 Min)

In Single-Precision Binary Floating Point Representation the size of exponent is _____.

Answer (Please select your correct option)

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☐ 8-bits

correct

☐ 11-bits

☐ 1-bits

☐ 23-bits

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Question No : 28 of 52

Marks: 1 (Budgeted Time 1 Min)

The _____ is m-bits wide and contains memory address generated by the CPU directly connected to the m-bit wide address bus.

Answer (Please select your correct option)

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☐ Memory address register (MAR)

correct

☐ Program counter register

☐ Accumulator register

☐ Instruction register

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Question No : 29 of 52

Marks: 1 (Budgeted Time 1 Min)

_____ is a place for safe storage and provides the fastest possible storage after the registers.

Answer (Please select your correct option)

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☐ Hard Disk

☐ Cache

correct

☐ Compact Disk

☐ Floppy Disk

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Question No : 30 of 52

Marks: 1 (Budgeted Time 1 Min)

For a request for data, if the data is available in the cache it results in a _____.

Answer (Please select your correct option)

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☐ Cache Miss

☐ Spatial Locality

☐ Temporal Locality

☐ Cache Hit

correct

Made by: Waqar Siddhu

Question No : 31 of 52

Marks: 1 (Budgeted Time 1 Min)

For write to complete in Write through, the CPU has to wait. This wait state is called _____.

Answer (Please select your correct option)

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☐ Write Through

☐ Write Back

☐ Write Allocate

☐ Write Stall

correct

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Question No : 32 of 52

Marks: 1 (Budgeted Time 1 Min)

_____ contains permanent pattern of data that cannot be changed.

Answer (Please select your correct option)

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☐ RAM

☐ Hard Disk

☐ Cache

☐ ROM

correct

Made by: Waqar Siddhu

Question No : 33 of 52

Marks: 1 (Budgeted Time 1 Min)

In Control Field of page table, _____ indicate the availability of page in main memory.

Answer (Please select your correct option)

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☐ Access Control Bits

☐ Used Bits

☐ Presence Bits

correct

☐ Redundant Bits

Made by: Waqar Siddhu

Question No : 34 of 52

Marks: 1 (Budgeted Time 1 Min)

In _____ technique memory is divided into segments of variable sizes depending upon the requirements.

Answer (Please select your correct option)

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☐ Multiplexing

☐ Segmentation

correct

☐ Hamming code

☐ Partial decoding

Made by: Waqar Siddhu

Question No : 35 of 52

Marks: 1 (Budgeted Time 1 Min)

_____ depends upon the average number of calls and the service time taken by a particular server.

Answer (Please select your correct option)

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☐ Throughput

correct

☐ Latency

☐ Poisson Distribution

☐ Response Time

Made by: Waqar Siddhu

Question No : 36 of 52

Marks: 1 (Budgeted Time 1 Min)

_____ is also called traffic intensity and its value must be between 0 and 1.

Answer (Please select your correct option)

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☐ Little's Law

☐ Poisson Distribution

☐ Server Utilization

correct

☐ SPEC

Made by: Waqar Siddhu

Question No : 37 of 52

Marks: 1 (Budgeted Time 1 Min)

_____ is the maximum rate at which data can be transmitted through networks.

Answer (Please select your correct option)

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☐ Transmission Time

☐ Latency

☐ Transport Latency

☐ Bandwidth

correct

Made by: Waqar Siddhu

Question No : 38 of 52

Marks: 1 (Budgeted Time 1 Min)

The time for the message to pass through the network, except the time of flight is called _____.

Answer (Please select your correct option)

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☐ Transmission Time

correct

☐ Latency

☐ Transport Latency

☐ Bandwidth

Made by: Waqar Siddhu

_____ refers to the interconnection of machines in a building or a campus.

Answer (Please select your correct option)

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☐ SAN

☐ LAN

correct

☐ WAN

☐ MAN

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SPARC (Scalable Processor Architecture) is an example of _____ architecture.

Answer (Please select your correct option)

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☐ CISC

☐ RISC

correct

☐ SRC

☐ FALCON

Made by: Waqar Siddhu

What is distributed computing?

Answer (Please [click here](#) to Add Answer)

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Normal Arial 12 B I U

In distributed computing, all elements which are interconnected operate under one operating system. To a user, it appears as a virtual uni-processor system.

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Write any two differences between EAGLE and Modified EAGLE.

Answer (Please [click here](#) to Add Answer)

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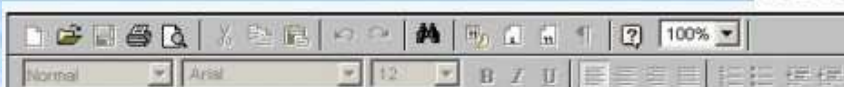
The modified EAGLE is an improved version of the processor EAGLE. there were several limitations in EAGLE, and these have been remedied in the modified EAGLE processor.

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Differentiate between selector channel and multiplexer channel.

Answer (Please [click here](#) to Add Answer)

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Selector Channel It is the DMA controller that can do block transfers for several devices but only one at a time.

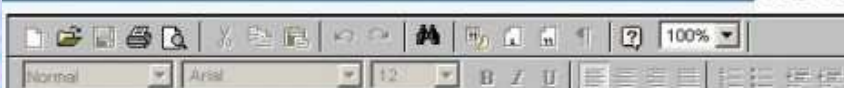
Multiplexer Channel It is the DMA controller that can do block transfers for several devices at once.

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Differentiate between PROM and EPROM.

Answer (Please [click here](#) to Add Answer)

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PROM The PROM stands for Programmable Read only Memory. It is also nonvolatile and may be written into only once. For PROM, the writing process is performed electrically in the field. PROMs provide flexibility and convenience.

EPROM Erasable Programmable Read-only Memory or EPROM chips have quartz windows and by applying ultraviolet light erase the data can be erased from the EPROM. Data can be restored in an EPROM after erasure. EPROMs are more expensive than PROMs and are generally used for prototyping or small-quantity, special purpose work.

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How can you define an instruction set? Name the essential elements of computer instructions.

Answer ([Please click here to Add Answer](#))

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INSTRUCTION SET An instruction set is a collection of all possible machine language commands that are understood and can be executed by a processor.

ESSENTIAL ELEMENTS OF COMPUTER INSTRUCTIONS: There are four essential elements of an instruction; the type of operation to be performed, the place to find the source operand(s), the place to store the result(s) and the source of the next instruction to be executed by the processor.

Made by: Waqar Siddhu

What is the relationship between hard disk Platters, Tracks and Sectors?

Answer ([Please click here to Add Answer](#))

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A hard disk is the most frequently used peripheral device. It consists of a set of platters. Each platter is divided into tracks. The track is subdivided into sectors. To identify each sector, we need to have an address. So, before the actual data, there is a header and this header consisting of few bytes like 10 bytes. Along with header there is a trailer. Every sector has three parts: a header, data section and a trailer.

Made by: Waqar Siddhu

Find out the Sign, Significand and Exponent from the following floating point number.

-0.7×10^{-4}

Answer ([Please click here to Add Answer](#))

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Sign = 0
Significand = 0.7
Exponent = -4
Base = 10 = fixed for given type of representation

Made by: Waqar Siddhu

What is the use of translation lookaside buffer (TLB) and how it is implemented inside the CPU?

Answer (Please [click here](#) to Add Answer)

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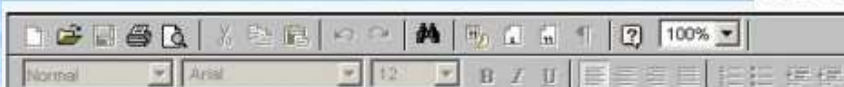
To speed up the process of virtual address translation, translation Lookaside buffer (TLB) is implemented as a small cache inside the CPU, which stores the most recent page table entry reference made in the MMU.

Made by: Waqar Siddhu

Write the Structural RTL description for "un-conditional jump" instruction i.e. `jump [ra+c2]`.

Answer (Please [click here](#) to Add Answer)

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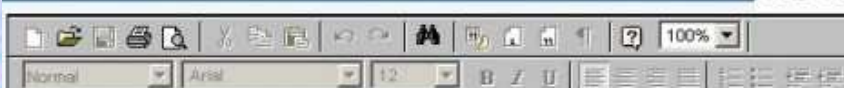
Step	RTL	Step	RTL
T0-T2	Instruction Fetch	T0-T2	Instruction fetch
T3	$(ra=0): A \leftarrow PC, (ra \neq 0): A \leftarrow R[ra];$	T3	$n<4..0> \leftarrow IR<4..0>;$
T4	$C \leftarrow A + c2(\text{sign extend});$	T4	$C \leftarrow (N \& 0) \oplus R[rb]<15..N>;$
T5	$PC \leftarrow C;$	T5	$R[ra] \leftarrow C;$

Made by: Waqar Siddhu

A hard disk with 10 platters has 1024 tracks per platter, 512 sectors per track and 512 bytes/sector. What is the total capacity of the disk?

Answer (Please [click here](#) to Add Answer)

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512 bytes x 512

sectors=0.2MB/track

0.2MB x 1024 tracks =0.2GB/platter

Therefore the hard disk has the total capacity of 10 x 0.2=2GB

Made by: Waqar Siddhu

Suppose an I/O system with a single disk gets (on average) 100 I/O requests/second and the average time for a disk to service an I/O request is 6ms. What is the utilization of the I/O system?

Answer (Please [click here](#) to Add Answer)

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The screenshot shows a Microsoft Word document with the following text:

Time for an I/O request = 6ms
=0.006sec

Server utilization = 100 x 0.006
= 0.6 sec

Made by: Waqar Siddhu