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

Enrollment No.....

Faculty of Engineering

End Sem (Even) Examination May-2022

CS3EO02 Microprocessor & Microcontroller

Programme: B.Tech. Branch/Specialisation: CSE

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. A microprocessor is a …… chip integrating all the functions of a CPU of a computer. **1**

(a) Multiple (b) Single (c) Double (d) Triple

ii. Microprocessor is the……. of the computer and it perform all the computational tasks. **1**

(a) Main (b) Heart (c) Important (d) Simple

iii. The intel 8086 microprocessor is a processor- **1**

(a) 8 bits (b) 16 bits (c) 32 bits (d) 4 bits

iv. The OF is called as…… **1**

(a) Overflow flag (b) Overdue flag

(c) One flag (d) Over flag

v. The pin that clears control word register of 8255 when enabled is- **1**

(a) Clear (b) Set (c) Reset (d) Clock

vi. In the I/O mode, 8255 ports work as- **1**

(a) Reset pins (b) Set pins

(c) Programmable I/O ports (d) Only output ports

vii. In 8051 Microcontroller, Input/output ports used as address and data for external memory are- **1**

(a) Ports 1 and 2 (b) Ports 1 and 3

(c) Ports 0 and 2 (d) Ports 0 and 3

viii. In 8051 microcontroller 8-bit address bus allows access to an address range of- **1**

(a) 0000 to FFFFH (b) 000 to FFFH

(c) 00 to FFH (d) 0 to FH

P.T.O.

ix. What can be the sequence of commands that may be used for initializing an LCD? **1**

(a) 0x06, 0x0e, 0x01 (b) 0x0e, 0x01, 0x80

(c) 0x38, 0x0e, 0x01 (d) All of these

x. The function of the TMOD register- **1**

(a) TMOD register is used to set various operation modes of timer/counter.

(b) TMOD register is used to load the count of the timer.

(c) Is the destination or the final register where the result is obtained after the operation of the timer.

(d) Is used to interrupt the timer.

Q.2 i. Draw timing diagram of memory read. **2**

ii. Define machine cycle, instruction cycle and T states. **3**

iii. Explain internal architecture of 8085 microprocessor. **5**

OR iv. Draw pin diagram of 8085 and discuss its function in short. **5**

Q.3 i. Define various addressing mode of 8086. **2**

ii. Discuss following instruction set of 8086 in detail. **8**

(a) Data transfer instruction

(b) Arithmetic instruction

(c) Process control instruction

(d) Iteration control instruction

OR iii. What are the various types of interrupts we have in 8086 microprocessors? Discuss in detail. **8**

Q.4 i. Draw block diagram and give definitions of memory and IO interfacing in 8086. **3**

ii. How DMA operations are performed? Explain DMA controller interfacing. **7**

OR iii. Difference between 8253 and 8254. Draw architecture and pin diagram of 8254. **7**

Q.5 i. Difference between microprocessor and microcontroller. **4**

ii. What is various type of interrupt in 8051? Explain IE register in detail. **6**

OR iii. Discuss the architecture of 8051 microcontroller. **6**

Q.6 Attempt any two:

i. Interfacing of microcontroller with stepper motor. **5**

ii. Interfacing of microcontroller with seven segment display. **5**

iii. Interfacing of microcontroller with ADC. **5**

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Marking Scheme

CS3EO02 Microprocessor & Microcontroller

Q.1 i. A microprocessor is a …… chip integrating all the functions of a CPU of a computer. **1**
(b) Single

ii. Microprocessor is the……. of the computer and it perform all the computational tasks. **1**
(b) Heart

iii. The intel 8086 microprocessor is a processor- **1**
(b) 16 bits

iv. The OF is called as…… **1**
(a) Overflow flag

v. The pin that clears control word register of 8255 when enabled is- **1**
(c) Reset

vi. In the I/O mode, 8255 ports work as- **1**
(c) Programmable I/O ports

vii. In 8051 Microcontroller, Input/output ports used as address and data for external memory are- **1**
(c) Ports 0 and 2

viii. In 8051 microcontroller 8-bit address bus allows access to an address range of- **1**
(c) 00 to FFH

ix. What can be the sequence of commands that may be used for initializing an LCD? **1**
(c) 0x38, 0x0e, 0x01

x. The function of the TMOD register- **1**
(a) TMOD register is used to set various operation modes of timer/counter.

Q.2 i. Draw timing diagram of memory read. **2**

ii. Define machine cycle 1 mark **3**
Instruction cycle 1 mark
T states 1 mark

iii. Internal architecture of 8085 microprocessor **5**
As per explanation

OR iv. Draw pin diagram of 8085 2 marks **5**
Its function 3 marks

Q.3 i. Define various addressing mode of 8086. **2**
As per the explanation

ii. Discuss following instruction set of 8086 in detail. **8**
(a) Data transfer instruction 2 marks
(b) Arithmetic instruction 2 marks
(c) Process control instruction 2 marks
(d) Iteration control instruction 2 marks

OR iii. Types of interrupts in 8086 microprocessors 3 marks **8**
Explanation of them 5 marks

Q.4 i. Block diagram of memory and IO interfacing in 8086 **3**
1 mark
Definitions of memory and IO interfacing in 8086 2 marks

ii. DMA operations are performed 2 marks **7**
DMA controller interfacing 5 marks

OR iii. Difference between 8253 and 8254 3 marks **7**
Architecture and pin diagram of 8254 4 marks

Q.5 i. Difference between microprocessor and microcontroller **4**
1 mark for each point (1 mark * 4)

ii. Type of interrupt in 8051 2 marks **6**
IE register 4 marks

OR iii. Architecture of 8051 microcontroller 2 marks **6**
Explanation 4 marks

Q.6 Attempt any two:

i. Interfacing of microcontroller with stepper motor. **5**
As per the explanation

ii. Interfacing of microcontroller with seven segment display. **5**
As per the explanation

iii. Interfacing of microcontroller with ADC. **5**
As per the explanation

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