

CS/B.Tech/CSE/Odd/Sem-5th/CS-502/2014-15

CS-502**MICROPROCESSOR AND MICROCONTROLLER**

Time Allotted: 3 Hours

Full Marks: 70

*The questions are of equal value.**The figures in the margin indicate full marks**Candidates are required to give their answers in their own words as far as practicable.*

70

GROUP A
(Multiple Choice Type Questions)

1. Answer any ten questions.

10×1 = 10

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(i) Which stack is used in 8085?

- (A) FIFO (B) LIFO
(C) FILO

(ii) Why 8085 processor is called an 8 bit processor?

- (A) because 8085 processor has 8 bit ALU
(B) because 8085 processor has 8 bit data bus.
(C) (A) and (B)

(iii) What is SIM?

- (A) select interrupt mask (B) sorting interrupt mask
(C) set interrupt mask

(iv) What does microprocessor speed depends on?

- (A) clock (B) data bus width
(C) address bus width

(v) Address line for RST 3 is?

- (A) 0020H (B) 0018H
(C) 0081H

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[Turn over]

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(vi) The memory addressing mode that takes the least time is

- (A) direct addressing (B) indexed addressing
(C) immediate addressing (D) inherent addressing.

(vii) Which of the following is a user programmable register?

- (A) memory address register (B) accumulator
(C) program counter (D) all of these.

(viii) The total I / O space available in 8085 if used peripheral mapped I / O

- (A) 64 (B) 128
(C) 256 (D) 512

(ix) The size of 8086 queue is

- (A) 2 bytes (B) 4 bytes
(C) 6 bytes (D) 8 bytes

(x) Mode 3 of 8253 is a

- (A) rate generator (B) square wave generator
(C) software triggered strobe (D) hardware triggered strobe

(xi) The number of 16 bit timer/counter register present in 8051 is

- (A) 2 (B) 3
(C) 4 (D) 5

(xii) What is the condition that BIU can suspend fetching instruction?

- (A) current instruction requires access to memory or I / O port
(B) a transfer control instruction (JMP or CALL) occurs
(C) instruction queue is full
(D) none of these.

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GROUP B
(Short Answer Type Questions)

Answer any *three* questions.

3×5 = 15

2. State the difference between architectures of microprocessor and microcontroller.
3. Explain the role of the following pins of 8086 μP :
NMI, \overline{DEN} , DT/\overline{R} , \overline{BHE} , MN/\overline{MX}
4. Write a program to store 32H in R1 of Register bank 3 of 8051 μC .
5. Write in brief on 8086 interrupts.
6. What is the difference between CALL and JUMP instruction in case of 8085 microprocessor? Explain with an example.

GROUP C
(Long Answer Type Questions)

Answer any *three* questions.

3×15 = 45

7. (a) Describe the different addressing modes of 8086 microprocessors. 3
- (b) What are the main functions of BIU and EU unit of 8086 microprocessors? 2+2
- (c) Write the assembly language statement which will perform the following operations: 8
 - (i) copy the BP register content to SP register.
 - (ii) copy the contents of AX register to the DS register.
 - (iii) Load the number F2 H into AL register.
 - (iv) Load the number 1456H into BP register.

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8. (a) Draw the timing diagram for LDA instruction. 5
- (b) What do you mean by MODE 0, MODE 1, MODE 2 operation of 8255? 4
- (c) Write the BSR control word for setting PC4 in 8255A. 2
- (d) What are functions of major components in 8259 interrupt controller? 4
9. (a) Write a program to compute HCF of two 8 bit nos. 5
- (b) Draw the timing diagram for the instruction JMP. 5
- (c) Design how one 1K ROM and one 2K RAM can be interfaced with the 8085. Starting from the address 0000H 5
- 10.(a) What are the flags supported by 8051 controller? What is meant by Power-on-Reset in 8051 controller? What are the significance of SFRs in 8051 Microcontroller? 6+3+6
11. Write short notes on any *three* of the following: 3×5=15
 - (a) Function of 8251 USART
 - (b) DMA
 - (c) Pipelining in 8086 microprocessor
 - (d) BSR mode of 8255
 - (e) Interrupts of 8085 microprocessor