




## Viva Questions | Microcontrollers | 2018



**8051 Topics**

- Architecture
- PSW
- Memories
- Instructions
- Programs
- Timers
- Serial Port
- Interrupts
- I/O Ports
- Designing
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## 8051 Based Questions

**Examiner**

How many pins does 8051 have?

Q: 1

**You**

*8051 is a 40 pin IC.*

**Examiner**

8051 Address Bus?

Q: 2

**You**

*8051 has a 16-bit address bus.*

**Examiner**

8051 Data Bus and ALU?

Q: 3

**You**

*8051 has an 8-bit data bus and an 8-bit ALU.*

*This means it can transfer 8-bits in one cycle and also operate on 8 bits in 1 cycle. Therefore 8051 is called an 8-bit microcontroller.*

**Examiner**

Explain PC of 8051?

Q: 4

**You**

*PC – Program Counter, is a 16-bit register. It contains address of the next instruction. It gets incremented as soon as an instruction is fetched.*

**Examiner**

Explain SP and Stack of 8051?

Q: 5

**You**

*SP – Stack Pointer, is an 8-bit register. It contains address of the top of stack. Stack is a data structure present in the Internal RAM. It operates in LIFO manner. During a Push, SP gets incremented and during a Pop, SP gets decremented. Default Value of SP is 07H. On the first push, Sp will be come 08H, and then data will be stored. Hence Bank1 will not be affected!*

**Examiner**

What is the difference between a  $\mu P$  and a microcontroller ?

O: 6

**You**

*A  $\mu P$  is just a processor. It needs external RAM, ROM, I/O etc.*

*A  $\mu C$  is self sufficient. It has an internal Processor, RAM, ROM, I/O ports, Timers etc. It's basically a one chip computer, hence gives a compact ckt.*

**Examiner**

How many general purpose registers does 8051 have?

Q: 7

**You**

*8051 has 32 GPRs. They are divided into 4 banks, each having 8 registers, R0... R7.*

***Internal Examiner Joins the Viva!***

**Internal Examiner** ~ Acche Din aayenge ;-)

Why are registers divided into banks?

Q: 8

**You ~ Bharat Sir's Student**

*To reduce the number of opcodes. (Call Bharat Sir in case of doubts @9820408217)  
Each instruction needs a different opcode when the register changes. If there are 32 register names, there will be 32 opcodes for every instruction. This will exhaust the number of opcodes. Hence the registers are divided into banks. This still gives us 32 registers, but uses only 8 opcodes, as there are only 8 register names!*

**Internal Examiner** ~ Acche Din aayenge ;-)

Which is the default register bank? How do you change banks?

Q: 9

**You ~ Bharat Sir's Student**

*Bank 0 is the default register bank.*

*We can change banks using RS1 and RS0 of PSW register.  
(Show table and examples from our notes)*



**Internal Examiner ~ Acche Din aayenge ;-)**  
What is the use of RxD and TxD?

Q: 10

**You ~ Bharat Sir's Student**

*Used for Serial Communication (Bit by Bit).  
Serial communication is slow but is cheaper so is preferred for long distance communication.*

**Internal Examiner ~ Acche Din aayenge ;-)**  
What is the crystal frequency of 8051?

Q: 11

**You ~ Bharat Sir's Student**

*8051 is connected with a crystal of 12 MHz.  
For Serial communication applications, we use a crystal of 11.0592 MHz to produce the standard baud rates.*

**Internal Examiner ~ Acche Din aayenge ;-)**  
Explain Power on Reset Signal?

Q: 12

**You ~ Bharat Sir's Student**

*Power on Reset is used to activate the reset signal when 8051 is powered ON. On reset, PC becomes 0000H, That's the reset vector address. From here the BIOS program is executed!*

**Internal Examiner ~ Acche Din aayenge ;-)**  
How many I/O ports does 8051 have?

Q: 13

**You ~ Bharat Sir's Student**

*8051 has 4, 8-bit I/O ports: P0, P1, P2, P3.*

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**Internal Examiner ~ Acche Din aayenge ;-)**  
Explain multiplexing in 8051?

Q: 14

**You ~ Bharat Sir's Student**

*Multiplexing is done to reduce the number of lines.*

*A0-A7 and D0-D7 are multiplexed, to form AD0-AD7.*

*ALE is used to identify whether the bus carries address or data.*

*If ALE = 1, bus carries address else data.*

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**External Examiner**

What are the alternate functions of the ports?

Q: 15

**You**

*P0: Multiplexed address/ Data Bus (AD7-AD0).*

*P1: None – Used only as a port.*

*P2: Higher order address bus (A15-A8).*

*P3: Serial Port (RxD and TxD), Interrupts (INT0#, INT1#), Timer Clk inputs (T0,T1) and control Signals (WR# and RD#)*

**Internal Examiner**

What is the role of EA#

Q: 16

**You**

*It decides whether the first 4 KB of program memory space (0000H... 0FFFFH) will be assigned to internal ROM or External ROM.*

*If  $\overline{EA} = 0$ , the External ROM begins from 0000H.*

*In this case the Internal ROM is discarded.*

*8051 now uses only External ROM.*

*If  $\overline{EA} = 1$ , the External ROM begins from 1000H.*

*In this case the Internal ROM is used.*

*It occupies the space 0000H... 0FFFFH. Call: 9820408217 for doubts!*

**External Examiner**

What is the role of PSEN#

Q: 17

**You**

*8051 has a 16-bit address bus (A15 – A0).*

*This should allow 8051 to access 64 KB of external Memory as  $2^{16} = 64 \text{ KB}$ .*

*But, 8051 can access 64 KB of External ROM and 64 KB of External RAM, making a total of 128 KB. Both have the same address range 0000H to FFFFH.*

*There are separate control signals for External RAM and External ROM.*

*$\overline{RD}$  and  $\overline{WR}$  are control signals for External RAM.*

*$\overline{PSEN}$  is the READ signal for External ROM.*



**Internal Examiner**

8051 is based on Harvard Model... explain

Q: 18

**You**

*If we use a common memory space for programs and data that's called Von Neuman Model. E.g.: 8086. It can access 1 MB of memory. That's a combination of programs and data.*

*In Harvard model, we use separate memory spaces for programs and data. 8051 is based on Harvard Model.*

*There is 64 KB Program Memory implemented using ROM, and 64KB data Memory implemented using RAM.*

**Internal Examiner**

What is the use of timers?

Q: 19

**You ~ Bharat Sir's Student**

*Timers are used to produce delay by the method of counting. Hence timers are also called counters.*

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**External Examiner**

Compare hardware and software Delay

Q: 20

**You ~ Bharat Sir's Student**

*A Delay is a time gap between two events.*

*If we produce the delay using a dummy loop (usually NOP), then it is called a software delay.*

*If we use a Timer to produce it, then it is called a Hardware delay.*

*Software delays are cheaper as a timer is not needed.*

*Hardware delays are more efficient as they keep the processor free during the delay. The counting is done by the timer, so the processor is free to perform other operations.*

**Internal Examiner**

Describe timers of 8051 in brief?

Q: 21

**You ~ Bharat Sir's Student**

*8051 has two 16bit up counters called T0 and T1.*

*Having two timers means we can produce two delays simultaneously.*

*Being 16-bit timers, they count upto FFFFH.*

**External Examiner**

Whats the different between timers and counters

Q: 22

**You ~ Bharat Sir's Student**

*A Timer counts at a fixed freq using the internal clock ( $f_{osc} \div 12$ ).*

*It is used to produce a delay as the counting period is predictable.*

*A counter counts at a external frequency applied at T0 and T1 pins.*

*This is used to count external events.*

*Please recollect the FACTORY example given in the class by Bharat sir.*

**Guess Who? #9820408217**

*Excellent answer... Keep it up ☺*

*All the best!*



**External Examiner**

Explain all memories of 8051

Q: 23

**You ~ Bharat Sir's Student**

*Internal RAM: size 128 bytes. Address range: 00H... 7FH*

*Internal ROM: size 4KB. Address range: 0000H... FFFFH*

*Extrenal RAM: size 64KB (max). Address range: 0000H... FFFFH*

*External ROM: If EA# = 0: size 64KB (max). Address range: 0000H... FFFFH*

*External ROM: If EA# = 1: size 60KB (max). Address range: 1000H... FFFFH*

**External Examiner**

Explain PSW of 8051

Q: 24

**You ~ Bharat Sir's Student**

*Please explain all flags with examples from class notes!*

*For help, visit: [www.bharatacharyaeducation.com](http://www.bharatacharyaeducation.com)*

**Internal Examiner**

How RAM can 8051 access, max?

Q: 25

**You ~ Bharat Sir's Student**

*128 bytes of internal Ram PLUS 64 KB of external RAM*

**Internal Examiner**

How RAM can 8051 access, max?

Q: 26

**You ~ Bharat Sir's Student**

*Total of 64KB including internal and external ROM.*

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**Internal Examiner**

How many SFRs does 8051 have? Name ALL!

Q: 27

**You**

21. All 8 bit registers.

A,B: for programming.

PSW: Flag Register

SP: Stack Pointer

DPH and DPL: Data pointer

P0, P1, P2, P3: Port Latches

TCON, TMOD: For Timer Programming

TL0, TH0: Count for Timer 0

TL1, TH1: Count for Timer 1

SCON, SBUF: for serial port

IE, IP: for Interrupts

PCON: for Power Saving

**Bharat Sir**

*Shabbaash! I was sure you could answer that ☺*

*Keep it up!*

**External Examiner**

What addresses are allotted to the SFRs and why?

Q: 28

**You ~ Bharat Sir's Student**

*SFRs are allotted addresses so that they don't further increase the number of opcodes.*

*They are allotted addresses 80H... FFH as they are completely unused. (Internal RAM ends at 7FH)*

*Of course this is not a coincidence... this is how the chip memory sizes were planned!*

**External Examiner**

Explain structure of Internal RAM

Q: 29

**You ~ Bharat Sir's Student**

**VERY IMPORTANT QUESTION.**

*Big Answer... Please refer #BharatSir Classroom and printed notes and give full diagram and answer! ([www.bharatacharyaeducation.com](http://www.bharatacharyaeducation.com))*



**External Examiner**

How is overflow determined?

Q: 30

**You ~ Bharat Sir's Student**

*Overflow is determined by Ex-Or of C7 and C6.*

*It basically means that the result is out of range for a signed number.*

*Range for 8-bit signed number (-80h...00h...+7Fh).*

**External Examiner**

What does # signify in an instruction?

Q: 31

**You ~ Bharat Sir's Student**

*A “#” next to a number, indicates that it is data, else it is treated as an address .*

*MOV A, #25H; A gets data 25H*

*MOV A, 25H; A gets contents of location 25H*

**External Examiner**

What does an @ signify in an instruction?

Q: 32

**You ~ Bharat Sir's Student**

*A “@” next to a number, indicates that it is giving an address, else it gives data .*

*MOV A, @R0; A gets contents of location pointed by R0*

*MOV A, R0; A gets data of R0*

**External Examiner**

What is the difference between MOV, MOVX and MOVC?

Q: 33

**You ~ Bharat Sir's Student**

*MOV is for Internal RAM.*

*MOVX is for External RAM.*

*MOVC is for ROM.*

*If the address is 1000H and more, it is for External ROM.*

*If the address is less than 1000H, then depends on EA#*

*If EA# is 0, it is for External ROM, If EA# is 1, it is for Internal ROM*

**External Examiner**

Where is the stack present and why?

Q: 34

**You ~ Bharat Sir's Student**

*In 8051 the stack is present in the Internal RAM. That's because SP is an 8-bit register. It can only give an 8-bit address. Internal RAM is the only memory of 8051 with an 8-bit address. Hence stack is present in the Internal RAM.*

**External Examiner**

Explain addressing modes of 8051 ?

Q: 35

**You ~ Bharat Sir's Student**

*Please explain ALL in detail from the printed notes.*

**External Examiner**

Why is Indexed addressing mode created for ROM?

Q: 36

**You ~ Bharat Sir's Student**

*ROM is generally used for storing Programs and RAM for data.*

*But some permanent data like 7-seg codes are stored in ROM.*

*Such data is always stored in the form of Look Up Tables.*

*Indexing is the ideal way to access a look up table.*

*In MOC A, @ A + DPTR, we initialize DPTR as a pointer to the look up table and A as the index. Hence Index addressing mode is created for ROM.*

**External Examiner**

How do you interchange the nibbles of a number?

Q: 37

**You ~ Bharat Sir's Student**

*Rotate it 4 times in any one direction: RL A, RL A, RL A, RL A.*

**External Examiner**

Where is ADDC used?

Q: 38

**You ~ Bharat Sir's Student**

*To add 2 large numbers.*

*Lower Bytes are added using ADD, higher Bytes using ADDC.*



**External Examiner**

Where is DA A used?

Q: 39

**You ~ Bharat Sir's Student**

*To add two BCD numbers (Decimal Numbers). First enter the numbers, Add them, Perform DA A, by its adjustment logic, it gives the correct BCD answer. Please show examples from classroom lecture or videos from [www.bharatacharyaeducation.com](http://www.bharatacharyaeducation.com).*

**External Examiner**

MOV A, #25H, DA A;

Show the working of DA A in this example?

Q: 40

**You ~ Bharat Sir's Student**

*Won't work. DA A stands for Dec Adjust "After Addition"!*

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**External Examiner ~ somebody's gonna get a hurt tonight**

What is the difference between 8051, 8031, 8751 and 89C51?

Q: 41

**You ~ www.BharatAcharyaEducation.com**

*Intel 8051: 4KB Internal ROM.  
Intel 8031: No Internal ROM.  
Intel 8751: 4KB Internal EPROM.  
ATMEGA 89C51: 4KB Internal FLASH ROM.*

**External Examiner**

What is the use of various Logic Instructions?

Q: 42

**You ~ Bharat Sir's Student**

*To make any bit 0: AND that bit with "0" & remaining bits with "1"*

*To make any bit 1: OR that bit with "1" & remaining bits with "0"*

*To complement a bit: XOR that bit with "1" & remaining bits with "0"*

**External Examiner**

How do we perform NAND, NOR or XNOR?

Q: 43

**You ~ Bharat Sir's Student**

*AND followed by NOT is a NAND.*

*OR followed by NOT is a NOR.*

*XOR followed by NOT is a XNOR.*

**External Examiner**

What is the use of Rotates?

Q: 44

**You ~ Bharat Sir's Student**

*They are used to determine the value of a bit. Rotate the register as many times, that the bit comes into carry flag. Checking Carry flag we can determine the value of any desired bit.*

**External Examiner**

How do you find out if a number is +ve, -Ve, even or odd?

Q: 45

**You ~ Bharat Sir's Student**

*+ve, -ve: Rotate left, check carry flag. Even, odd: Rotate right, check carry flag.*

**External Examiner**

Can the binary number (1000 0011) can have two values?

Q: 46

**You ~ Bharat Sir's Student**

*Yes. Depending upon whether we are working in signed or unsigned system. Unsigned: 83H. Signed: -7DH.*



**Bharat Sir**

*Excellent answer... Most students get this one wrong!*

**Keep it up!**

**External Examiner**

Difference between:

MOV A, #25H

MOV A, 25H

MOV C, 25H

Q: 47

**You ~ Bharat Sir's Student**

*A gets data 25H*

*A gets contents of byte location 25H*

*Carry Flag gets contents of bit location 25H*

**External Examiner**

Perform  $(-25H) + (-35H)$ . Show effect on Flags?

Q: 48

**You ~ Bharat Sir's Student**

*Answer: -5AH.*

*Flags: Overflow = 0, AC = 1, PF = 0, CF = 1.*

*In case of doubts please refer #BharatSir classroom examples or simply watch the PSW video at: [www.bharatacharyaeducation.com](http://www.bharatacharyaeducation.com)*

**External Examiner**

Explain some bit operations of 8051

Q: 49

**You ~ Bharat Sir's Student**

*SETB P0.0: Makes P0.0 ← 1*

*CLR P0.0: Makes P0.0 ← 0*

*CPL P0.0: Makes P0.0 ← Its complement*

**External Examiner**

Explain the difference between SJMP, AJMP and LJMP

Q: 50

**You ~ Bharat Sir's Student**

*Very long answer. Please refer printed notes.*





**External Examiner**

What are Vectored and Non Vectored interrupts?

Q: 51

**You ~ Bharat Sir's Student**

*Interrupts that have a Fixed ISR Address, it is called Vectored.*

*All interrupts of 8051 are vectored.*

*A non vectored interrupt does not have a fixed ISR address, like INTR of 8086.*

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**External Examiner**

How many interrupts does 8051 have?

Q: 52

**You ~ Bharat Sir's Student**

*5 interrupts .*

*2 external interrupts, INT0# and INT1#*

*2 Timer overflow interrupts: Timer0 and Timer1*

*A common serial interrupt caused due to Ri or Ti.*

**External Examiner**

What are their vector address?

Q: 53

**You ~ Bharat Sir's Student**

*INT 0:        0003H.*

*Timer 0:     000BH.*

*INT 1:        0013H.*

*Timer 1:     001BH.*

*Serial Port:  0023H.*

*0000H is the reset vector address!*



**External Examiner**

How do you indicate that you are using a timer or a counter?

Q: 54

**You ~ Bharat Sir's Student**

*By the C/T# bit in TMOD register.*

*1: Counter; 0: Timer*

**External Examiner**

What are the typical steps in timer programming?

Q: 55

**You ~ Bharat Sir's Student**

*Choose the mode, Give the count, Start the timer, Wait for overflow, Clear corresponding flags.*

**External Examiner**

What is the max count in each mode of timer?

Q: 56

**You ~ Bharat Sir's Student**

*Mode 0: 13-bit → 1FFFH*

*Mode 1: 16-bit → FFFFH*

*Mode 2: 8-bit → FFH*

*Mode 3: 8-bit → FFH*

**External Examiner**

What is the use of SMOD?

Q: 57

**You ~ Bharat Sir's Student**

*SMOD is a bit present in PCON register.*

*It is used to double the baud rate for serial communication, in Modes 1, 2, 3.*

**External Examiner**

What .ASM file?

Q: 58

**You ~ Bharat Sir's Student**

*It is an Assembly language file*

*The Assembler converts into .OBJ file, which is in machine language.*

*The Linker converts it into a .EXE file that can be executed..*

**External Examiner**

What is the use of DB, DW directives?

Q: 59

**You ~ Bharat Sir's Student**

*These are data types used for declaring variables.  
DB: 8-bit. DW: 16-bit.*

**External Examiner**

What is the use of "org" Directive?

Q: 60

**You ~ Bharat Sir's Student**

*It is called Origin. It gives the starting address from where, the subsequent info will be loaded into memory.*

**External Examiner**

What is the use of "equ" directive?

Q: 61

**You ~ Bharat Sir's Student**

*It is used to define a constant. Pronounced as equate.*

**External Examiner**

What is the difference between RET and RETI?

Q: 62

**You ~ Bharat Sir's Student**

*RET is used for ordinary subroutines. It will simply Pop the return address from the stack and load it into PC.  
RETI is used for returning from ISRs.  
It will not only Pop return address into PC, but also re-enable interrupts, which were disabled when 8051 starts an ISR.*

**External Examiner**

Draw and Explain IE and IP SFRs

Q: 63

**You ~ Bharat Sir's Student**

*Please refer Printed notes.*

*For detailed explanation on this topic, please see the 8051 Interrupts video at [www.BharatAcharyaEducation.com](http://www.BharatAcharyaEducation.com)*



**External Examiner**

Draw and explain any one SFR?

Q: 64

**You ~ Bharat Sir's Student**

*Please prepare all 7 SFR diagrams before going for Viva. PSW, TCON, TMOD, SCON, IE, IP, PCON, are all very important. One will most certainly be asked.*

**External Examiner**

Give example of power down and idle modes?

Q: 65

**You ~ Bharat Sir's Student**

*Phone screen going blank after around 30 secs: Idle mode  
Calculator: Power down mode*

**External Examiner**

What is the use of 9<sup>th</sup> bit in modes 2,3 of serial communication?

Q: 66

**You ~ Bharat Sir's Student**

*To decide between a broadcast or selective transmission in multiprocessor communication.*

*If 9<sup>th</sup> bit = 1: broadcast (all receive)*

*If 9<sup>th</sup> bit = 0; only those receivers with SM2 = 0 will receive.*

**External Examiner**

Why is Mode 1,3 baud rate called variable baud rate?

Q: 67

**You ~ Bharat Sir's Student**

*Because it is based on Timer 1 overflow rate which can be changed by changing the value of the count. For each different count we can produce a different baud rate*

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**External Examiner**

What is 8282/74373? Where is it used?

Q: 68

**Bharat Sir's Student**

*It is an 8-bit latch. It is used to latch the address from the multiplexed address – data bus. It captures address when ALE is 1.*

**External Examiner**

What is the preferred crystal frequency for serial communication applications?

Q: 69

**Bharat Sir's Student**

*11.0592 MHz.*

*This is so that we can produce the standard UART baud rates of 9600, 4800, 2400, and their derivatives.*

**External Examiner**

What is the difference between synchronous and asynchronous communication?

Q: 70

**You ~ Bharat Sir's Student**

*Synchronous: Common clock. Start Stop not needed.*

*Asynchronous: No Common clock. Start Stop needed.*

*Refer detailed explanation given in the class.*

## ARM Based Questions

**External Examiner**

Which implementation off ARM are we using?

Q: 71

**You ~ Bharat Sir's Student**

*ARM7TDMI*

**External Examiner**

What does ARM stand for?

Q: 72

**You**

*Advanced RISC Machines*

**External Examiner**

What does RISC stand for?

Q: 73

**You**

*Reduced instruction set computers*

**External Examiner**

Give some features of ARM7TDMI

Q: 74

**You**

- 32 bit Microcontroller.
- 32 bit data bus
- 32 bit address bus
- $2^{32} = 4GB$  memory.
- 32 bit instructions
- 32 bit registers
- 37 registers... 16 available at a time (R0... R15)
- 7 operating modes

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**External Examiner**

Explain ARM7 Pipelining

Q: 75

**You ~ Bharat Sir's Student**

ARM 7 has a 3 stage pipeline: Fetch decode and execute

**External Examiner**

Explain triadic instructions?

Q: 76

**You ~ Bharat Sir's Student**

ARM has triadic instructions.

ADD R0, R1, R2; Here  $R0 \leftarrow R1 + R2$

**External Examiner**

Whats the use of SP, LR and SPSR?

Q: 77

**You ~ Bharat Sir's Student**

SP gives address of top of stack

LR called Link Register, gives the return address to be put back into PC while returning to main program

SPSR is the saved value of CPSR from the main program

**External Examiner**

Whats the difference between IRQ and FIQ?

Q: 78

**You ~ Bharat Sir's Student**

IRQ is normal interrupt request.

FIQ is Fast Interrupt Request

FIQ gets serviced faster because, it uses a new set of registers from R8-R12.

This eliminated the need for storing and resting the values of these registers from the main program and hence saves time.





**External Examiner**

What is the full form of ARM7TDMI?

Q: 79

**You ~ Bharat Sir's Student**

*ARM7: Family Name.*

*T: Includes Thumb Instruction set.*

*D: Allows hardware debugging of the circuit via JTAG interface.*

*M: Includes Long Multiply Instruction.*

*I: Includes embedded ICE Microcell for breakpoints and watch-points in program.*

**Bharat Sir ~ Winter is HERE.**

Well done... Keep it up!

If it gets too much, just say "I DEMAND A TRIAL BY COMBAT"

**External Examiner**

Compare RISC and CISC

Q: 80

**You ~ Bharat Sir's Student**

*Very important but very long ans. Too many points. Please refer printed notes*



**External Examiner**

What is Thumb state? How does it improve code density

Q: 81

**You ~ Bharat Sir's Student**

*In normal state, instructions are of 32 bits each.*

*In thumb state, instructions are 16-bits.*

*So we can store double the number of instructions in the same space, hence code density improves.*

**External Examiner**

How many operating modes does Arm have?  
Explain briefly

Q: 82

**You ~ Bharat Sir's Student**

*7 operating modes*

- *User – Normal Programming Mode*
- *SYSTEM – Used by the user to invoke system functions*
- *Supervisor – Privileged Mode for executing BIOS and OS Kernel functions*
- *IRQ – Normal Interrupt Mode*
- *FIQ – Fast Interrupt Mode*
- *UND – Error mode when undefined instruction is encountered*
- *ABT – Abort when invalid location is being accessed typically due to low privilege*

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**External Examiner**

What are the different types of Non – Volatile Memories?

Q: 83

**You ~ Bharat Sir's Student**

**ROM:** Read Only Memory. This is the original type of ROM. Cannot be written.

**PROM:** Programmable ROM. Can be written but only once. Also called OTPROM.

**EPROM:** Erasable PROM. Can be erased by exposure to UV rays.

**EEPROM:** Electrically EPROM. Can be erased by applying higher voltage.

**Flash ROM.** Special type of EEPROM. Allows block-wise erasure so erasure is faster.

**External Examiner**

What are the different types of Volatile Memories?

Q: 84

**You ~ Bharat Sir's Student**

**RAM:** Random Access Memory. It is of two types.

**SRAM:** Static RAM. Uses Flip-Flops to store data so works faster. Very Expensive.

**DRAM:** Dynamic RAM. Uses capacitors to store data. Slower. Cheaper.

**SDRAM:** Synchronous Dynamic RAM. Uses common clock with CPU to synchronize.

**RDRAM:** Rambus RAM. Uses dedicated bus with CPU to transfer data..



**External Examiner**

What memories are used in your mobile phone?

Q: 85

**You ~ Bharat Sir's Student**

*It uses DRAM for primary memory, and Flash for secondary storage. Even the memory card is Flash ROM.*

**External Examiner**

What memories are used in your computer?

Q: 86


**You ~ Bharat Sir's Student**

*Primary Memory: DRAM ~ 4GB*

*Secondary Memory: Hard Disk ~ 1TB*

*Cache Memory: SRAM ~ 3MB*

*Portable Memory: CD – 700MB, DVD – 4.7GB. Pen Drives: Flash ROM of any size.*



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