



Name :

Roll No. :

Invigilator's Signature :

CS/B.Tech (ICE) (N)/SEM-5/IC-504C/2012-13

2012

MICROPROCESSOR & MICROCONTROLLER

Time Allotted : 3 Hours

Full Marks : 70

The figures in the margin indicate full marks.

*Candidates are required to give their answers in their own words
as far as practicable.*

GROUP – A

(Multiple Choice Type Questions)

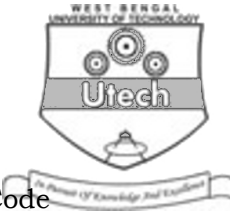
1. Choose the correct alternatives for any *ten* of the following :

$$10 \times 1 = 10$$

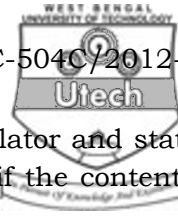
- i) The contents of registers 'B' & 'C' are 25 & 45 respectively. What will be the contents of 'B' & 'C' after executing the instruction MOV B, C ?
- a) 45,45 b) 45,25
c) 45,0 d) 00,45.
- ii) A single instruction to clear the lower order 4 bits of the accumulator in 8085 microprocessor is
- a) XRI 0F b) ANI F0H
c) ANI 0FH d) XRI F0H.
- iii) When the instruction LHL D is executed, no. of T-state required are
- a) 10 b) 14
c) 13 d) 16.

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- iv) The instruction register holds
 - a) Flag condition b) Op-Code
 - c) Instruction Address d) Hex Code.
- v) A 3-byte instruction should have
 - a) op-code & one operand
 - b) op-code only
 - c) operand only
 - d) op-code & 2 operands.
- vi) Whenever the PUSH instruction is executed, the stack pointer is
 - a) Decrement by 1 b) Decrement by 2
 - c) Increment by 1 d) Increment by 2.
- vii) Machine cycles for IN instruction are
 - a) 6 b) 5
 - c) 4 d) 3.
- viii) In order to enable TRAP interrupt, which of the following instructions is needed ?
 - a) EI only b) SIM only
 - c) EI and SIM d) None of these.
- ix) In 8085 microprocessor, the addressable memory is
 - a) 64 kB b) 1 MB
 - c) 4 kB d) 16 kB.
- x) PSW is a/an register.
 - a) 8 bits b) 16 bits
 - c) 20 bits d) 32 bits.



- xi) What will be the content of the accumulator and status of Carry (CY) flag after RLC operation, if the content of the accumulator is BC H and CY is 0 ?
- a) 79 H, 1 b) 78 H, 1
c) 5E H, 0 d) 5D H, 0.
- xii) What is the addressable memory capacity of 8086 microprocessor in real mode ?
- a) 64 kB b) 1 MB
c) 16 MB d) 4 GB.
- xiii) In 8051 microcontroller, pin is used to select external ROM.
- a) ALE b) \overline{EA}
c) \overline{PSEN} d) RESET.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. $3 \times 5 = 15$

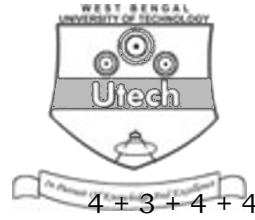
2. Explain the architecture of 8085.
3. How the lower order address byte of 8085 is demultiplexed ?
4. What do you mean by 8-bit microprocessor ? Explain the two pins of 8085 :
RESET and HOLD $1 + 2 + 2$
5. Explain the function of DAA for 8085 microprocessor.
6. Explain subroutine and nested subroutine. $2 + 3$

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. $3 \times 15 = 45$

7. a) What is the difference between microprocessor and microcontroller ?
b) Discuss the memory organization of 8051 microcontroller.



- c) Explain interrupts of 8051 controller.
- d) Explain SFR of 8051 microcontroller. $4 + 3 + 4 + 4$
8. a) What are the main functions of BIU and EU of 8086 microprocessor ?
- b) Describe MIN/MAX mode operations of 8086 microprocessor.
- c) Describe the different addressing modes of 8086 microprocessor.
- d) How is pipelining achieved in 8086 microprocessor ? $3 + 4 + 4 + 4$
9. a) Explain the hardware & software interrupts of 8085.
- b) Explain the instruction : PUSH H, PCHL.
- c) Explain the SID and SOD pins of 8085. $7 + 4 + 4$
10. a) Explain the different modes of 8254 timer.
- b) Draw & explain the block diagram of PIC 8259.
- c) Describe 8255 Control word format for I/O mode. $5 + 5 + 5$
11. Write short notes on any *three* of the following : 3×5
- a) DMA Controller
- b) Flags of 8085
- c) I/O mapped I/O & memory mapped I/O
- d) Read back command.
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