**KABARAK UNIVERSITY**

**UNIVERSITY EXAMINATIONS**

**MAIN CAMPUS**

**SECOND SEMESTER, 2020/2021 ACADEMIC YEAR**

**EXAMINATION FOR THE DEGREE OF COMPUTER SCIENCE BSC IT**

**COMP 454 INTE 453: MICROPROCESSOR INTERFACING**

**STREAM: Y4S1 TIME: 2:00-4:00PM**

**EXAMINATION SESSION: MAY-AUGUST DATE: 26/08/2021**

**INSTRUCTIONS TO CANDIDATES**

1. **Answer Question 1 and any othertwo questions in the answer booklet provided.**
2. **Do not write on your question papers. All rough work should be done in your answer booklet.**
3. **Clearly indicate which question you are answering.**
4. **Write neatly and legibly.**
5. **Edit your work for language and grammar errors.**
6. **Follow all the instructions in the answer booklet**

**SECTION A: (COMPULSORY) TOTAL MARKS FOR THIS SECTION IS 30.**

**1.**

1. Describe the functions of the following 8085 microprocessor pins (3 Marks)
2. INT
3. HOLD
4. READY
5. Differentiate between Iteration Control Instructions Interrupt Instruction (4 marks)
6. With the aid of a timing diagram illustrate how a memory fetch is affected (6 marks)
7. Differentiate between a microprocessor and a microcomputer (2 marks)
8. Use a well labeled diagram to describe the 3 bus system of 8085 based computer (4 marks)
9. Describe the following types of I/O accessing techniques (2 Marks)
10. Peripheral or Direct I/O
11. Memory mapped I/O
12. Discuss major characteristics of a RISC processor (4 marks)
13. What is a Vector interrupt (3 Marks)

**SECTION B. TOTAL MARKS FOR THIS SECTION IS 40.**

**ANSWER ANY TWO QUESTIONS FROM THIS SECTION. EACH QUESTION IN THIS SECTION CARRIES 20 MARKS.**

**2.**

1. Explain 8085 functional units (4 Marks)
2. Describe the pins of a 8085 microprocessor (4 Marks)
3. Differentiate the following control signals RD, WR & ALE. (4 Marks)
4. Discuss the following Three status signals IO/M, S0 & S1. (4 marks)
5. Deffrentiate between Maskable interrupt Non-Maskable interrupt (4 Marks)

**3.**

1. Interrupts are the signals generated by external devices to request the microprocessor to  
   perform a task. Explain 5 different interrupt signals we have in major microcontrollers(4 marks)
2. What are the major Addressing Modes in 8085 (4 Marks)
3. Differentiate the following Interrupts mentioned below (4 Marks)
4. Non-Vector interrupt: & Interrupts
5. Software interrupt:
6. Hardware interrupt:
7. Differentiate between 8085 &8086Microprocessor (4 Marks)

**4.**

1. 8086 Microprocessor is divided into two functional units, EU (Execution Unit) and BIU  
   (Bus Interface Unit). Differentiate the two functional units (4 marks)
2. Explain the following Pin configuration in 8086 (6 Marks)
3. 𝐓𝐄𝐒𝐓 ̅̅̅̅̅̅̅̅̅̅.
4. MN/𝑴𝑿 ̅̅̅̅̅.
5. INTA.
6. ALE
7. DEN
8. DT/R

Discuss into details 8086microprocessor instructions (10 Marks)

**5.**

1. Instructions are used to transfer the data from the source operand to the destination  
   operand. list different instructions set under 8086 (4 Marks)
2. What is an interrupt service Routine (2 Marks)
3. Why is The INTR a Maskable interrupt (2 Marks)
4. What is a Bit Manipulation Instruction (2 marks)
5. There are three basic multiprocessor configurations. Discuss (3 Marks)
6. Differentiate the following microprocessor instruction set (6 Marks)
7. Data Transfer Instructions
8. Arithmetic Instructions
9. Bit Manipulation Instructions
10. String Instructions
11. Program Execution Transfer Instructions (Branch & Loop Instructions)
12. Processor Control Instructions