Total No. of Questions: 6 *Total No. of Printed Pages:3*

Enrollment No.....

Faculty of Engineering

End Sem (Odd) Examination Dec-2019

EC3CO10/EE3CO08/EI3CO10/EX3CO08

Microprocessor and Microcontroller

Programme: B.Tech. Branch/Specialisation: EC/EE/EI/EX

Duration: 3 Hrs. **Maximum Marks: 60**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d.

Q.1 i. 8085 is a: **1**

(a) 8 bit microprocessor (b) 16 bit microprocessor

(c) 32 bit microprocessor (d) None of these.

ii. Which is not part of execution unit? **1**

(a) ALU (b) Address conversion mechanism

(c) Flag register (d) General purpose registers

iii. Address bus size of the 8086 microprocessor is **1**

(a) 16 bits (b) 20 bits (c) 24 bits (d) 32 bits

iv. Physical address calculated in 8086 microprocessors is of **1**

(a) 16 bits (b) 20 bits (c) 24 bits (d) 32 bits

v. DMA controllers stands for **1**

(a) Direct Memory Alternation Controller

(b) Direct Memory Access Controller

(c) Direct Multi Access Controller

(d) Double Memory Access Controller

vi. For interrupt controller, the following chip is used- **1**

(a) 8255 (b) 8259 (c) 8257 (d) 8212

vii. When the microcontroller executes some arithmetic operations, then the flag bits of which register are affected? **1**

(a) PSW (b) SP (c) DPTR (d) PC

viii. 8051 series have how many 16 bit registers? **1**

(a) 2 (b) 3 (c) 1 (d) 0

P.T.O.

ix. ARM processors were basically designed for _____ **1**
(a) Main frame systems (b) Distributed systems
(c) Mobile systems (d) Super computers

x. The main importance of ARM micro-processors is providing operation with _____ **1**
(a) Low cost and low power consumption
(b) Higher degree of multi-tasking
(c) Lower error or glitches
(d) Efficient memory management

Q.2 Attempt any two:

i. Discuss the evolution of microprocessors in detail. **5**

ii. Draw the pin diagram of 8085 microprocessor and explain signals on it in brief. **5**

iii. What is Flag? Explain different types of flag provided in 8085. **5**

Q.3 Attempt any two:

i. With the help of block diagram explain the architecture of 8086 microprocessor. **5**

ii. Describe the instruction format of 8086. Also describe the MOV instructions of 8086. **5**

iii. Write a assembly language program for 8086 microprocessor to add two 16-bit numbers. **5**

Q.4 Attempt any two:

i. Draw the block diagram of 8251 USART and explain function of each block. **5**

ii. Draw the block diagram of programmable interrupt controller and explain its working. **5**

iii. Explain following for 8255: **5**
(a) Mode control word format
(b) Bit set/reset control word format.

Q.5 Attempt any two:

i. Explain the memory structure of 8051. **5**

ii. Explain various addressing modes of 8051 microcontroller. **5**

iii. Describe the architecture and working of 8051 microcontrollers. **5**

Q.6 Attempt any two:

i. Differentiate between RISC and CISC. **5**

ii. Write the difference between 80286, 80386 and 80486. **5**

iii. Draw and explain the Harvard architecture of microprocessor. **5**

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Marking Scheme
EC3CO10/EE3CO08/EI3CO10/EX3CO08
Microprocessor and Microcontroller

Q.1	i.	8085 is a: (a) 8 bit microprocessor		**1**
	ii.	Which is not part of execution unit? (b) Address conversion mechanism		**1**
	iii.	Address bus size of the 8086 microprocessor is (b) 20 bits		**1**
	iv.	Physical address calculated in 8086 microprocessors is of (b) 20 bits		**1**
	v.	DMA controllers stands for (b) Direct Memory Access Controller		**1**
	vi.	For interrupt controller, the following chip is used- (b) 8259		**1**
	vii.	When the microcontroller executes some arithmetic operations, then the flag bits of which register are affected? (a) PSW		**1**
	viii.	8051 series have how many 16 bit registers? (a) 2		**1**
	ix.	ARM processors were basically designed for _____ (c) Mobile systems		**1**
	x.	The main importance of ARM micro-processors is providing operation with _____ (a) Low cost and low power consumption		**1**
Q.2		Attempt any two:		
	i.	Evolution of microprocessors (1 mark for per generation/bit)	(1 mark*each)	**5**
	ii.	Diagram of 8085 microprocessor Explanation	2 marks 3 marks	**5**
	iii.	Flag format Explanation	2 marks 3 marks	**5**
Q.3		Attempt any two:		
	i.	Block diagram Explanation	2.5 marks 2.5 marks	**5**
	ii.	At three types(Instruction format) MOV instructions	2 marks 3 marks	**5**
	iii.	Code Comment	4 marks 1 mark	**5**
Q.4		Attempt any two:		
	i.	Block diagram Explanation	2.5 marks 2.5 marks	**5**
	ii.	Block diagram Explanation	2.5 marks 2.5 marks	**5**
	iii.	Explain following for 8255: (a) Mode control word format (b) Bit set/reset control word format.	 2.5 marks 2.5 marks	**5**
Q.5		Attempt any two:		
	i.	Memory structure of 8051. Internal External	 3 marks 2 marks	**5**
	ii.	Various addressing modes of 8051 microcontroller.	(1 mark*5)	**5**
	iii.	Architecture Working	2.5 marks 2.5 marks	**5**
Q.6		Attempt any two:		
	i.	Minimum 5 Difference	(1 mark*5)	**5**
	ii.	Minimum Difference	(1 mark*5)	**5**
	iii.	Diagram Explanation	2.5 marks 2.5 marks	**5**

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