

INTRODUCTION TO MICROPROCESSOR TECHNOLOGY

SECTION A [40 MARKS]

Attempt **ALL** the Questions in this Section.

Question 1

- (a) Define the following: **(2 marks @)**
- (i) Sign flag
 - (ii) Parity flag
 - (iii) Addressing modes
 - (iv) Flow chart
 - (v) ALU
 - (vi) Troubleshooting Tree
 - (vii) Memory cell
 - (viii) Memory word
 - (ix) Capacity
 - (x) A bus
- (b) Give two most common failure mode for digital ICs **(2 marks)**
- (c) List some of the desirable documentation that may accompany a microprocessor system **(2 marks)**
- (d) State the purposes of accumulator in microprocessors **(2 marks)**
- (e) Show the following binary numbers in their 1's and 2's complement. **(2 marks @)**

Number	1's Complement	2's Component
i) 1011 0100	_____	_____
ii) 1000 1000	_____	_____
iii) 0101 0101	_____	_____
iv) 1111 1011	_____	_____
v) 1000 1001	_____	_____

- (f) What are the two vital purposes served by a bus in a typical microprocessor system? **(2 marks)**
- (g) Give any two major differences between microprocessors **(2 marks)**

SECTION B [60 MARKS]

Attempt **ONLY THREE** Questions in this Section.

Question 2

- a) Explain the history of Microprocessors **(5 marks)**
- b) Describe the special purpose registers **(5 marks)**
- c) Discuss the characteristics of a microprocessor that determine the power of a microcomputer **(5 marks)**
- d) Draw a block diagram of a basic microprocessor Architecture **(5 marks)**

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Question 3

- a) Describe the booting process of a CPU. **(5 marks)**
- b) Compare a microcontroller with a microprocessor **(5 marks)**
- c) Explain the various components of Operating systems **(6 marks)**
- d) Draw a well labeled pin diagram of the 8085A microprocessor unit **(4 marks)**

Question 4

- a) Explain data exchange using traditional design technique **(5 marks)**
- b) Describe the software design procedure **(5 marks)**
- c) Describe the I/O Mapped Decoding Technique **(5 marks)**
- d) Describe the characteristics of a microprocessor that determine the power of a microcomputer **(5 marks)**

Question 5

- a) Give the applications of 8bit, 16bit, 32 bit and 64-bit microprocessor **(8 marks)**
- b) Differentiate between different numbering systems and codes used by microprocessors **(6 marks)**
- c) What is a Chip **(2 marks)**
- d) Give the different types of microprocessor series with reference to the data width used **(4 marks)**

Question 6

- a) Describe the three main categories of 8085A microprocessor instruction set **(15 marks)**
- b) Explain the mode of operation of a signature analyzer **(5 marks)**

END