POSTAL Book Package 2023

GATE • PSUs

Instrumentation Engineering

Objective Practice Sets

Microprocessors

Contents

MADE EASY Publications

1 CHAPTER
Introduction to 8085 and its Functional Organisation

MCQ and NAT Questions

Q.1 Microprocessor 8085 is the enhanced version of ____ with essentially the same construction set.
(a) 6800 (b) 68000
(c) 8080 (d) 8000

Q.2 The data bus in 8080A / 8085 microprocessor is a group of
(a) eight bidirectional lines that are used to transfer 8 bits between the microprocessor and its I/O and memory
(b) eight lines used to transfer data among the registers
(c) eight unidirectional lines that are used for I/O devices
(d) sixteen bidirectional lines that are used for data transfer between the microprocessor and memory

Q.3 Three devices A, B and C are connected to an Intel 8085 A microprocessor. Device A has the highest priority and device C has the lowest priority. The correct assignment of interrupt inputs is
(a) A uses RST 5.5, B uses RST 6.5 and C uses TRAP
(b) A uses RST 5.5, B uses RST 6.5 and C uses RST 7.5
(c) A uses TRAP, B uses RST 6.5 and C uses RST 5.5
(d) A uses TRAP, B uses RST 5.5 and C uses RST 7.5

Q.4 The output data lines of microprocessors and memories are usually tristated, because
(a) More than one device can transmit information over the data bus by enabling only one device at a time
(b) More than one device can transmit information over the data bus at the same time
(c) The data lines can be multiplexed for both input and output
(d) It increases the speed of data transfers over the data bus

Q.5 Machine instructions are written using which of the following?
(a) Bits 0 and 1 only
(b) Digits 0 to 9 only
(c) Digits 0 to 9 and the capital alphabets A to Z only
(d) Digits 0 to 9, the capital alphabets A to Z and certain special characters

Q.6 An 8085 μp based system drives a multiplexed 5-digits 7-segment display. The digits are refreshed at a rate of 500 Hz. The ON time for each digit is
(a) 4 ms (b) 0.4 ms
(c) 10 ms (d) 25 ms

Q.7 A memory chip can be represented as 8192×32. If there are p number of address lines and q number of data lines for the memory chip, then q-p will be equal to _____.

Q.8 What is the function of a program counter in an 8-bit microprocessor?
(a) To store the op-code of the instruction being executed
(b) To store the op-code of the next instruction
(c) To store the address of the instruction being executed
(d) To store the address of the next instruction

Q.9 When an application is designed using a microcontroller it has the following advantages over a design based on a microprocessor :
1. Its chip count is less.
2. It is more fault tolerant.
3. It is cheaper.

Which of these are correct?
(a) 1, 2 and 3 (b) 1 and 2 only
(c) 1 and 3 only (d) 2 and 3 only

Q.10 An 'Assembler' in a microprocessor is used for
(a) assembly of processors in a production line
(b) creation of new programs using different modules

Q.23 Match **List-I** with **List-II** and select the correct answer using the codes given below the lists:

List-I

A. TRAP
B. RST 7.5
C. RST 6.5
D. RST 5.5

List-II

1. Level - sensitive
2. Edge - sensitive
3. Both Level and Edge - sensitive

Codes:

	A	B	C	D
(a)	2	3	1	1
(b)	3	2	1	1
(c)	3	1	2	2
(d)	1	3	2	2

Q.24 Consider the following statements regarding RESET instruction of 8085 microprocessor:

1. PC contents become 0000H.
2. All interrupts are enabled.
3. RESET OUT pin is at logic 0.

Which of the above statements is/are correct?

(a) 1 only (b) 2 only
(c) 1 and 2 (d) 2 and 3

Q.25 Consider the following features in an 8085 microprocessor system with memory mapped I/O:

1. I/O devices have 16-bit addresses.
2. I/O devices are accessed using IN and OUT instructions.
3. There can be maximum of 256 input devices and 256 output devices.
4. Arithmetic and logic operations can be directly performed with the I/O data.

Select the correct answer using the codes given below:

Codes:

(a) 1, 2 and 4 (b) 1, 3 and 4
(c) 2 and 3 (d) 1 and 4

Q.26 Match **List-I** (Pre terminals) with **List-II** (Applications) and select the correct answer using the code given below the lists:

List-I	**List-II**
A. SID, SOD	**1.** Wait state
B. Ready	**2.** Interrupt
C. TRAP	**3.** Serial data transfer
D. ALE	**4.** Memory or I/O read/ write
	5. Address latch control

Codes:

	A	B	C	D
(a)	3	1	5	2
(b)	3	1	2	5
(c)	4	3	2	5
(d)	4	3	1	2

Q.27 In 8085 microprocessor, the RST 6.5 instruction transfers the program execution to the following location

(a) 34 H (b) 24 H
(c) 48 H (d) 60 H

Multiple Select Questions (MSQs)

Q.28 Which one of the following statement(s) is/are not correct?

A microcontroller differs from a microprocessor in that it has

(a) both on-chip memory and on-chip ports.
(b) only on-chip memory but not on-chip ports.
(c) only on-chip ports but not on-chip memory.
(d) neither on-chip memory nor on-chip ports.

Q.29 Which of these 8-bit registers of 8085 μP can be paired together to make a 16-bit register?

(a) Accumulator and B register
(b) B and C registers
(c) D and E registers
(d) H and L registers

■■■■

Answers Introduction to 8085 and its Functional Organisation

1.	(c)	2.	(a)	3.	(c)	4.	(a)	5.	(a)	6.	(b)	7.	(19)
8.	(d)	9.	(a)	10.	(c)	11.	(d)	12.	(b)	13.	(c)	14.	(a)
15.	(7)	16.	(c)	17.	(400)	18.	(36)	19.	(a)	20.	(d)	21.	(d)
22.	(d)	23.	(b)	24.	(a)	25.	(d)	26.	(b)	27.	(a)	28.	(b, c, d)
29.	(b, c, d)												

Explanations Introduction to 8085 and its Functional Organisation

1. (c)

8085 is advanced version of Intel 8080.

2. (a)

Data bus is of 8-bits and bidirectional and transfer data between microprocessor and memory/IO.

3. (c)

Priority order:

TRAP > RST 7.5 > RST 6.5 > RST 5.5 > INTR

4. (a)

The output data lines of microprocessor and memories are tristate because more than one device can transmit information over the data bus by enabling only one device at a time.

5. (a)

A programme written with 0's and 1's is called machine language programme. However sometime to facilitate programmer, machine code can be written in hexadecimal numbers.

6. (b)

At a time 8085 can drive only a digit. In a second, each digit is refreshed 500 times. Thus time given to each digit

$$= \frac{1}{(5 \times 500)} = 0.4 \text{ ms}$$

7. (19)

Given: Memory chip $8192 \times 32 = 2^{13} \times 32$

$\therefore$ 13 address lines and 32 data lines

$\therefore \quad q - p = 32 - 13 = 19$

8. (d)

It is used to store 16-bit address of the next byte to be fetched from memory or address of the next instruction to be executed.

9. (a)

A microcontroller is an embedded system with some specific functions like vending machine, electronic parking meters. The processor has to perform simple and low grade computational functions. So the process is simple and cheaper. Its chip count i.e. number of chips circuitry is less. A microcontroller is put into function once and the system where it is used is rugged. No changes or complexities are required. It is immune to virus attacks. So it is more to be fault tolerant.

10. (c)

An 'Assembler' is used for translation of a program from assembly language to machine language.

11. (d)

Control bus have some lines into microprocessor and some out of microprocessor.

12. (b)

A program written in assembly language is translated into machine language. Number of instructions in assembly and machine language is same.

13. (c)

READY is an active high pin used to interface slow peripheral devices with 8085.

14. (a)

Stack pointer is of 16-bit register and it points to the stack memory locations and generally used in case of interrupt or PUSH, POP instructions.

15. (7)

$$0038\,H = (56)_{10}$$
$$n \times 8 = 56$$
$$n = 7$$