

P.R. GOVERNMENT COLLEGE (A), KAKINADA
B.Sc. III Year - Electronics – Semester – V
w.e.f. 2017-18 ADMITTED BATCH

PAPER – 5 [Code: EL5202]
MICROPROCESSORS (INTEL 8085)

3 Hours/Week [Total: 45 hrs]

Credits: 3

Course Learning Outcomes

The subject aims:

- ✓ Knowledge of microcomputer and microprocessor
- ✓ Comprehension about Programming Examples
- ✓ Know the applications of Interfacing of devices
- ✓ Evaluate the Cycles
- ✓ Analysis of each Block

Learning Outcomes:

Students will be able to:

- Recall data and control buses.
- Recognize PIN configuration of 8085 and its description
- Observe classification of instructions
- Illustrate Interfacing of I/O devices
- Demonstrate programmable timer/counter(8253)

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Syllabus

UNIT- I (10 hrs)

Architecture of 8085 Microprocessor

Block diagram of Intel 8085-Register structure- multiplexing & Demultiplexing of address / data bus - Control Signal Generation and status signals - 8085 pin-out diagram & functions - Interrupts

Instruction set of 8085 -Instruction set classification - addressing modes

UNIT - II (8 hrs)

Memory:

Instruction cycle - machine cycle - T-state -Timing diagrams for Opcode Fetch Cycle Memory Read, Memory Write, I/O Read, I/O Write.

UNIT- III (9 hrs)

Programming of 8085:

Addition & subtraction (8 – Bit & 16-bit), multiplication, division, largest, smallest (all 8-bit data), Ascending & Descending order (8 bit) - Stack & Subroutines (Concept only) - Debugging (concept).

UNIT- IV (9 hrs)

Interfacing Memory:

2K X 8 ROM, RAM to 8085 interfacing, interfacing an I/O port in Memory Mapped I/O and I/O Mapped I/O - Difference between I/O mapped I/O and Memory Mapped I/O.

UNIT - V (9 hrs)

Microprocessor applications:

Programmable peripheral device (8255) - Block Diagram - Pin functions – Modes. 8279 - Architecture & block diagram – interfacing stepper motor with 8085.

TEXTBOOKS

1. Ramesh S. Gaonakar, Microprocessor Architecture, Programming and Application with the 8085 - Penram International Publishing, Mumbai.
2. Ram, Fundamentals of microprocessors and microcomputers - Dhanpat Rai Publications, New Delhi
3. Microprocessors & Microcontrollers by N .Senthilkumar, M. Saravanan & S. Jeevananthan, 1st edition, Oxford press (Helpful for interfacing applications)
4. Microprocessors & Microcontrollers by B.P.Singh, Galgotia publications Pvt.Ltd.

REFERENCE BOOKS

1. Mathur A.P., Introduction to Microprocessors. (3rd edn, Tata McGraw, New Delhi,
2. Leventhal L.A., Microprocessor Organization and Architecture, Prentice Hall India.
3. Microprocessor lab premier by K.A.Krishnamurthy
 1. Addition & Subtraction (8-bit)
 2. Addition & Subtraction (16-bit)

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MODEL QUESTION PAPER

Note: - Set the question paper as per the blue print given at the end of this model paper.

TIME: 2 1/2 Hrs

Max Marks: 60

Section	Questions to be given	Questions to be answered	Marks
A	5	3	3 x 10M = 30M
B	9	6	6 x 5 M = 30M
Total	14	9	60M

Blue Print

Chapter Name	Essay Questions 10 marks	Short Questions 5 marks	Programs 5 marks	Marks allotted
Architecture of 8085 Microprocessor	1	2	---	20
Memory	1	2	---	20
Programming 8085	1	---	2	20
Interfacing memory	1	2	---	20
Microprocessor applications	2	2	---	30
Total Marks				110

PAPER – 5 SEMESTER - 5
MICROPROCESSORS (INTEL 8085)

QUESTION BANK

ESSAY ANSWER TYPE QUESTIONS

UNIT-I: Architecture of 8085 Microprocessor

1. Draw the 8085 pin-out diagram & explain each pin functioning.
2. Draw the Block diagram of Intel 8085 and explain each block.
3. Explain in detail about Control Signal Generation and status signals of 8085.
4. Explain about Register structure, multiplexing & de-multiplexing of address / data bus in 8085.
5. Write in detail about Instruction set classification of 8085.
6. Write about the addressing modes and interrupts in 8085.

UNIT-II: Memory

1. Explain about Instruction cycle, machine cycle, T-state in 8085.
2. Draw the timing diagrams for Opcode Fetch Cycle and explain the process in detail.
3. Write in detail about Memory Read, Memory Write, I/O Read, I/O Write operations.

UNIT-III: Programming of 8085

1. Explain in detail about addition, subtraction, multiplication and division with an example.
2. Explain about Stack & Subroutines, Debugging in 8085.
3. Explain Ascending & Descending order (8 bit) with an example.
4. Write about Stack & Subroutines in 8085. And also explain debugging in 8085.

UNIT-IV: Interfacing Memory:

1. Explain 2K X 8 ROM, RAM to 8085 interfacing in detail.
2. Write about interfacing an I/O port in Memory Mapped I/O and I/O Mapped I/O.
3. Write difference between I/O mapped I/O and Memory Mapped I/O.

UNIT-V: Microprocessor applications

1. Draw and explain Block Diagram of 8255.
2. Draw the pin configuration of 8255 and explain the modes of 8255.
3. Draw the Architecture of 8279 and explain in detail,
4. Draw the block diagram of 8279 and explain each block.
5. Explain about the interfacing of stepper motor with 8085.

SHORT ANSWER TYPE QUESTIONS

UNIT-I:Architecture of 8085 Microprocessor

1. Draw the 8085 pin-out diagram.
2. Explain interrupts in 8085.
3. Explain addressing modes of 8085.
4. Draw the Block diagram of Intel 8085.
5. Explain about 8085-Register structure.

UNIT-II:Memory

1. Draw the Timing diagrams for Opcode Fetch Cycle in 8085.
2. Write short note on Memory Read, Memory Write in 8085.
3. Write short note on I/O Read, I/O Write in 8085.
4. Explain about Instruction cycle and machine cycle of 8085.

UNIT-IV:Interfacing Memory:

1. Explain about interfacing an I/O port in Memory Mapped I/O.
2. Explain about interfacing an I/O port in I/O Mapped I/O.
3. Write any 5 Differences between I/O mapped I/O and Memory Mapped I/O.
4. Explain the interfacing of 2K*8 RAM to 8085.
5. Explain the interfacing of 2K*8 ROM to 8085.

UNIT-V: Microprocessor applications:

1. Write short notes on modes of Programmable peripheral device (8255).
2. Draw the block diagram of 8255.
3. Draw the block diagram of 8279.
4. Explain about the stepper motor working.

PROGRAMMING

UNIT-III:Programming of 8085

1. Write a program on subtraction of two 8-bit numbers.
2. Write a program on multiplication of two 16-bit numbers.
3. Write a program on 16 bit addition.
4. Write a program on largest of set numbers each of 8-bit.